PATENT AND TRADEMARK OFFICE AUTHORIZATION

HEARINGS

BEFORE THE

SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES, AND THE ADMINISTRATION OF JUSTICE

OF THE

COMMITTEE ON THE JUDICIARY HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

SECOND SESSION

ON

H.R. 5602

PATENT AND TRADEMARK OFFICE AUTHORIZATION

MARCH 11 AND APRIL 22, 1982

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PATENT AND TRADEMARK OFFICE AUTHORIZATION

THURSDAY, MARCH 11, 1982

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES,
AND THE ADMINISTRATION OF JUSTICE,
COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:55 a.m., in room 2226, Rayburn House Office Building, Hon. Robert W. Kastenmeier (chairman of the subcommittee) presiding.

Present: Representatives Kastenmeier, Frank, Sawyer, and Butler.

Staff present: Bruce A. Lehman, counsel; Thomas E. Mooney, associate counsel; and Audrey K. Marcus, clerk.

Mr. KASTENMEIER. The committee will come to order.

As a result of an amendment to the 1981 Budget Reconciliation legislation in the Senate, the Patent and Trademark Office must now be authorized annually.

At the request of the Secretary of Commerce and the Commissioner of Patents and Trademarks, I have introduced H.R. 5602, which accomplishes this purpose.

[A copy of H.R. 5602 follows:]

97TH CONGRESS
2D SESSION

H. R. 5602

To authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 24, 1982

Mr. KASTENMEIER introduced the following bill; which was referred to the Committee on the Judiciary

---

A BILL

To authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is authorized to be appropriated for the payment of salaries and necessary expenses of the Patent and Trademark Office to become available October 1, 1982, $68,086,000 and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law. When so specified and to the extent provided in an appropriation Act, any amount appropriated pursuant to this section and, in addition,

such fees as shall be collected pursuant to title 35, United States Code, and the Trademark Act of 1946, as amended (15 U.S.C. 1051 et seq.), may remain available without fiscal year limitation.

SEC. 2. Notwithstanding any other provision of law, there is authorized to be appropriated for the payment of salaries and expenses of the Patent and Trademark Office, $121,461,000 for the fiscal year ending September 30, 1982, and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

SEC. 3. (a) Section 41(b) of title 35, United States Code, is amended (1) by deleting "25" and inserting in its place "not more than 50"; and (2) by deleting "50" and inserting in its place "100".

(b) Section 41(c) of title 35, United States Code, is amended by deleting "25 per centum" and inserting in its place the phrase ", together with fees collected under subsection (b) of this section, 100 per centum".

(c) Section 41 of title 35, United States Code, is amended (1) by redesignating subsection (d), (e), (f), and (g) as subsection (e), (f), (g), and (h), respectively; and (2) by inserting the following new subsection (d):

"(d)(1) The Commissioner may accept the payment of any maintenance fee required by subsection (c) of this section

after the six-month grace period if the delay in payment is shown to the satisfaction of the Commissioner to have been unavoidable. The Commissioner may require the payment of a surcharge as a condition of accepting payment of any maintenance fee after the six-month grace period. If the Commissioner accepts payment of a maintenance fee after the six-month grace period, the patent shall be considered as not having expired at the end of the grace period.

"(2) No patent, the term of which has been maintained as a result of the acceptance of a payment of a maintenance fee under this subsection, shall abridge or affect the right of any person or his successors in business who made, purchased or used after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection anything protected by the patent, to continue the use of, or to sell to others to be used or sold, the specific thing so made, purchased, or used. The court before which such matter is in question may provide for the continued manufacture, use or sale of the thing made, purchased, or used as specified, or for the manufacture, use or sale of which substantial preparation was made after the six-month grace period but before the acceptance of a maintenance fee under this subsection, and it may also provide for the continued practice of any process, practiced, or for the practice of which substantial preparation was made, after the six-month grace period but prior to the

acceptance of a maintenance fee under this subsection, to the extent and under such terms as the court deems equitable for the protection of investments made or business commenced after the six-month grace period but before the acceptance of a maintenance fee under the subsection.".

(d) Subsection (a) of section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), is amended by deleting "50" and inserting in its place "100".

(e) Section 42(c) of title 35, United States Code, is amended by adding the following sentence at the end thereof: "Fees available to the Commissioner under section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), shall be used exclusively for the processing of trademark registrations and for other services and materials related to trademarks.".

SEC. 4. Section 3(a) of title 35, United States Code is amended (1) by deleting the phrase "not more than fifteen"; and (2) by inserting the phrase "appointed under section 7 of this title" immediately after the phrase "examiners-in-chief".

SEC. 5. Section 111 of title 35, United States Code, is amended to read as follows:

"Application for patent shall be made, or authorized to be made, by the inventor, except as otherwise provided in this title, in writing to the Commissioner. Such application shall include (1) a specification as prescribed by section 112

of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be accompanied by the fee required by law. The fee and oath may be submitted after the specification and any required drawing are submitted, within such period and under such conditions, including the payment of a surcharge, as may be prescribed by the Commissioner. Upon failure to submit the fee and oath within such prescribed period, the application shall be regarded as abandoned, unless it is shown to the satisfaction of the Commissioner that the delay in submitting the fee and oath was unavoidable. The filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office.".

SEC. 6. (a) Section 116 of title 35, United States Code, is amended (1) by deleting the phrase "Joint inventors" from the title and inserting in its place "Inventors"; and (2) in the third paragraph, by deleting the phrase "a person is joined in an application for patent as joint inventor through error, or a joint inventor is not included in an application through error" and inserting in its place the phrase "through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application".

(b) Section 256 of title 35, United States Code, is amended to read as follows:

"**§ 256. Correction of named inventor**

"Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

"The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.".

SEC. 7. Section 6 of title 35, United States Code, is amended by deleting paragraph (d) thereof.

SEC. 8. (a) Section 8(a) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(a)), is amended (1) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

(b) Section 8(b) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(b)), is amended (1) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

SEC. 9. (a) Section 13 of the Trademark Act of 1946, as amended (15 U.S.C. 1063), is amended (1) by deleting the phrase "a verified" and inserting in its place the word "an"; (2) by adding the phrase "when requested prior to the expiration of an extension" immediately after the word "cause"; and (3) by deleting the fourth sentence.

(b) Section 14 of the Trademark Act of 1946, as amended (15 U.S.C. 1064), is amended by deleting the word "verified".

SEC. 10. Section 15 of the Trademark Act of 1946, as amended (15 U.S.C. 1065), is amended by deleting the phrase "the publication" and inserting in its place the word "registration".

SEC. 11. The first sentence of section 16 of the Trademark Act of 1946, as amended (15 U.S.C. 1066), is amended to read as follows:

"Upon petition showing extraordinary circumstances, the Commissioner may declare that an interference exists when application is made for the registration of a mark which so resembles a mark previously registered by another, or for the registration of which another has previously made application, as to be likely when applied to the goods or when used in connection with the services of the applicant to cause confusion or mistake or to deceive.".

SEC. 12. Section 21 of title 35, United States Code, is amended—

(1) by deleting the phrase "Day for taking action falling on Saturday, Sunday, or holiday" from the title and inserting in its place the phrase "Filing date and day for taking action";

(2) by inserting the following as subsection (a):

"(a) The Commissioner may by rule prescribe that any paper or fee required to be filed in the Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service or would have been deposited with the United States Postal Service but for postal service interruptions or emergencies designated by the Commissioner.";

(3) by designating the existing paragraph as subsection (b); and

(4) by inserting the word "federal" in subsection (b), as designated above, immediately after the word "a".

SEC. 13. Section 6(a) of title 35, United States Code, is amended (1) by deleting the word "and", third occurrence, and inserting in its place a comma; (2) by inserting the phrase ", or exchanges of items or services" immediately after the word "programs"; and (3) by inserting the phrase "or the

administration of the Patent and Trademark Office" immediately after the word "law", second occurrence.

SEC. 14. (a) Section 115 of title 35, United States Code, is amended by (1) deleting the phrase "shall be" and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(b) Section 261 of title 35, United States Code, is amended, in the third paragraph, by inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(c) Section 11 of the Trademark Act of 1946, as amended (15 U.S.C. 1061), is amended by (1) deleting the phrase "shall be", first occurrence, and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

SEC. 15. Section 13 of title 35, United States Code, is amended by deleting "(a) 9" and inserting in its place "(e)".

SEC. 16. (a) Sections 1 through 4, 7, and 13 through 15 of this Act shall take effect on the date of enactment of this Act. The increased percentage recovery of Office costs from maintenance fees in section 3(b) of this Act shall not apply to patents applied for prior to the date of enactment of this Act. Until maintenance fees under section 41(c) of this title, as amended by section 3(b) of this Act, are in full effect, fees under section 41(b) of this title for the processing of an application for a patent, other than for a design patent, from filing through disposition by issuance or abandonment, shall recover in aggregate 50 per centum of the estimated average cost to the Office of such processing.

(b) Section 5, 6, and 8 through 12 of this Act shall take effect six months after enactment.

Mr. KASTENMEIER. Today, we will receive formal testimony from the Commissioner of Patents on the issue. Representatives of interested business and professional groups will be scheduled to testify on subsequent dates which we will announce in the near future.

Having said that, I am very pleased to greet once again our witness. Though he is so relatively a new Commissioner, he has already appeared before this committee on at least two or three occasions. I am very pleased to greet the Honorable Gerald J. Mossinghoff, Commissioner of Patents and Trademarks.

TESTIMONY OF GERALD J. MOSSINGHOFF, COMMISSIONER OF PATENTS AND TRADEMARKS; RENE D. TEGTMEYER, ASSISTANT COMMISSIONER FOR PATENTS; BRADFORD R. HUTHER, ASSISTANT COMMISSIONER FOR FINANCE AND PLANNING; AND MARGARET M. LAURENCE, ASSISTANT COMMISSIONER FOR TRADEMARKS

Mr. MOSSINGHOFF. Thank you, Mr. Chairman. I welcome this opportunity to appear before this subcommittee to testify in support of H.R. 5602, a bill to authorize appropriations to the Patent and Trademark Office.

Accompanying me today immediately behind me is the Assistant Commissioner for Patents, Mr. Tegtmeyer; the Assistant Commissioner for Trademarks, Margaret Laurence; and the Assistant Commissioner for Finance and Planning, Bradford Huther.

H.R. 5602 has four principal purposes: (1) to authorize appropriations and the use of fee income to support the administration's fiscal year 1983 program level for the PTO of $154,934,000; (2) to increase the authorization of funding for the PTO for fiscal year 1982 by $2,500,000; (3) to double the fee-recovery ratios contained in Public Law 96-517 for patent and trademark processing in order to provide urgently needed resources to the PTO for fiscal year 1983 and subsequent years; and (4) to enact several amendments to improve the patent and trademark laws and provide enhanced service to industry and inventors.

The table on page two of my prepared statement, Mr. Chairman, summarizes the administration's budget request for fiscal year 1982 and 1983. We are currently operating on a continuing resolution which provides budget authority for fiscal year 1982 of $118,961,000. When added to the supplemental that we are requesting, and as included in section 2 of this bill, that number will become $121,461,000. Fee receipts, which under current practice are returned directly to the miscellaneous receipts of the Treasury, are estimated to be $29,600,000.

For fiscal year 1983, we are recommending budget authority of $68,086,000 to be augmented by fee receipts of $47,758,000, under Public Law 96-517 and $39,090,000 under the fee recovery ratios we are recommending, for a total program level of $154,934,000.

[The table follows:]

Fiscal year 1982:	
Budget authority (Public Law 97-92)	$118,961,000
Supplemental (H.R. 5602)	2,500,000
Total program level	121,461,000
Fee Receipts (Returned to U.S. Treasury)	(29,600,000)
Fiscal year 1983:	
Budget authority	68,086,000
Fee Receipts (Public Law 96-517)	47,758,000
Additional fee receipts (H.R. 5602)	39,090,000
Total program level	154,934,000

Mr. KASTENMEIER. If I may interrupt, would you indicate why in fiscal year 1982 there are no fee receipts. For fiscal year 1983 you have two types of fee receipts, those provided under current law and those which would be added. I don't quite understand why fee receipts are returned to the Treasury in fiscal year 1982. There is no indication of fee receipts as the component in addition to the budget authority.

Mr. MOSSINGHOFF. Yes, sir. In 1982, and as near as we can tell since the beginning of the Patent and Trademark Office, the entire amount available for the Patent and Trademark Office program was provided through appropriations and fee receipts were returned to the miscellaneous receipts.

In Public Law 96-517 that was enacted in December of 1980 under the previous administration, it was provided that fee income can now be made available to the Office to carry out our programs and respond to varying workloads and to provide greater service to industry and inventors. This administration is strongly urging that that pattern be followed and we are requesting of the Appropriations Committee authority in their bill to permit us to add to the appropriation request the fees that we receive.

Mr. KASTENMEIER. Accordingly then, if in fiscal year 1982 the same procedure had been followed, we would have fee receipts of $29,600,000, and the budget authority and the supplemental would have been reduced by that amount.

Mr. MOSSINGHOFF. In terms of public support, yes, sir. In terms of taxpayer support to the Office, that is exactly true.

The fiscal year 1982 supplemental request and the fiscal year 1983 program level reflect a strong commitment to improve substantially our service to inventors and industry. There is a lot of room for improvement.

As I have testified before, Mr. Chairman, during fiscal year 1981 we added 20,000 pending patent applications to an already huge backlog, bringing the total to 206,000 cases at the end of fiscal year 1981. That number is up now to about 206,000 cases. That backlog will continue to grow to over 240,000 cases no matter what immediate steps we take.

In addition to delaying the granting of patents and thus inhibiting the introduction of new technology into commerce, huge backlogs clog all aspects of our operations, greatly decreasing efficient processing.

Mr. KASTENMEIER. May I ask is there a direct correlation between increase in backlog and increase in the time taken between applications to issuance on an average? For example, if there is an

increase in backlog by 25 percent over a period of time, several years, would there also be a 25-percent-issuance delay?

Mr. MOSSINGHOFF. Yes, sir. Unless a case is made special for some extraordinary reason—the applicant being very old is one reason, energy-related invention being another reason—unless a case is made special, we operate on a first-in, first-out basis through our dockets, and so there is a direct correlation between backlog and time of pendency.

I believe the number is that every 10,000 cases additional in the backlog add about 1 month to the time of pendency.

An estimated 6 to 7 percent of the 24 million documents patent examiners must search to decide whether to issue a patent are either missing or misfiled. There are estimates that the number of patent documents worldwide will double by the end of this century. In the trademark side of the Office, the backlog is at a record 116,000 and the time it takes to register a trademark, about 2 years, is longer than at any previous time in history.

The administration is pursuing an aggressive three-point program for the Patent and Trademark Office to turn things around. The cost of the improvements we have formulated will be borne principally by the users of the patent and trademark systems. They are the ones who benefit most directly from the services we provide.

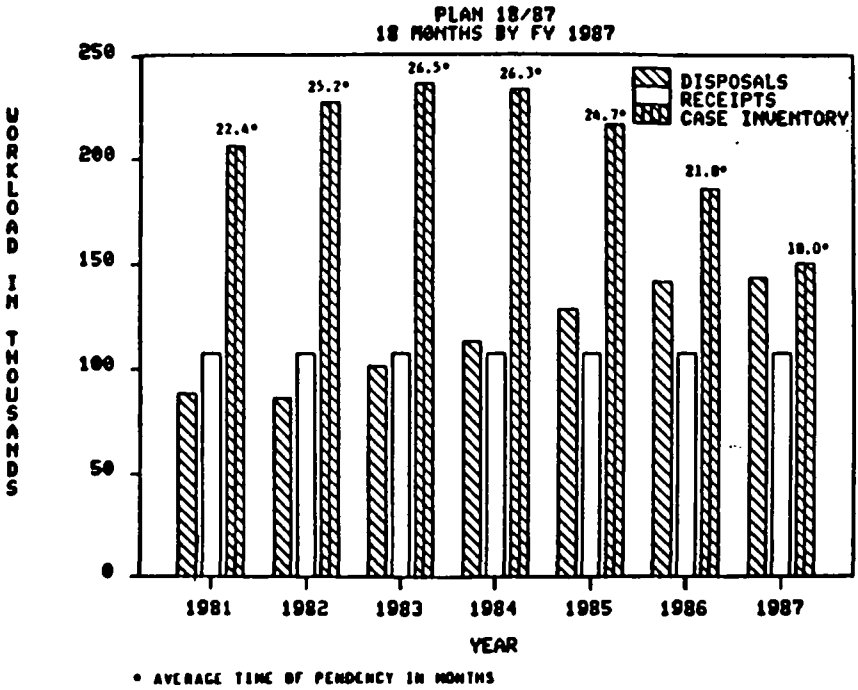
PLAN 18/87 IN PATENTS

The administration is committed to reducing the average time it takes to get a patent to 18 months by fiscal year 1987. We are calling this Plan 18/87. Figure 1 details the workflow to carry out Plan 18/87. Before we can reduce the time it takes to get a patent, we must first "turn the corner," that is, begin to dispose of more applications than we receive.

With the supplemental funding for fiscal year 1982 we are requesting, we can turn the corner in fiscal year 1984, when average pendency time will be more than 26 months. Each year that we fail to handle the increasing workload makes the job of catching up all the more difficult and costly.

[The chart follows:]

Figure 1



Mr. MOSSINGHOFF. In figure 1 of my statement, Mr. Chairman, you can see the single hashed bar is the disposals. You might look at 1981, the solid bar is receipts. In 1981, disposals were at about 88,000, receipts were at 107,500, the pending case backlog now at 206,000 is shown in the double hashed bar, and the average time of pendency is the small number above the inventory.

Mr. KASTENMEIER. The only thing I might question with respect to that graph is the rather modest expectation as far as intake. The intake is almost not increased at all.

Mr. MOSSINGHOFF. We could not make a case in the budget projections that the filings of applications would exceed 107,000. We think that that is a reasonable projection, so you are exactly right. The filing receipts are straight lined at 107,000 all the way out. The advantage of the system, however, is that we can use the fees as we are proposing. We can make adjustments in fiscal years as they occur based on the experience that we have, so it is not something which is locked in concrete. We can hire more or fewer examiners, but I tend to agree with you; I think we are being conservative.

Mr. KASTENMEIER. I would think so. I do not know what the preceding figures are, but you could take the figures from, say, 1976 to 1981, and if they are a graph that goes up, and I think you ought to extend that graph upward.

Mr. MOSSINGHOFF. They do show an increase. It is a modest increase. They show in 1979 it was 102,000, in 1980 it was 105,000, in 1981 it was 107,500, so there is about a 2,500 increase each year.

But the advantage of the plan is that we can respond to that. We do have sufficient flexibility to respond to varying workloads, if we get the use of the fee income that we are recommending. You can see that we reach a peak in 1983 and 1984. We do turn the corner in fiscal year 1984; disposals will exceed receipts. The inventory begins to come down by a corresponding amount, and we end up in 1987 with about 150,000 case, which is not a troublesome backlog at all. It is really not a backlog. It is an efficient worklog and the time of pendency will be down to 18 months .

To begin to carry out plan 18/87, we have undertaken an active recruiting campaign to hire 235 new patent examiners by the end of fiscal year 1982. Successful completion of that plan depends on enactment of the $2.5 million supplemental appropriation. Thus far, unless the Assistant Commissioner for Patents or I make an exception, we are hiring only honors graduates into the examining corps.

During fiscal year 1983 we plan to hire an additional 245 patent examiners and to strengthen all other areas of clerical and logistic support, including an expanded reclassification effort to update the examiner files and an increase in staff for the Patent Board of Appeals.

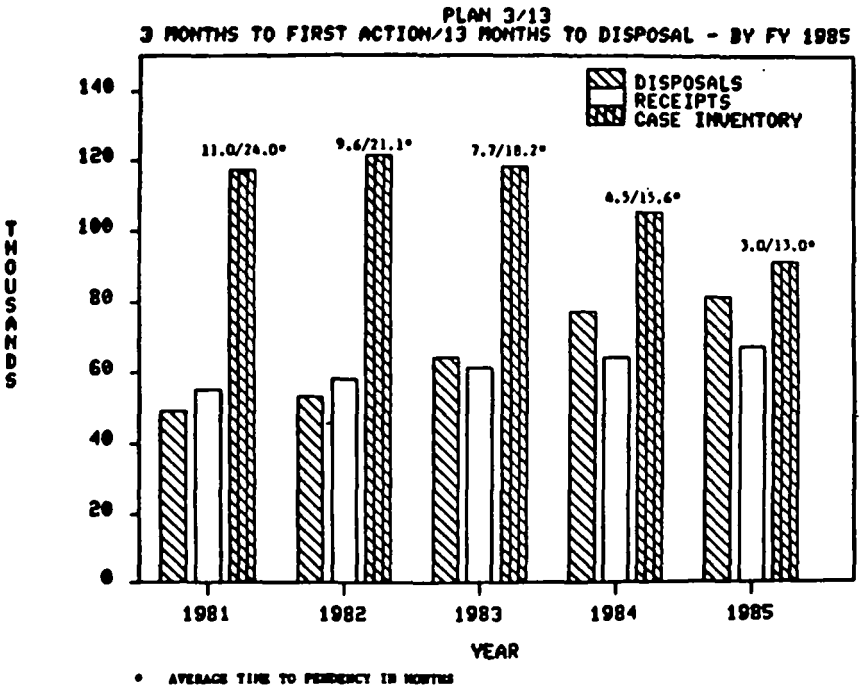
By the end of this month we will have installed word processing systems in each of the examining groups to eliminate altogether handwritten examiner opinions. That effort will be continued in fiscal year 1983. The practice of sending handwritten Office actions to applicants worldwide had become an object of well-deserved ridicule of the Office.

PLAN 3/13 BY 1985 IN TRADEMARKS

The second element of the three-point plan is to register trademarks in 13 months, with an opinion on registrability being given an applicant in 3 months. We are calling this plan 3/13, and we will achieve these goals by fiscal year 1985, as shown in figure 2.

[The chart follows:]

Figure 2



Mr. MOSSINGHOFF. Figure 2 uses the same legend as we did for the patent side. Disposals are again shown by the hashed bar, receipts by the solid bar and the triple hashed bar is the case inventory. Here we have projected about a 5-percent increase in trademark filings. That also, I think, is conservative. Our history, at least for the first quarter of this fiscal year, is that trademark applications are up by about 14 or 15 percent, so even though we have a 5-percent increase built in here, that looks like it is going to be a modest, again a conservative estimate, but again if we are able to keep the fees that we receive, we can adjust to respond to these varying workloads.

To achieve the 1985 trademark pendency goals, an additional 21 positions are required in fiscal year 1983 to permit the hiring of 15 new examiners and increased clerical and printing support. The Trademark Trial and Appeal Board will be expanded by six positions to alleviate the growing backlog of appealed cases.

Margaret Laurence has done a magnificent job in getting on top of the problems in the trademark area, in my opinion, and that has resulted in an increase in the number of publications for opposition that we have had over the past several months.

In turn, though, there is a wave of work coming at us because those publications will trigger increased oppositions and the trade-

mark appeals workload will increase. The increases we have in the budget will take care of that challenge.

AUTOMATION

The final elements of our overall planning is to take realistic steps during this adminstration toward a fully automated Patent and Trademark Office in the 1990's. It is ironic that the office that issues patents on the very latest of mass storage and retrieval technology is still virtually an all-paper and hand-file system.

During the third quarter of this fiscal year, we will install computer terminals in each of the patent and trademark examining groups to give our examiners on-line access to all commercially available automated search and retrieval systems.

In the patent and trademark area, additional resources of 15 positions and $7.7 million in fiscal year 1983 will allow the Patent and Trademark Office to undertake pilot studies to automate patent and trademark processes, as well as to upgrade and replace existing automated data processing equipment. These actions will enhance the quality of patents and trademark registrations. We are now in the final stages of a reorganization of the PTO, the principal element of which is to pull together all of the office's automation programs under a single Administrator for Automation.

INCREASED PATENT AND TRADEMARK FEES

The major increases in the three program areas will be paid for by the sharp increases in user fees that we are recommending. Specifically, we are recommending in H.R. 5602 that Congress amend Public Law 96-517 to make the actual processing of patents eventually 100 percent self-supporting—50 percent through filing and issue fees, and 50 percent through maintenance fees paid at three intervals over the 17-year life of a patent. The actual processing of design patents and trademarks, and the provision of other services—for example, selling patent and trademark copies, would be 100 percent self-supporting in fiscal year 1983, under the administration's recommendations.

Table 1, attached to my statement, shows the $154,934,000 program distributed by fee-recovery category. That is the table, Mr. Chairman, attached to the back of my statement.

[The chart follows:]

TABLE 1

Distribution of Costs
By Fee Recovery Category
(Dollars in Thousands)

LINE ITEM	FY '83 Total	Patent Process	Design Process	TM Process	Service	Non-Recov.
1. Patent Process.....	$ 66176	$ 62602	$ 1191		$ 2184	$ 199
2. Patent Clerical.....	11097	10420	144		533	
3. Appeals.....	2759	2759				
4. Interferences.....	910	910				
5. Patent Printing.....	15268	14733	92		382	61
Patent Process Subtotal....	96210	91424	1427		3099	260
6. TM Examination.....	8789			$8789		
7. TTAB	984			984		
8. TM Printing	1281			1281		
Trademark Process Subtotal	11054			11054		
9. Customer Services	8366	1472		117	4953	1824
10. Publication Svcs.....	2814	2603	17	146	48	
11. Data & Doc. Retrieval...	16600	16484			116	
Info Dissemination Subtotal.	27780	20559	17	263	5117	1824
12. Commissioner	977					977
13. Solicitor.....	1336	1225				111
14. OLIA.....	740					740
15. Management Planning	3824	260		31	80	3453
16. Administrative Svcs.....	4534	1034		326	326	2857
17. ADP.....	7730	4739		1948	23	1020
18. Quality Review	749	749				
Executive Direction Subtotal	19890	8007		2305	420	9158
TOTALS.....	$154934	$119990	$ 1444	$13622	$ 8636	$11242

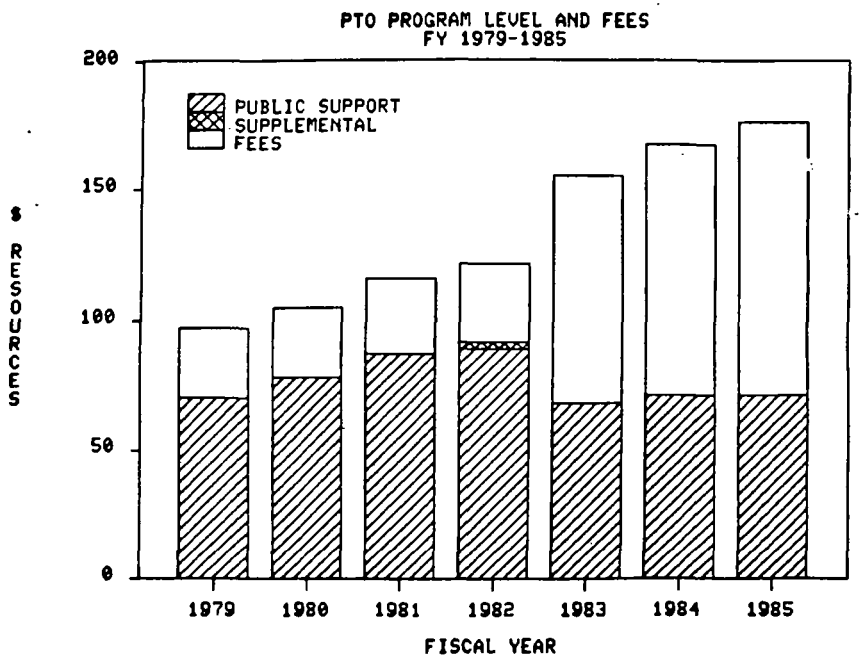
Mr. MOSSINGHOFF. Our proposals effectively would double the fee-recovery ratios for fiscal year 1983 in Public Law 96-517. This action is consistent with the administration's user fee initiatives and is based on the policy that persons who benefit most directly from specialized Federal programs should pay a greater proportion of the costs of those programs.

As is contemplated in Public Law 96-517, fees received by the Patent and Trademark Office would be available to use directly in improving service to inventors and industry.

Figure 3 shows a comparison of the PTO program levels from fiscal year 1979 through fiscal year 1985. Prior to 1983, as I pointed out in response to your question, the entire program was funded through appropriations, and fee income was returned to the general fund of the Treasury. Beginning in fiscal year 1983, fee income will be available to the Office to carry out the program recommended.

[The chart follows:]

Figure 3



Mr. MOSSINGHOFF. Figure 3 on the top of page 9 shows the program level. I have chosen the phrase "public support" because of the differences in funding mechanisms that we are recommending. You can see in fiscal year 1982 the total program level is at about $121 million. It includes the $2.5 million supplemental that is shown as the slice in the bar. In fiscal year 1983, 1984, and 1985,

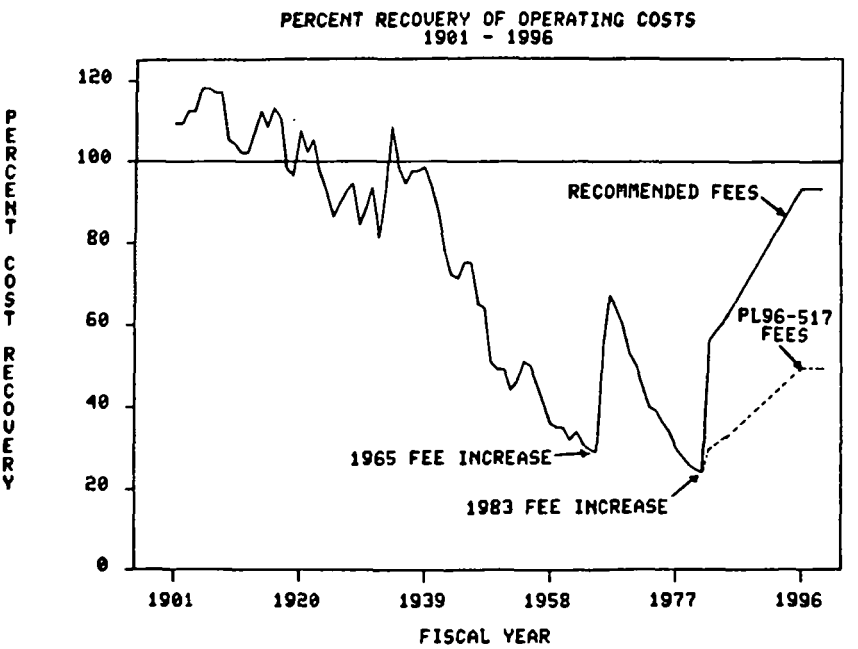
the amount of public support that the administration is recommending is decreased from the 1982 level, and the additional program is possible through the amendment we are recommending to the fee-recovery ratios.

Figure 4 that appears on page 10 of my statement shows the percent recovery of operating costs of the Patent and Trademark Office from the turn of the century through fiscal year 1996. Under the fee ratios recommended by the administration, the Patent and Trademark Office would recover about 58 percent of its operating costs during the 3-year period of fiscal year 1983 through fiscal year 1985.

Thereafter, the percentage of cost recovery would increase as patent maintenance fees are received, until the Office would receive about 93 percent of its operating costs from fee revenue by fiscal year 1996.

[The chart follows:]

Figure 4



Mr. MOSSINGHOFF. Referring to figure 4, you can see that the Office itself, from the turn of the century until approximately the early 1940's, was virtually self-sufficient through fees that were received. Indeed, in the earlier years from 1900 to about 1920, the Office was actually a source of revenue, a net source of revenue for the Treasury. The percentage recovery dropped precipitously until the 1965 fee increase, where it was raised in an effort in legislation to achieve 75 percent fee recovery.

There was again a precipitous drop until the 1983 fee increase. The dotted line shows the percentage of recovery that would occur if Public Law 96-517 is not amended. And it starts off with a recovery during the next 3 fiscal years of about 29 percent, and then increases linearly to about roughly 50 percent and would stay there. That would be the percent recovery.

Mr. KASTENMEIER. If I may interrupt, for purposes of clarity you refer to a 1983 fee increase. This is your proposal.

Mr. MOSSINGHOFF. It is either one.

Mr. KASTENMEIER. As opposed to Public Law 96-517 which does not take effect until 1983.

Mr. MOSSINGHOFF. The first year that that would be effective, if there were no amendments, is 1983 also, so either of those will go into effect on October 1 of this year.

Mr. KASTENMEIER. What you are suggesting is instead of letting Public Law 96-517 go through, building on top of it now.

Mr. MOSSINGHOFF. Yes.

Mr. KASTENMEIER. So that instead of being effective at that level, it would be effective at quite a different level.

Mr. MOSSINGHOFF. That is right, and we do need legislation. We have worried about the timing, and we do need to put a final administrative rule in place 60 days before the fee comes into effect, so it is going to be an interesting spring in terms of the timing of these actions. Either way the fees will be increased, but under Public Law 96-517 the increase will be rather minimal for the first 3 years.

The percent recovery would be 29 percent which, as you can see, is really far below the historic average of fee recovery.

Mr. KASTENMEIER. If I may again interrupt, I am not holding you to this, but my recollection was that the predictions of percent of recovery, if we enacted Public Law 96-517, as a percentage of total operating cost of the Office were much higher than that which you have here projected.

Maybe Mr. Tegtmeyer or others who were there can clarify that, but my recollection was the prediction was more toward the area of 75 percent of these maintenance fees and what not.

Mr. MOSSINGHOFF. Public Law 96-517 says 25 percent through filing and issue fees and then 25 percent through maintenance fees for patents. That is the major portion of our budget, 25 percent additional. So the maximum fee recovery in 1996 would be 50 percent under Public Law 96-517, and that same thing would be established for trademarks, so for the three big slices of our budget, it is a maximum of 50 percent, and that doesn't occur for 15 years.

Then if you balance off the amount of the Office which is nonrecoverable, my salary, the public search room and so on, against the services that we provide, that is almost a push, so the maximum that you end up with is 50 percent, and that doesn't come into play until 1996. So for fiscal years 1983 to 1985, you are talking about roughly a 29-percent recovery, which, as I say, is far below the historic average of cost recovery for the Office.

Mr. KASTENMEIER. I was going under an impression. My impression was that a representation had been made at previous hearings that the effect of the new fee increase and maintenance fee schedule would recover more than what was projected, but I am just

going on an impression. I would have to revisit that testimony to verify that.

Mr. MOSSINGHOFF. I have attached to my statement table 2, a list comparing the fees we are recommending with those established in 1965.

[The chart follows:]

TABLE 2

PATENT AND TRADEMARK FEES

	Proposed	Current
PATENT PROCESSING FEES		
Base Filing (includes up to 3 independent and 20 total claims)	$300	$ 65
Independent Claims Over 3	$ 30 each	$ 10 (over 1)
Total Claims Over 20	$ 10 each	$ 2 (over 10)
Multiple Dependent Claim(s)	$100*	...
Base Issue	$500	$100 (+$10 per page)
Appeals		
Filing	$115	$ 50
Hearing	$100*	...
Brief	$115	$ 50
Petitions for Automatic Extensions of Time		
First	$ 50*	...
Second	$100*	...
Third	$200*	...
Design Patent		
Filing	$125	$ 20
Issue	$175	$ 30
TRADEMARK PROCESSING FEES		
Filing	$200	$ 35
Renewal	$300	$ 25
Section 8 Affidavit	$100	$ 10
Section 15 Affidavit	$100*	...
Section 8 and 15 Combined	$150*	...
Opposition	$300	$ 25
Cancellation	$300	$ 25
Appeal	$100	$ 25
Hearing in Opposition, Cancellation or Appeal	$100*	...
SERVICE FEES		
Patent Copy	$ 1.00	$ .50
Trademark Copy	$ .40	$ .20
Design Copy	$ .40	$ .20
Record Assignment	$20.00	$ 20.00

*New fee categories proposed for institution on 10/1/82.

Mr. MOSSINGHOFF. We believe the new fees are clearly justified. The patent filing and issue fees do not quite keep up with increases in the Consumer Price Index that have occurred since 1965. That is, if the average 1965 filing fee of $85 and the average issue fee of $145 had been "indexed" to the Consumer Price Index, they would be higher than we are recommending. From fiscal year 1983 through 1996, the fees we are recommending will recover a slightly lower average percentage of operating costs than Congress sought in 1965. And, this is significant, the proportionate increase in fiscal year 1983 will be less than that in 1965.

I am just now talking about the filing and issue fees in patents. The 1965 fee increase did not have any significant impact on the use of the patent system by inventors and industry. Primarily, we believe, because patent fees are a very small percentage of the amount of money that it takes to go from a creative idea to a commercial product in the marketplace.

Patent fees are a very small fraction of the total costs to develop a creative idea to a commercial product.

The fees we are recommending are totally in line with foreign patent and trademark fees. Figure 5 compares the U.S. patent fees we are recommending for fiscal year 1983-85 with those currently charged by Japan, Italy, France, the United Kingdom, Sweden, the Netherlands, and the Federal Republic of Germany.

The hypothetical maintenance fees shown for the United States are based on the fiscal year 1983-85 program recommended by the administration since that is the only program we have a good handle on.

Actual maintenance fees will not begin to be received until fiscal year 1986. So we won't see any income from maintenance fees during the next 3 years, 1983 to 1985.

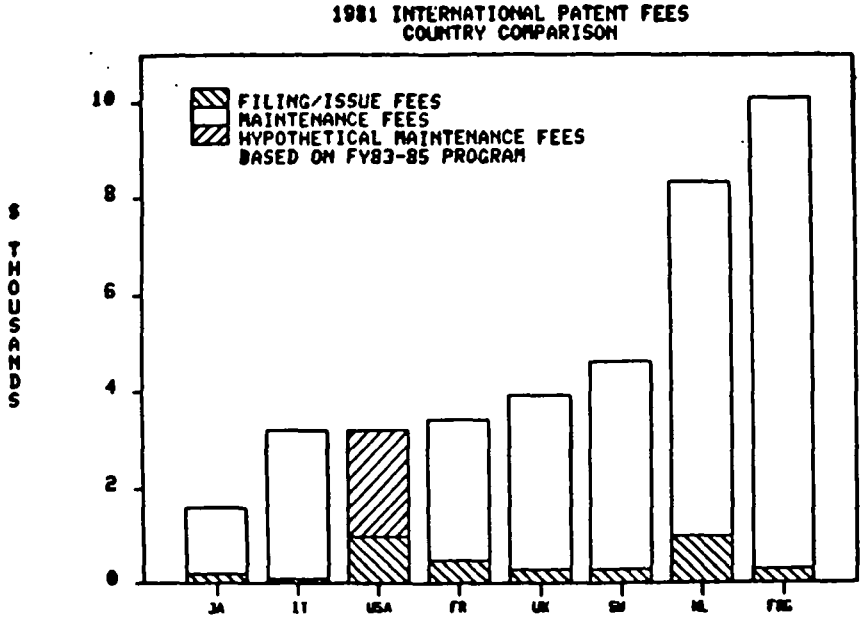
Based on the fiscal year 1983-85 PTO budget, the hypothetical maintenance fees would be $400 due 3½ years after grant, $800 due after 7½ years and $1,200 due after 11½ years. The calculations assume a "mortality rate" of 25, 50 and 75 percent for the three payments; that is, the calculations assume that those percentages of patent owners would not pay the required maintenance fees when they came due.

That is a conservative estimate. We actually would guess that more people would pay them, but in order not to understate what fees would be we took a very conservative estimate saying up to 25 percent the first time, up to 50 percent the second.

With those figures in mind, you can see the chart on figure 5.

[The chart follows:]

Figure 5



Mr. MOSSINGHOFF. The slanted down right hash bars are the filing and issue fees. The solid bars are the actual maintenance fees charged by the respective countries, and the right up slashed bar is the hypothetical maintenance fees. The chart is conservative in one other respect, and that is that it compares what we propose to charge through 1985 with what the Europeans, for example, are charging in 1981, and indeed there was an Italian fee increase on January 1 of 1982 which already makes Italy more expensive than the United States. We are now the cheapest country other than Japan in terms of the total of filing and maintenance fees under the administration's proposal.

Figure 6 compares the recommended U.S. patent fees with those charged by the European Patent Office based on the five countries most often designated. And the U.S. Patent Office has often been compared unfavorably with the European Patent Office. Again the hypothetical maintenance fees shown for the United States are based on the fiscal year 1983-85 program recommended by the administration; actual maintenance fees will not begin to be received until fiscal year 1986.

Fees for the European Patent Office are those currently charged. The European Patent Office currently receives from designated member countries 60 percent of the maintenance fees charged by those countries.

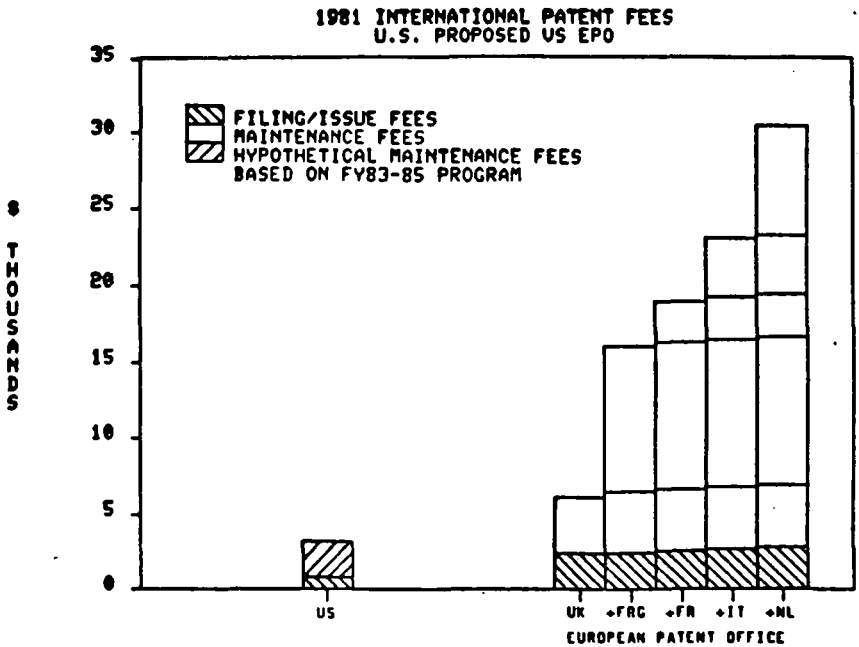
Let me take a minute to explain this chart. It is a little complicated. When you file in the European Patent Office they do a

single examination and if they decide that a patent should be issued, they issue a bundle of U.S. patents wherever you have designated the countries. These countries that we have listed are those most frequently designated. In other words, most applicants designate the United Kingdom, next they designate Germany, next France, and so on.

The lower part is the fee you would pay for filing an issue in the European Patent Office, and the maintenance fees are additional because those are paid to the individual countries that you receive a patent in. You can see that to acquire a patent in the European Patent Office, fees would be almost as high as the total of our filing issue and maintenance fees, and to maintain that patent in the five countries, United Kingdom, Germany, France, Italy, and the Netherlands, you would pay roughly 30,000 U.S. dollars, over the life of the patent, and 60 percent of that $30,000 is returned to the European Patent Office.

[The chart follows:]

Figure 6



Mr. KASTENMEIER. In your graph you have a broken line. I understand the filing and issuance fees and then the hypothetical maintenance fees on top of that. Then on top of that you have, in the case of the Netherlands, four separate broken bars.

Mr. MOSSINGHOFF. The chart is confusing. It is United Kingdom, plus Federal Republic of Germany, plus France, plus Italy, plus the Netherlands.

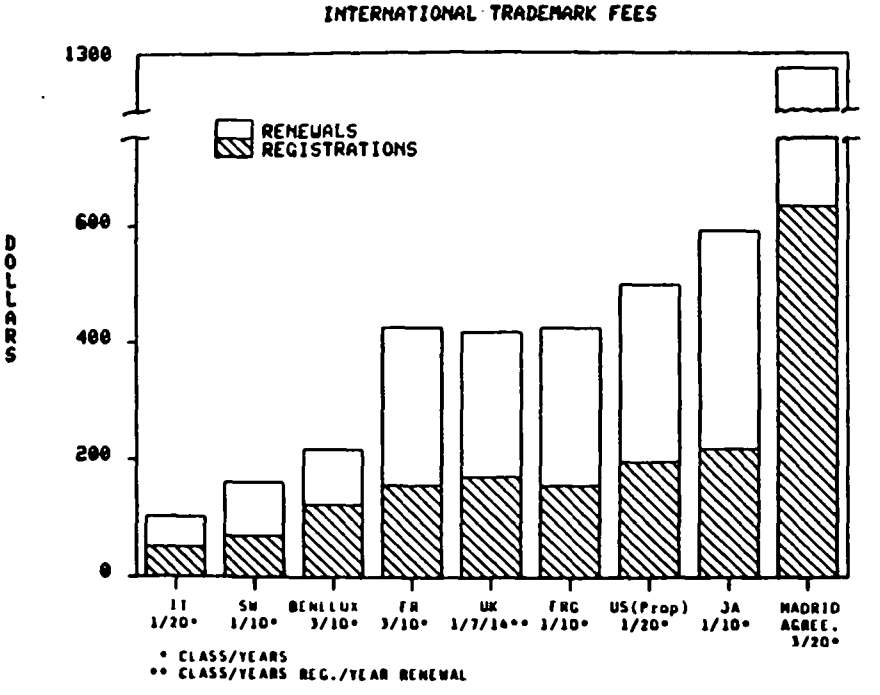
Mr. KASTENMEIER. Oh, I see.

Mr. MOSSINGHOFF. So if you designate all five of those countries which represents a market roughly 10 percent less than the U.S. market, then you would pay the front-end fees, and then you would have to pay all five maintenance fees which add up one on top of the other. So you add up all five of those, which is a market, say, roughly equivalent to the U.S. market. I think the chart shows that the fees we are recommending, at least when compared to the European Patent Office, are well in line with international practice, in fact, they are less than in line with international practice.

Figure 7 compares the recommended U.S. trademark filing and renewal fees, which would provide a total of 40 years of registration, with the filing and renewal fees of selected foreign nations. The fees for the United States are those which will be in effect for fiscal year 1983-1985; the fees for the other countries are those currently in effect and in many cases are for time periods of registration significantly shorter.

[The chart follows:]

Figure 7



Mr. MOSSINGHOFF. Taking Germany as an example, the periods of registration there are 10 years. If you were to acquire 40 years of protection in Germany, you would have to take the bars above FRG and triple the solid bars to get you up to the 40 years, because it is a different timespan.

Again we are not trying to say that we are doing this because of the international practice. What we are saying is we think that, based on a comparison with international practice, what we are proposing is reasonable. The real reason we are doing it is to acquire the resources to improve the Patent and Trademark Office.

Mr. Chairman, in fiscal year 1981 we added 20,000 cases to the patent backlog and almost 6,000 cases to the trademark backlog, and we took no significant steps to improve the integrity of our files. If we are forced to live with the Public Law 96-517 fee-recovery ratios through fiscal year 1987, by that time the number of pending patent applications will approach 500,000 cases, and the time it takes to get a patent will be well over 4 years.

The administration is totally committed to giving industry and inventors a first-class Patent and Trademark Office. We believe that in this period of overriding need to hold down Federal expenditures, the only realistic alternative to the higher fees we are recommending would be a continued deterioration of service to the public we serve. That simply would not be acceptable.

Mr. Chairman, in the remainder of my statement I discuss the technical legislative changes that we are proposing. With your permission, I would propose to have that part of the statement placed in the record and then respond to any questions you may have at this time.

Mr. KASTENMEIER. Without objection, your statement in its entirety will be received and made part of the record.

I wonder, lest one would believe that the Office is only interested in fees, if you could briefly discuss other amendments, since we will have to deal with or be answerable.

Mr. MOSSINGHOFF. Certainly. This is a brief summary. We have forwarded with Secretary Baldrige's letter, and you were kind enough to put in the Congressional Record the complete sectional analysis, but if you wish, why don't I run through.

Mr. KASTENMEIER. I think that would be useful since we are not only concerned with changes in the law.

Mr. MOSSINGHOFF. Amendments to the patent and trademark laws: In the remainder of my statement, I will comment briefly on sections of H.R. 5602 that would amend the patent and trademark laws to simplify our procedures and facilitate the processing of patent and trademark applications. Many of these changes have been endorsed by the section of patent, trademark and copyright law of the American Bar Association and the board of directors of the U.S. Trademark Association.

I don't want to leave the impression that those two groups endorse my fee proposal, Mr. Chairman.

A more detailed explanation of the amendments can be found in the sectional analysis which was published in the Congressional Record of February 23, 1982, at page H 456.

Section 3 of H.R. 5602 adds a new subsection (d) to 35 U.S.C. 41 authorizing the Commissioner to accept payment of a maintenance fee after the 6-month grace period where the delay in payment was unavoidable. This change, which will guard against the inequitable loss of patent rights, has been endorsed by the ABA's section on patent, trademark, and copyright law. We have coupled with this authority, a provision to protect the rights of an intervening user.

This provision, modeled after the intervening rights protection provided in connection with reissue patents in 35 U.S.C. 252, will protect innocent third parties acting to their detriment in the belief the patent has lapsed.

The arbitrary number of examiners-in-chief on the board of appeals is really kind of a leftover from the days when they were all Presidential appointees and now new board members are career civil servants competitively placed in that position, and we believe that there is no need at this time for an arbitrary limitation. We think the board should be able to respond to whatever workload is given them, and when we begin to increase the number of cases we act on, since a fraction of those will go to the board obviously, we will increase the amount of workload of the board.

The authority to increase the number of permanent examiners-in-chief will result in greater efficiency and earlier resolution of appeals.

Today, a patent applicant may find his or her right to a patent blocked by a statutory bar which arose because the applicant was denied a filing date due to his or her failure to include a proper fee or an oath. Section 5 of H.R. 5602 would amend section 111 of title 35, United States Code, to eliminate this problem by authorizing a filing date to be accorded to an application containing a specification, the claims and the drawings. In other words, if the heart of the invention is described through appropriate papers, our proposal is that we be able to give applicants a filing date based on those filings and under regulations we could be a little more flexible in letting them come forward with a proper oath or a proper filing fee.

Specifications, claims and the drawings obviously contain the essential information to determine the existence and scope of an invention. This amendment would authorize the Commissioner to accept the fee and oath at a later date.

Sections 116 and 256 of title 35, United States Code, would be amended by section 6 of H.R. 5602 to eliminate any arbitrary limitations on the correction of misnamed inventive entities. Presently, except in very rare circumstances and those are circumstances ordered by a court sitting as a court of equity, inventorship problems can only be corrected where at least one person originally named as an inventor was in fact a true inventor. The amendment would eliminate this unnecessarily rigid requirement, but only if the error in naming inventors occurred without any deceptive intention.

Section 7 of H.R. 5602 deletes the requirement in section 6 of title 35, United States Code that the Commissioner transfer funds to the Department of State to pay obligations of the United States under the Patent Cooperation Treaty. The Department of State has traditionally budgeted and has been obligated to make such payments and is, in fact, making the payments that are due in this year, and they are agreeable with this change.

Sections 8 through 11 of H.R. 5602 make a number of amendments to the Lanham Act. Section 8 of the bill amends section 8 of the Lanham Act to require that the continued use required to be shown in the sixth year after registration be use "in commerce."

Currently the law merely requires that the trademark be used, and there is some question about whether interstate use is necessary, and we believe that that should be clarified.

Sections 13 and 14 of the Lanham Act are amended to delete the requirement that oppositions and petitions to cancel be verified. The amendments proposed to sections 8, 13, and 14 of the Lanham Act have been approved by the ABA's section on patent, trademark and copyright law and the board of directors of the U.S. Trademark Association. Section 10 of H.R. 5602 makes the date of registration the time from which incontestability is measured in section 15 of the Lanham Act, thereby making the section consistent with sections 22 and 33 of the act.

Finally, section 16 of the Lanham Act is amended to simplify resolution of conflicting demands to register interfering marks by limiting the declarations of interferences to situations where extraordinary circumstances exist.

If there are only two contestants, any contest can be handled either through opposition or through cancellation procedures, and those are the preferred procedures.

Section 12 of H.R. 5602 adds a new subsection to section 21 of title 35, United States Code, authorizing the Commissioner to provide relief to patent and trademark applicants in situations where Postal Service interruptions or other emergencies prevent timely receipt of a paper or fee in the PTO. This authority will avoid the need to resort to special legislation each time. A postal strike or something similar prevents papers from reaching the Office. Of course, in many cases time is of the essence on the part of the applicants.

Finally, section 21 is amended to clarify that only Federal holidays in the District of Columbia will excuse the filing of a paper or payment of a fee.

Section 13 of the bill amends section 6(a) of title 35, United States Code, to clarify the Commissioner's authority to enter into cooperative agreements involving the patent and trademark laws or the administration of the Office. This amendment reinforces the authority of the Commissioner which will be increasingly important as we move to increase the automation programs and try to undertake cooperative ventures with many of the Patent Offices around the world which are also faced with the same problem we have.

In a very technical way, section 14 of H.R. 5602 implements the Hague "Convention Abolishing the Requirement of Legalization for Foreign Public Documents." The Hague Convention abolishes the requirement presently mandated by sections 115 and 261 of the patent statute and section of the Lanham Act for diplomatic or consular legalization of foreign public documents executed in convention countries.

Finally, section 15 of the bill effects a conforming change in section 13 of title 35, United States Code, necessitated by Public Law 96-517.

Mr. Chairman, this concludes my prepared statement. I will be pleased to respond to any questions you or the subcommittee may have.

Mr. KASTENMEIER. Thank you, Commissioner, for a very professional presentation this morning.

For those of you who are in attendance who may not have access to this, we didn't have charts for you, but hopefully you were able to follow the testimony notwithstanding.

I have several questions, but I think I will yield to my colleague from Massachusetts, who has been very patient.

Mr. FRANK. Thank you, Mr. Chairman.

I appreciate your very thorough presentation here. You have covered most of the issues. The fee question obviously is the one around which a lot of attention will center. I have heard from a lot of people in Massachusetts, small business people, for instance, who are concerned about it.

Let me ask a couple of questions. Often we have to do a balance. There are fiscal problems and then there are others. The arguments I have gotten from a lot of people is that there will be some discouragement if the fees rise to the level that you are talking about, particularly toward smaller applicants. That is not necessarily conclusive.

Obviously we can't be all things to all people, but what is the opinion of your office on the effect to which these might discourage some applicants from going ahead at the level of fees that might become a problem for smaller people, independent people?

Mr. MOSSINGHOFF. Obviously, Congressman, no one wants to pay higher fees for the same thing that they have gotten for lower fees. We are concerned, too. We certainly view the individual inventor and the small businesses as critically important innovative sources in the country. We looked at the fee proposals when we were putting the budget together and formulating the administration's recommendations, and they bear a striking similarity to what happened in 1965.

In 1965, and just talking now about the patent filing and issue fees, which are the front end fees, in 1965 those fees were raised by a factor of 380 percent. We are proposing to increase the existing fees by a factor of 360 percent. In 1965 Congress sought to recover 75 percent of the costs of the office, and under our proposal for the next 13 years we will recover an average of about 72 percent of the Office operation. Finally and most significant is that if the fees that were enacted for filing and issuance of patents had been indexed in 1965 to the Consumer Price Index, they would be higher than the $300 and $500 fees that we are recommending under the administration's proposal. Some people's resources keep up with the Consumer Price Index, some exceed it and some don't, but in general, based on the CPI, we think that these will not have a significant effect. They did not have that effect in 1965. All the data that we have shows no significant effect.

Mr. FRANK. Do you think the percentage number and the dollar level is conclusive in that? It is true the percentage level is similar, but you keep talking about higher dollar levels. You don't expect any significant——

Mr. MOSSINGHOFF. If the average 1965 filing fee had been indexed in 1965, it would be higher than the $300 that we are recommending. So the dollar levels are similar, but again that is for your committee to decide.

Mr. FRANK. Your general sense then is that this is not going to produce any——

Mr. MOSSINGHOFF. I don't think it will. Let me say this. If there is concern on the part of this committee——

Mr. FRANK. There is.

Mr. MOSSINGHOFF. Obviously, and there is on the part of the public, but we would certainly recommend in the administration that any relief be targeted to the group that you are concerned with.

Mr. FRANK. The smaller.

Mr. MOSSINGHOFF. I don't sense any concern about the 40 percent of our applications that come from large corporations abroad. Certainly, as shown in my statement, when U.S. taxpayers file abroad, they are not subsidized by foreign taxpayers.

Mr. FRANK. The D.C. people specifically suggested in fact because of the experience that there may be a differing effect that foreign patent people are much more used to. They have built this level of cost into a much higher degree.

Do you think it would be possible then for us to look at it as some sort of differentiation in the fees?

Mr. MOSSINGHOFF. We have to be very careful, because the Paris Convention requires that we give national treatment to foreigners, but I believe that there are ways that we could work with this committee to target specific relief, if that is your concern.

Mr. FRANK. I would be interested in seeing some ideas on that.

Mr. MOSSINGHOFF. The statistics are very interesting. Roughly, based on the best estimates we have in terms of small business, and take that as a definition of 500 or less people as a small business——

Mr. FRANK. Employees.

Mr. MOSSINGHOFF. That is a fairly good sized small business, but take that as a cutoff and roughly 5,000 applications for patents a year are issued to those small businesses with the 500 or less employees. In terms of individual inventors, we have very good statistics there because we just say an unassigned patent at the time it issues is likely to be an individual inventor because assignments would go on record prior to that, and that number is 10,000. So what you are talking about is 15,000 patents out of a total of about 65,000 patents.

Mr. FRANK. So you would be amenable to some kind of graduation.

Mr. MOSSINGHOFF. It would be easier to target aid to those 15,000 to take care of the concerns.

Mr. FRANK. I would like to pursue that with you a little further. One point which has some plausibility to the extent that you reach 100 percent approximately, there is a section of the office which has got a complete passthrough of its costs, what does that do in institutional terms to incentives for efficiency? If a particular branch knows that whatever its costs are they are going to be passed along, are they going to be as zealous about cost cutting, since they are going to get dollar for dollar whatever it costs them?

Mr. MOSSINGHOFF. Under the proposal that the administration has before the Congress, there will always be a need for appropriations. There will always be the public search room. About 7 or 8

percent of the office will be appropriated and authorized every year and we will be up here.

Mr. FRANK. I understand, but at least conceptually the functions for which you are seeking the appropriation are separable actually from the functions which are to be paid for by the fees.

Is it possible that people would say, "Well, this is an activity which is going to be just passed along, and therefore the instinct to cost cut may be a little less."

Mr. MOSSINGHOFF. My instincts to cut costs would still be sharp.

Mr. FRANK. I understand, this is not about you, but legislating for the future. We hear a lot from this administration and from others about trying to build into Government incentives to be efficient, and I think there is a plausible suggestion that allowing any Government agency to pass along 100 percent of its costs in a very large area.

Mr. MOSSINGHOFF. As a formula you mean?

Mr. FRANK. Yes, would institutionally reduce the incentive for efficiency just without meaning that as a criticism of any individual, but just as a human nature kind of thing.

Mr. MOSSINGHOFF. Let me say this. When we made the administration's proposal, we took what we found in Public Law 96-517 which did have this ratio. For example there is a slice of the budget that is at 100 percent recovery, patent copy sales as an example. We took the act as we found it and amended the ratios accordingly. That does depart from the prior practice that had Congress actually setting the fees in the statute. So there were statutorially set fees, and there is a great incentive to keep efficiency up.

I would hope, however, that if there is an idea to maybe put the fees in the statutes themselves rather than have them administratively set for 3-year periods of time, that they could somehow be tied to the Consumer Price Index or something so that we don't end up with these precipitous drops.

Mr. FRANK. I think having us set fees specifically in the statutes, given the awkwardness of legislative process, is almost always a bad way to go, but they get locked in. There is some compromise you could have administrative discretion, not with 100 percent being the goal, but 50, 60, or 70 percent recovery being the goal.

Mr. MOSSINGHOFF. There is a third approach and that is to accept the proposal of the administration to raise the fees at least for big corporations, and maybe some relief could be targeted to the individual small inventor, and then index the fees so that the administrative flexibility is capped by the Consumer Price Index or something similar.

I think you might end up with the best of both worlds.

Mr. FRANK. The convention that you mentioned, if we were to target fees or go the other way, there would be a size obligation as to how much the fees cost you, that would give us no problems with the Paris Convention if we were to do that uniformly.

Mr. MOSSINGHOFF. I think we would certainly recommend—if that is the desire of the committee and we would be pleased to work with you on that—not to establish a dual fee system. We could establish a single fee system but then on the side establish some amount of money that could be tapped under some reason-

able means test to help out, say, small companies and individual inventors. We could tally on a statement in the filing papers that says qualify under some seasonable criterion.

We would want to work with the Small Business Administration and probably the Small Business Committees on the Hill to define that. I think we could work through the problem to everybody's satisfaction, but we have to look very carefully at the Paris Convention because we don't want to violate that.

Mr. FRANK. I am not speaking for the committee. I have no idea what others think.

Mr. MOSSINGHOFF. I think it may be a doable process.

Mr. FRANK. Thank you.

Mr. KASTENMEIER. The gentleman from Michigan.

Mr. SAWYER. Does the Patent Office have any position on the settlement of disputes by arbitration?

Mr. MOSSINGHOFF. The Patent Office as such, as far as I know, and I can check the history, does not. I have very strong views. I think it is a very good idea. I think that one of the problems that is pointed out by inventors, and again the small inventors and the small businesses, is the high cost of patent litigation. It is very costly, and it seems to me that enactment of arbitration legislation to specifically be able to settle patent disputes would be totally in line with the idea of making the patent system more meaningful to the small inventors, individual inventors and the big corporations also. Second, the idea is well in line with the Chief Justice's recommendation that we try to unclog the Federal courts by having more disputes settled through arbitration.

As far as I know, there has been no specific legislation proposed. We didn't include it in our bill, but we would be very pleased to work with the committee. If legislation were to be introduced, I would work very hard to see if we couldn't support it in the administration.

Mr. SAWYER. Do you think it would require legislation?

Mr. MOSSINGHOFF. There are a few older cases, and maybe I can expound on this for the record, if it is all right with you, but there are some cases, fairly early cases, that cast some doubt about whether arbitration would be binding if they went to the validity of patents.

As I say, I think it would be helpful to clarify the authority by legislation if the decision is to permit arbitration.

Mr. SAWYER. As a matter of curiosity, why is patent litigation so horrendously expensive compared to ordinary litigation? I used to see a lot. We have clients that become involved in patent litigation and retain a patent law firm for them, and the costs were horrendous. We could have some pretty good lawsuits that would fit well inside a small percentage of what the patent litigation costs.

I wonder why.

Mr. MOSSINGHOFF. I can only speculate. I was in private practice for about 3 years, and didn't have that much experience in litigation. The issues are very complex, and particularly where you get into a very technical area. If you are talking about, say, microchips or bioengineering, we have a hard time having our examiners keep up with the latest in technology, and if you try these cases before a

jury or before a district court judge, there is a great desire I think on either side to lay out their case.

A lawsuit almost becomes a course in science and engineering, but there has to be a lot of background provided. I think it is also the weight of discovery, the background work and just the complexity of the issues, both patent infringement and the validity issues.

For example, if the case is worth a lot of money to a defendant, they will spend an awful lot of money sending teams of researchers around the world to locate prior art that the office couldn't possibly know about, in other words, to invalidate the patent.

So I think it is a mix of those elements.

Mr. SAWYER. I guess Mr. Frank was talking about the concern about the increased fees on the individual inventor and small business. Do you have any views on that yourself?

Mr. MOSSINGHOFF. As I say, we first start off with the conclusion that we certainly don't want to discourage the individual inventor and small business from using the patent system. It is here for them to use, and they have contributed significantly.

Second, we have looked at the reasonableness of our fees by comparing it to what occurred in 1965. I now limit myself to just the filing and issue fees. The change did not have, in 1965, the effect that is being predicted now. And no one has identified anything different now, and that particularly has to do with the fact that the fees we are proposing just barely keep up with the increases in the Consumer Price Index.

On the other hand, it is a fairly small but important segment of the number of patents we issue, say 5,000 to small business and 10,000 to individual inventors, and if there is concern, and that concern is to be alleviated, we would recommend strongly that it be done through targeted relief, rather than across the board relief, which would affect, for example, large businesses here and in the 40 percent that come from abroad.

Mr. SAWYER. If we were to decide on this committee to appropriate or recommend additional appropriations to lower the fees on these individual inventors and small business, do you know what the position of the administration would be?

Mr. MOSSINGHOFF. I don't have a cleared administration position, but I believe that if the amount you would propose were specifically targeted, say, to relieve the burdens on individuals and small business, I could probably sell that downtown. I think we could end up supporting that if the committee is of that mind.

Mr. SAWYER. If you could sell some of these things downtown I have got to get you in on some other problems. How would the Patent Office administer such a thing if we were to target some appropriations?

Mr. MOSSINGHOFF. As I indicated to Congressman Frank, we would not propose to have a dual system. We think that would cause a lot of problems, particularly in the Paris Convention. I would think that some resources could be set aside, have a single filing fee, but if someone met a reasonable means test, which again could be worked out, I am sure, with the Small Business Administration and the Small Business Committees up here, to augment the amount of money they would pay with the additional resources. In other words, to give them a net decrease in the fees they pay. So

I think our recommendations would be not to establish a dual system, but to have this, call it what you will, small business innovation fund or something like that, and we would set up regulations with SBA to administer that.

Mr. SAWYER. Let's say we were just to target an appropriation to reduce by half, to defray by half the filing fees for these 15,000, 5,000 small businesses and 10,000 individual inventors, what kind of money would we be talking about?

Mr. MOSSINGHOFF. If we take that as a universe, that would be 15,000 patents which would translate into applications of over 22,000 and you are talking about cutting back filing fees to $150, so it would be $150 times 22,000, which would be a little over $3 million. And for the issue fee, although you now are working with 15,000 fee payment, it would be another $3 million, plus. So, you are talking about between $6 and $7 million to take care of 1 fiscal year.

Mr. SAWYER. Thank you.

Mr. KASTENMEIER. The gentleman from Virginia.

Mr. BUTLER. Thank you, Mr. Chairman.

I apologize for being late, but I am aware of the questions that Mr. Sawyer has asked, but just help me a little bit to understand what is happening, what you would propose to do with the patent processing fee. What is it now, and what would it be if we do what you propose?

Mr. MOSSINGHOFF. The current fee for filing, which was set in 1965, averages $85, and the current fee for issue, which again was set in 1965, was $145. If there were a desire on the part of the committee, and I were successful in selling it downtown, you would go to something like $150 for filing and $250 for issuance. It would be half of the $300 and $500 that we are recommending across the board.

Mr. BUTLER. So these table 2 patent and trademark fees, they are a little bit higher. You are cutting those fees in half.

Mr. MOSSINGHOFF. As the discussion was unfolding, that would be again if the committee decides that there needs to be some relief for small business.

Mr. BUTLER. Yes; I understand that.

Mr. MOSSINGHOFF. And individual inventors, then we would have to do a little more refining in our arithmetic. We propose simply maybe to cut those fees in half, but not cut the fees in half for those who don't qualify under some reasonable means test.

Mr. BUTLER. I see. The fee you are cutting in half is the $300 and the $500 that you have got on table 2; is that correct?

Mr. MOSSINGHOFF. Yes, sir, and then with respect to a small business or individual, if one were to do that——

Mr. BUTLER. Small business or individual?

Mr. MOSSINGHOFF. Or individual, if one were to do that, you would really be handling their case for half of what the Consumer Price Index was between the time the 1965 fees were enacted and now.

Mr. BUTLER. Thank you very much.

Mr. KASTENMEIER. Mr. Commissioner, I share some of the apprehensions of my colleagues, that of Mr. Frank about the quantum increase suggested in your proposal, partly because we spend a

good deal of time, certainly we did in the last Congress, talking about inducement for innovation in this country, and the problem we have in innovation, to the extent that dreadfully high fees are charged for filing and for issuance that would seem to contribute towards discouraging pursuit of invention and the protection in connection with it.

Quite separate from Mr. Frank, I also was wondering whether or not we could devise a system which would prefer the individual inventor and the small businessman, because we also did process what is called the equal access to justice. It was a difficult question, but still it was predicated on a notion that some individuals and businesses in contests with the Government need help in recouping their legal fees, and others do not.

With this we could use a very similar or possibly the same distinction to determine who might be eligible and who might not be, but I understand your reservations in connection with the Paris agreement.

The other question I have is, is this proposal part of the President's larger proposal? To what extent is it part of the proposal generally on the part of the administration to convert to user fees whether we are talking about national parks or anything else, or is this independently arrived at within the Department of Commerce and by your office together with the administration?

My point is, is it part of the larger picture of conversion to having users pay for services, Federal services?

Mr. MOSSINGHOFF. It is viewed as part of that larger package.

Mr. KASTENMEIER. It is?

Mr. MOSSINGHOFF. And indeed in the main briefing that the Office of Management and Budget gave, the budget briefings that they gave, probably for the first time in history, the Patent and Trademark Office is singled out in this very large briefing on the budget. Also the administration viewed the fact that our system is not serving industry and inventors the way it should. They look across the Atlantic and see that those systems, at least, say, in Germany and the European Patent Office, are doing a very good job, and one of the hallmarks of their system is that people that use this system pay their way.

In virtually every office in all of the developed countries in Europe, the offices are self-sufficient. That coupled with the desire of the administration in many areas to rely on user fees and the need for significantly increased dollars for the office, which somewhat parochially is my major interest, to get dollars into the Patent and Trademark Office in 1983 so we can begin to turn those things around—all three of those factors came together.

Mr. KASTENMEIER. Did I understand that the fee schedule attached to your statement is not necessarily the final schedule?

Mr. MOSSINGHOFF. That is right.

Mr. KASTENMEIER. That is your proposal.

Mr. MOSSINGHOFF. Because we knew this was going to be controversial, our office worked very hard with the Department of Commerce and OMB to get permission to unveil our proposals ahead of the President's budget. It simply didn't seem to us to give the private sector sufficient time to react if we were to come up in February with a brand new proposal, so we got OMB's permission to put

the fee schedule out and lay everything out, and I did that at a speech before the American Patent Law Association in early November.

The schedule attached to my statement is that same fee schedule and it represents our best efforts at that time. If the law were to be enacted in exactly the form we would recommend, we would have to go back, revalidate our estimates, revalidate workload projections. We are in the process now of doing sensitivity analyses. What if we get, as you suggest, 109,000 patent applications rather than 107,000 and so on, so there would be a lot more work to do between now and the time we would actually come forward with the proposed rulemaking on the fees, but they are going to be very close to this.

It has stood the test of time very well. I think they will be very close. They might be slightly less. I don't think they will be more. One of the things I want to make sure is that if we do get the legislation the administration is recommending, that there be a sufficient amount built in on both sides of the equation, both the Government side and the user side, so that we have the ability to respond to contingencies, things that we just simply can't anticipate right now.

My definition of failing would be to get the proposal that we are recommending and then not being able to deliver the plans that we are recommending, and we are going to lay out specifically what that contingency would be. We are going to level with everybody, but I just think it is unrealistic to put together a 3-year plan and not have some money in there to respond to things that no one in this room can anticipate right now.

Mr. KASTENMEIER. I certainly am in sympathy with and congratulate you on the plan, but in terms of the reasonable expectations of patent applicants in this country of whatever community that may be, already with the adoption of Public Law 96-517, one has to ask whether—and in many cases I think they grudgingly accept the new fee schedule, and maybe had reason to believe that, jolted with the new fee schedule under Public Law 96-517 that there wouldn't be so soon another additional jolt.

For example, to the extent that this is illustrated, if receipts, by our own figures in this fiscal year will be $29,500,000, in the next fiscal year starting October 1, they would normally be $47,700,000, but you propose that there be added thereto $39,090,000, so that fees next year will be $86 million, almost $87 million compared to $29 million this year, triple, really, in receipts.

I think we reasonably have to ask isn't that really too much, too much for those who we are supposed to be encouraging in this country in terms of seeking to pursue patents by virtue of their innovation?

Mr. MOSSINGHOFF. I guess my response to that would be that the fees, the $29,600,000 really are bargain basement prices. We are charging 1982 fees set way back in 1965, and unfortunately an awful lot has happened to the purchasing power of the dollar.

Also there is a technical aspect here, too, Mr. Chairman. Let me mention that now. These are the figures that the President had to include. The issue of how you apply Public Law 96-517 gets very complicated, but if we were merely to get the amount of appropri-

ations we are requesting, which is $68.086 million, and use that as the base, and then did nothing more and just applied 96-517, we would not get up to the $47 million. The fee recovery can be based on one of two things. You can base it on the total program, the $155 million program which we think is the right program for the country to support, or you can base it on your budget authority. We chose in the budget process to base the fee recovery estimates on the total program.

It is my view that if we don't have some amendment to Public Law 96-517 that it is not in the cards for us to be carrying out that $155 million program. I just don't see that as a conceivable possibility. We are up in real terms about $20 million over 1982, and in 1982 for the most part we are totally spared from all of the other cuts that have occurred throughout Government as part of the March and September 1982 budget cuts.

Mr. KASTENMEIER. I wonder if a system for small inventors might work out whereby you could defer or build in their application and issuance costs a maintenance fee. Would that be the differentiation so that that they may in the final analysis pay the same?

Mr. MOSSINGHOFF. We believe if we were to go as far as that compared with the 1965 rates of $85, that is by any standard not a prohibitive increase. I would think that we want to think very carefully before we kept ourselves down at the 1965 rates. There has to be some filter there. There has to be some thought on the part of the applicant that this invention is worth something, or you could end up clogging the system with frivolous things.

Mr. KASTENMEIER. I don't think this is frivolous. As I say, I think it can genuinely be contested that the initial cost for some might be really a disincentive.

Mr. MOSSINGHOFF. I wasn't suggesting your idea was frivolous. I was suggesting that if the fee was too low we may be flooded with frivolous ideas from applicants.

Mr. KASTENMEIER. There was some discussion of attorneys' fees, how high they are in the patent field. The committee also handles—I don't know what the present state of it is—legal services. I wonder if there is ever occasion on the record where a very poor inventor attempted to avail himself of legal services for a patent application. Are you aware of any?

Mr. MOSSINGHOFF. No, I am not.

Mr. BUTLER. Thank God.

Mr. KASTENMEIER. If there are no further questions, we are grateful to you for your presentation this morning and we look forward to working with you on this as best we can.

Mr. MOSSINGHOFF. Thank you, Mr. Chairman. I appreciate the opportunity.

Mr. KASTENMEIER. The committee stands adjourned.

[Whereupon, at 12:05 p.m., the subcommittee was adjourned.]

PATENT AND TRADEMARK OFFICE AUTHORIZATION

THURSDAY, APRIL 22, 1982

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES,
AND THE ADMINISTRATION OF JUSTICE,
COMMITTEE ON THE JUDICIARY,
Washington, D.C.

The subcommittee met, pursuant to call, at 10:18 a.m., in room 2141, Rayburn House Office Building, Hon. Robert W. Kastenmeier (chairman of the subcommittee) presiding.

Present: Representatives Kastenmeier, Railsback, and Butler.

Staff present: Bruce A. Lehman, counsel; Joseph V. Wolfe, associate counsel; and Audrey K. Marcus, clerk.

Mr. KASTENMEIER. The committee will come to order.

The hearing this morning is a continuation of hearings, the second day of hearings, on H.R. 5602, a bill for Patent Office authorization. The Patent Office authorization has a time requirement attached to it, and one of the principal issues is a new fee structure contemplated by the administration, in line with the President's views that on all Government-related user activities there should be a recapturing of the actual costs of those services. In that respect, we do have a proposal from the Patent Office.

This morning, in response to that proposal, we have a panel of individuals representing associations, with an expertise in patent practice. We are very pleased to have them.

I would like to greet our first panel of three persons, first Mr. Julius Jancin, Jr., who is president of the American Patent Law Association; also, Mr. Joseph DeGrandi, who is chairman of the patent, trademark and copyright law section of the American Bar Association. Then I would yield to my colleague, the gentleman from Virginia, if he would care to introduce Mr. McCandlish, the third member of our first panel this morning.

Mr. BUTLER. Mr. Chairman, we just appreciate Mr. McCandlish's presence. He is a distinguished practitioner in the State of Virginia and is chairman of the section of the State bar dealing with the patent, trademark, and copyright law section. We appreciate his taking the time to share his views with us.

Mr. KASTENMEIER. We are pleased to have all three of you, and I appreciate my colleague's introduction of Mr. McCandlish.

Normally we would have asked Mr. Jancin to proceed first, but as Mr. DeGrandi has an appointment to appear before another

committee this morning, to expedite his appearance here perhaps we could call on Mr. DeGrandi first.

TESTIMONY OF JOSEPH A. DeGRANDI, CHAIRMAN, SECTION OF PATENT, TRADEMARK AND COPYRIGHT LAW, AMERICAN BAR ASSOCIATION; J. JANCIN, JR., PRESIDENT, AMERICAN PATENT LAW ASSOCIATION; AND HARRISON E. McCANDLISH, CHAIRMAN OF THE PATENT, TRADEMARK AND COPYRIGHT LAW SECTION, THE VIRGINIA STATE BAR

Mr. DEGRANDI. Thank you very much, Mr. Chairman.

My name is Joseph A. DeGrandi. I am chairman of the section of patent, trademark and copyright Law of the American Bar Association. My statement is being presented solely on behalf of the section and does not represent the position of the American Bar Association.

My formal statement has been submitted to the subcommittee and, therefore, I do not intend to read the formal statement.

Mr. KASTENMEIER. Without objection, your statement in its entirety will be received and printed in the record. You may proceed to summarize your remarks as you wish.

Mr. DEGRANDI. Thank you, Mr. Kastenmeier.

The section of patent, trademark and copyright law of the American Bar Association consists of approximately 6,000 lawyers, essentially all of whom are in private or corporate practice and who deal with patents and trademarks on a daily basis with clients, with the Patent and Trademark Office and in the courts.

To summarize the points in our statement, first our section agrees with the goals of the Commissioner of Patents and Trademarks, Gerald J. Mossinghoff, that our country have a first-class PTO issuing high-quality patents which are enforceable in the Federal courts. In fact, these have been the goals of our section and the patent bar for many, many years.

Second, our section supports the administration's position that the Patent and Trademark Office should be funded at a level of approximately $155 million for fiscal year 1983.

Third, our section agrees that the Patent and Trademark Office fees should be increased to the level suggested in our statement, as set forth in resolution 11B.

We believe that the Patent and Trademark Office fees should be statutory fees set by Congress and that Congress appropriate at least $90 million to reach the 1983 Patent and Trademark Office funding level. This $90 million is, in fact, a 25-percent reduction of the annual Patent and Trademark Office appropriations for the last 3 years.

Four, our section strongly disagrees to giving the Commissioner authority to set fees every 3 years and to recover substantially the entire costs of operating the Patent and Trademark Office from such fees.

In order to estimate costs 3 years in advance requires difficult, expensive, and time-consuming cost accounting analysis, that includes factors which are incapable of exact determination, resulting in a setting of even higher fees in order to cover unexpected contingencies during those 3 years. In fact, we believe that some of

the fees proposed by the Patent and Trademark Office for fiscal years 1983 through 1985 are higher than they should be in order to cover such contingencies.

Five, statutory fees should be set for no more than 4 years, and Congress should be required to review fees at least at 4-year intervals, after first reviewing the Patent and Trademark Office performance over those 4 years, ascertaining whether the goals set by the Commissioner have, indeed, been reached during those 4 years; inquiring as to why some of the goals may not have been reached; ascertaining what other needs have arisen during the 4-year period; inquiring as to what additional costs may have to be incurred by the PTO; seeing if there has been a sharp drop in the filing of U.S. patent and trademark applications because of the higher fees, and is that sharp drop due to the high fees, and should the fees be lowered. But most importantly, at the end of this 4-year period, the patent and trademark owners and the patent and trademark bar would have an opportunity to give their input to Congress as to what the Patent and Trademark Office has done during those 4 years with those higher fees that it asked for and which it received.

Mr. KASTENMEIER. May I interrupt, because I think you're dealing with a couple of questions which we will have to come to grips with.

The timeframe, quite apart from your point about the recovery, the timeframe for changes of patent fees, should they occur as frequently, in your view, as each year? You say no more than 4 years, that it cannot be set for any longer than 4 years.

Mr. DEGRANDI. No, what we have in mind, Mr. Congressman, is the 4-year period, it should be for no more than 4 years.

Mr. KASTENMEIER. What I am going to ask you is, would a 3-year period—if the Congress decided to authorize the Patent Office for a period of 3 years, anticipating one alteration in fee structure or levels once during that period; might that be acceptable as a timeframe?

Mr. DEGRANDI. Well, looking at it for a period of 3 years, the important thing is to have enough experience and enough background to see what the Office has done over a certain period of time. We had suggested 4 years, at least no more than 4 years. If it could be done at the end of 3 years, fine. The important thing is, at the end of 4 years, under the ABA proposal, there would be something like a sunset provision in the law and Congress would be forced to look at the fees again and bring in the Patent Office people and question them as to "these are the goals that you came to us and told us about 4 years ago, and have you reached the goals, and if not, why not." The bar would then have the opportunity to come in, together with the patent and trademark owners, and explain to Congress why the fee system has not worked or why it has worked, whether or not there has to be an increase or decrease in fees. We could be in a better position to tell Congress at the end of 3 or 4 years as to what has been the experience and what should Congress do at the end of that time.

Who is better qualified to testify about the Patent and Trademark Office operations, about the quality of the services being performed by the Patent and Trademark Office, and about the prob-

lem areas existing in the Patent and Trademark Office, than the men and women of the patent and trademark bar who practice before the Office, who use the services of the Office, whether it be searching in the Patent and Trademark public search rooms or examining and obtaining copies of patents and trademark registrations, or the files of issued patents and trademarks, who have to rely on the correctness of the PTO records in rendering opinions to clients, and who prosecute the applications before the examiners and various boards until the patents or trademark registrations are issued.

Since the main objective of the patent and trademark bar is and has always been to have a first class Patent and Trademark Office, the bar can readily alert Congress as to whether the goal has been reached, and if not, why not.

For our sixth point, our section strongly disagrees to giving the Commissioner authority to recover substantially the entire cost of operating the Patent and Trademark Office from fees paid by inventors, independent inventors, and small businesses. From a minimum of $175 for a 17-year patent, such fees would increase to a minimum of $3,200 under H.R. 5602 for the years 1983 through 1986, and for a 3-year period of 1986 to 1988, it would go considerably higher as the annual appropriation decreased even further from the $68 million proposed in H.R. 5602 and the annual costs of operating the Patent and Trademark Office increased upwardly from the $155 million.

Such high fees will have an extremely adverse effect on invention and innovation and will result in pricing most individual inventors and small businesses out of using the patent system and from registering their trademarks with the Patent and Trademark Office.

Our section recommends a lower filing fee, $200 a year instead of the $300 set forth in H.R. 5602; a lower issue fee of $400 instead of the $500 recommended by the Patent and Trademark Office; and a lower first maintenance fee after 3½ years from issuance of the patent; namely, $300 instead of $400. More important, these fees would be fixed by statute for at least 4 years. Congress would then look at the fees again and make whatever adjustments may be necessary.

Our section is also disturbed to note that H.R. 5602 essentially fails to provide any funds for the trademark operations of the Patent and Trademark Office. In passing the Trademark Act of 1946, commonly known as the Lanham Act, Congress recognized the benefits to the public of having a trademark statute which protects the public against fraud, deception, and unfair competition. Thus, the public may be confident that when purchasing a product bearing a particular trademark, it will get the product it asks for and wants to get.

The trademark statute provides incentive to the majority of trademark owners to register their marks, so that others who desire to select new marks can avoid the selection of confusingly similar marks. That the system is working well is evidenced by the ever-increasing number of trademark applications which are being filed each year. If the cost of registering a trademark and maintaining the registration is too high, fewer people will seek to regis-

ter their marks, thus defeating the principal purpose of Congress in enacting the Lanham Act.

Our section has grave concerns about the adverse effects that high patent fees will have on independent inventors and small businesses, and consequently, on the creation of more jobs in the United States, particularly in these times of high unemployment. It is the small businesses which create the bulk of the new jobs which will be hurt the most if, in seeking patent protection for their inventions, they must pay the high fees necessary to bear substantially 100 percent of the cost of operating the Patent and Trademark Office.

Most small businesses are begun by one or more individuals with an idea and the hope that by hard work and perseverance they can get started in a business and eventually begin to make money. The history of industrial growth in the United States is based on the successes of individual inventors who risked all on their inventions and established small businesses, some of which have grown into large businesses and large industries.

Inventors should always be encouraged to file for patents. Even though many inventors do not ever achieve a return equivalent to the amount spent on obtaining their patents, the hope of success is always there when they file their patent applications. Those inventors who have been successful are the ones who have changed the manner in which we now live in the United States and others live throughout the world.

Just recently, on April 5, 1982, President Reagan proclaimed the week beginning May 9, 1982, as Small Business Week, and called upon all Americans to join him in this tribute. He stated in his proclamation—and I quote:

> Combining the dynamic forces of individual initiative with an alertness to consumer needs, small business increases the flexibility of our economic system and is a leading source of innovation and technological advancement for much of our industry. We are indebted to small business for its contributions to our success as a nation and dependent on its progress and vitality for our economic well-being. Small firms employ over half of the labor force and are leaders in employment creation and innovation.

This statement is by the same administration that has strongly maintained in support of H.R. 5602 that the principal beneficiaries of the patent and trademark system are the inventors and patent and trademark owners, not the members of the public. The administration's position has been fully and completely rebutted in the statement of our section filed March 10, 1982, with this committee, and which I understand will be a part of the record of the hearing on H.R. 5602.

President Dwight D. Eisenhower best summed up the patent system when he said:

> Soundly based on the principle of protecting and rewarding inventors, this system has for years encouraged the imaginative to dream and to experiment—in garages and sheds, in great universities and corporate laboratories. From such explorations of the frontiers of knowledge has welled a flood of innovations and discoveries which have created new industries and reactivated old, giving more and more Americans better jobs and adding greatly to the prosperity and well-being of all.

In fact, a former Secretary of Commerce stated in the foreword of a publication of the Department of Commerce entitled "Do You Know Your Economic ABC's?"—and I quote:

The United States patent system, which is as old as our Constitution, has a profound effect upon the lives of all Americans. It gives the creative among us an opportunity to profit from their inventions; it provides the foundation and means for industrial growth through the continuous development and protection of new products and processes. By stimulating innovation, it brings employment for millions of our citizens and greater conveniences and comforts for all.

In the same publication the Secretary states:

It is obvious that the industries which our inventors and their patents bring about are responsible for the creation of jobs. Tens of millions of American workers can trace their jobs directly to inventions; almost no jobs can be found that are not due, in some measure, to patented inventions put to use in industry.

The Founding Fathers gave to Congress the power to promote the progress of science and the useful arts. Under that power, Congress created the Patent and Trademark Office and eventually assigned jurisdiction of it to the Department of Commerce. Unfortunately, over the last 15 to 20 years, the Patent and Trademark Office has been treated as a neglected stepchild by several administrations who have systematically undercut its budget and decreased its personnel. It did not bother such administrations or even Congress that examiners were writing their decisions in longhand. It was not until March 31, 1982, that enough word processors were finally installed to permit the typing of all such decisions.

The country which has led the world in computer technology has not even permitted its Patent and Trademark Office to computerize all of its operations. Most of the searches are still being done manually by examiners today.

We ask that Congress reassert its role of insuring promotion of progress of science and useful arts by giving the PTO the necessary funds and establishing fees by statute generally along the lines set forth in resolution 11B of the appendix to our statement.

More importantly, Congress should again assume its role of watchdog of PTO functions by having the PTO appear before it every 4 years and explain what it has done, what goals have been attained, what goals are still to be reached, what plans there are to reach such goals, and what the costs will be. Inventors and patent and trademark owners and their attorneys should also be heard. Based upon such information, Congress can make necessary adjustments in appropriations and fees.

Only by such a commitment by Congress will this country continue on its path of invention and innovation, with new products and processes being developed and introduced, more small businesses being started, more growth of small businesses into large businesses and industries, more people being employed, and more taxes being paid into the U.S. Treasury by such businesses based upon profits and royalties received and taxes paid by such employees based upon their income.

Congress should not let this opportunity slip by. If it does, then in 1990, when we make plans to celebrate the 200th anniversary of the first Patent Act of 1790, one wonders what will be left of the system to celebrate. Will independent inventors and small businesses who have been priced out of the system even care what has happened to it?

Our section was so concerned about the negative impact on invention and innovation in the United States if H.R. 5602 were to become law, that it called a special meeting of the section on March 23, 1982, to discuss the proposed bill. The comments set forth in my prepared statement and those that I have summarized today fully reflect the section's position.

I understand that this subcommittee is going to mark up H.R. 5602 at the conclusion of this hearing. I have with me copies of a bill along the lines of H.R. 5602, but revised to reflect our section's position on patent and trademark fees. I would like to submit copies to the subcommittee this morning for its consideration at the markup session, if that's all right with you, Mr. Chairman.

On the eve of the special meeting—on March 22, in fact—I learned for the first time about Senator Weicker's proposal regarding a two-tier fee system. Time did not permit our section to fully consider the two-tier fee bill proposed by Senator Weicker at our special meeting. Accordingly, we have no section position on the two-tier fee system.

However, it is my personal opinion, based upon my 30 years of practice in patent and trademark law, that the two-tier fee system will not work in the manner contemplated by Senator Weicker. Under the Paris Convention, foreign applicants must be treated in the same manner as the national or domestic applicants. Therefore, we are going to see a sharp rise in patent applications filed in the names of foreign independent inventors, small businesses, and nonprofit organizations. We, in effect, are going to be subsidizing more and more applications filed by the Japanese, Germans, and by other foreign nationals.

As the number of filings increase, the amount of fees received are going to decrease and Congress will have to appropriate more money to the PTO. What fee does an employee inventor of a large company pay if the application is filed in his name and his employer only has the right of first refusal for an exclusive license? If no license is granted, does the employee pay one-half of the maintenance fees? Since title is in the employee, why should he pay the full fees? Can large companies form subsidiaries who conduct research and own the patents and qualify as small businesses? What is a small business? You look at the Code of Federal Regulations and note that the Administrator of the Small Business Administration has 37 pages of definitions of a small business.

What is a nonprofit organization? You look at the statute and the statute has 5 pages trying to define a nonprofit organization. I haven't checked to see how many pages of regulations IRS has to define what is a nonprofit organization.

In those countries where the state owns businesses and inventions, how easy will it be to file applications in the names of the state universities? If hundreds or thousands of applications are to be filed by a large company over the next 17 years, how much can that company save if it only had to pay $1,600 in fees versus $3,200? Will that company make an attempt to legally pay the lower fees? It all depends on how the law is written.

Will astute Japanese, German, and other foreign companies think of ways in which they need pay only the minimum fees? Should the U.S. Government subsidize these foreign companies?

How much of a shortfall is there going to be each year? Are large companies willing to pay the higher PTO fees if such fees are increased to cover the shortfall? How many other countries are going to adopt the two-tier fee system in order to obtain more money from large corporations? Will the number of filings by large companies continue to drop as they have?

In fact, the last time the fees were changed in 1965, I have figures from the Patent and Trademark Office showing that between 1963 and 1966 there were, on the average, 45,138 patents issued to U.S. companies and inventors, versus 10,941 filed by foreigners. That's for the years 1963 to 1966.

In the years 1979 to 1980, there were an average of only 33,717 patents issued to U.S. inventors or companies, versus 21,618 patents issued during those 2 years on the average to foreigners. So from 1963 to 1966, down to 1979 to 1980, the number of patents issued to U.S. nationals has dropped by 25.3 percent, and the number of patents issued to foreigners, primarily the Japanese and Germans and some of the other developed countries, has increased by 97.6 percent.

Another question. How much staffing is going to be necessary at the Patent and Trademark Office to monitor these fee payments?

At first blush it would appear that such a two-tier system would help the independent inventor, small businesses, and nonprofit organizations such as universities by making them pay one-half of the fees, paying $1,600 instead of $3,200 for a 17-year patent. Under the schedule of fees proposed by our section, we can achieve the same level of funding at a cost of $600—that's a $200 filing fee and a $400 issue fee for a 17-year patent.

If you want to increase the level of funding to improve the quality of issued patents, our maintenance fees will provide the increased funds. Under H.R. 5602 or under the two-tier system, the fees, including the maintenance fees, will have to be increased, or the appropriation will have to be increased, in order to improve the quality of the issued patents. There is nothing in the present budget of the PTO about improving the quality of the patents. There is nothing about reclassification, nothing about improved and increased examiner training, nothing about increased examination time.

Instead of installing a two-tier system with all of its uncertainties, where some applicants pay half-price, the ABA section proposes a system which we believe is going to be fair to all and will be the same fee system for all. We urge the subcommittee to adopt the section's proposed fee schedule. I personally urge you not to fall into the quagmire of the two-tier system.

Thank you very much for giving me your time, Mr. Congressman.

[The statement of Joseph DeGrandi follows:]

STATEMENT OF

JOSEPH A. DeGRANDI, CHAIRMAN

SECTION OF PATENT, TRADEMARK AND COPYRIGHT LAW

AMERICAN BAR ASSOCIATION

I am Joseph A. DeGrandi, Chairman of the Section of Patent, Trademark and Copyright Law of the American Bar Association. My Statement on H.R. 5602, the Bill to Authorize Appropriations to the Patent and Trademark Office in the Department of Commerce, is being presented solely on behalf of the Section of Patent, Trademark and Copyright Law and does not represent the position of the American Bar Association itself. To date, the Section's views on the proposed budget for the United States Patent and Trademark Office for the Fiscal Year 1982-1983 have not been submitted to -- and therefore have neither been approved nor disapproved by -- the House of Delegates or Board of Governors of the American Bar Association.

The Section of Patent, Trademark and Copyright Law, which consists of approximately 6,000 lawyers, essentially all of whom are in private or corporate practice, fully supports the position of the Administration, as presented through the Department of Commerce, that the Patent and Trademark Office should be funded for Fiscal Year 1983 at a level of approximately $155,000,000.* With such level of funding, the program

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* See Resolution 11A in Appendix.

proposed by Commissioner Gerald J. Mossinghoff to begin upgrading the Patent and Trademark Office will be off to a good start.

The Section fully agrees with the Commissioner's goal that the United States have a first-class Patent and Trademark Office issuing high quality patents which are enforceable in the federal courts and that such goal should be attained as promptly as possible.

The Section also agrees with the Administration that the level of fees paid to the Patent and Trademark Office by patent and trademark applicants and owners should be substantially increased,* particularly since such fees have remained unchanged since 1965.

To achieve the necessary level of funding for Fiscal Year 1983, our Section submits that PTO fees should be set statutorily by Congress, generally along the lines set forth in Resolution 11B (see Appendix), with the remainder of the amount necessary to reach the $155,000,000 funding level coming from Congressional appropriations. These proposed fees are generally along the lines proposed by the Commissioner of Patents and Trademarks except that the suggested base patent filing fee and base patent issue fee are $200 and $400 respectively, or $100 less for each fee than what the Commissioner plans to establish for Fiscal Years 1983-1985 under H.R. 5602. The Section's proposed schedule in Resolution 11B includes patent and trademark fees in addition to those proposed by the Commissioner, so as to permit reductions in some of the higher fees which the Commissioner otherwise would establish.

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* See Resolution 4 of Appendix.

The Section strongly disagrees with that part of H.R. 5602 which permits the Commissioner of Patents and Trademarks to set fees every three years and also to that part which permits the Commissioner to recover by such fees substantially the entire costs of operating the PTO. The premise upon which the Administration seeks to justify its position for funding PTO operations essentially entirely by fees, namely that inventors and patent and trademark owners are the principal beneficiaries of the patent and trademark systems, is clearly erroneous and untenable. The unsoundness of the Administration's position was amply demonstrated in our Section's Statement submitted March 10, 1982 to this Subcommittee. We understand that that Statement will also be a part of the record of the hearing on H.R. 5602. Further evidence rebutting such Administration position is set forth later in the present Statement.

Passage of H.R. 5602 in its present form, where the Commissioner of Patents and Trademarks eventually sets fees to a level sufficient to substantially fund all of the PTO operations, will have an extremely adverse effect on invention and innovation and will result in pricing most individual inventors and small businesses out of using the patent system and from registering their trademarks with the Patent and Trademark Office.

Prior to the enactment of Public Law 96-517 on December 12, 1980, the minimum fee paid to the PTO by an inventor to obtain a patent for the full term of 17 years was $175. Under Public Law 96-517, which is to become effective on October 1, 1982, the Commissioner is authorized to set fees to recover 25% of the estimated average cost to the Office of processing a patent application from filing to issuance as a

patent, or abandonment. For design patents, he was to recover 50% of such costs.

By the fifteenth year after enactment of Public Law 96-517 the Commissioner is to recover an additional 25% of the estimated cost to the Office for actual processing of patent applications, other than design patent applications, from their filing to issuance as patents, or abandonment. This additional 25% is to come from maintenance fees, payable 3-1/2, 7-1/2 and 11-1/2 years after the granting date of the patent.*

The Commissioner is also authorized by Public Law 96-517 to establish fees for the filing and processing of trademark applications and for other trademark services so as to recover 50% of the estimated cost to the Office for such processing.

The public, which is the principal beneficiary of the patent and trademark systems, was to have paid the remainder of the costs of operating the PTO.

The patent and trademark bars throughout the country recognized the need for increased fees at the time the pending Bill, which became Public Law 96-517, was being considered. Our Section approved two resolutions** at its Annual Meeting in August, 1980 which in effect

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* Maintenance fees are a direct tax on the patent owner. In the Department of Commerce 1965 publication entitled "The Story of the United States Patent Office", celebrating the 175th anniversary of the first Patent Act in 1790, the Department, after acknowledging the rights given to the inventor for 17 years under a U.S. patent, boasted "In contrast with many foreign governments, the United States does not tax patents, nor does it impsoe other conditions on the patentee."

** Resolutions 103-4A and 103-5 of Appendix.

supported the PTO and the Administration positions regarding Public Law 96-517. While the Section had previously opposed giving the Commissioner authority to set fees to recover a percentage of the cost of operating the PTO, and had also opposed maintenance fees, it agreed in 1980 to support the then pending Bill, recognizing that in order to reverse the deteriorating conditions in the PTO, more money was needed and that patent and trademark applicants and owners would have to bear a fair and reasonable share of the increased PTO costs through increased fees.

For each of Fiscal Years 1980, 1981 and 1982, Congress had appropriated approximately $120,000,000 to the PTO, and the PTO collected approximately $30,000,000 in fees each of those years which were paid into the U.S. Treasury. Our Section firmly believed that the level of funding appropriated by Congress for Fiscal Year 1983 would be increased to reflect the additional income to be produced by the increased fees. Having thus supported Public Law 96-517, and knowing that the fees would be increased effective October 1, 1982, the public, including patent and trademark applicants and owners, have never been told what those fees would be.

After cooperating with the PTO to get such increased funding in 1980, we were very disturbed to learn in November of 1981 that the Administration did not intend to permit Public Law 96-517 to go into effect.* Instead, the Administration asked for an approximate 43%

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* See Resolutions 9 and 10 of Appendix, which rescind Resolutions 103-4A and 103-5. See also Resolution 3 of Appendix which opposes legislation requiring the recovery through fees of any stated percentage of the costs of PTO operations. To estimate costs three years in advance requires difficult, expensive and time-consuming cost accounting analysis that includes factors which are incapable of exact determination in advance. Furthermore, a provision for the recovery of a percentage of costs tends to promote inefficiency in operations. There is little incentive to economize because additional expenses can be recovered (at least in part) simply by raising fees.

reduction in appropriations for the PTO (from $120,000,000 to $68,086,000) for Fiscal Year 1983 and also asked that the Law be changed so that the Commissioner will be authorized to establish fees which will eventually recover substantially 100% of the cost of the PTO operations.

Under the fees proposed by the Commissioner for Fiscal Year 1983, which fees will remain in force for three years before they can be changed again by him, the minimum fees to be paid for obtaining a patent for a full term of 17 years will be $3200.* As operating costs for the PTO increase each year due to inflation, annual salary increases, increased printing costs, increased rental for PTO space, additional equipment, such as dictating machines for Examiners, computers, word processors, etc., the fees must be increased in order to recapture such costs.

Our Section is also disturbed to note that H.R. 5602 essentially fails to provide any funds for the trademark operations of the Patent and Trademark Office. The operation of the trademark functions, including processing trademark applications to issuance as registrations, or to abandonment and the maintaining of the Trademark Trial and Appeal Board, will be exclusively supported by fees paid by trademark owners under H.R. 5602. Such owners will be forced to pay all of the costs of the trademark operations in the PTO, not just those directly associated with the acquisition and maintenance of the registrations. This is contrary to what is presently in Public Law 96-517.

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* This is the sum of the proposed $300 filing fee, $500 issue fee, and maintenance fees of $400, $800 and $1200 payable 3-1/2, 7-1/2 and 11-1/2 years, respectively, after issuance.

Congress, in passing the Trademark Act of 1946, commonly known as the Lanham Act, recognized the benefits to the public of having a trademark statute. Such statute protects the public against fraud, deception and unfair competition so that the public may be confident that when purchasing a product bearing a particular trademark, it will get the product it asks for and wants to get. The trademark statute provides incentive to the majority of trademark owners to register their marks so that others who desire to select new marks can find them and avoid the selection of confusingly similar marks. That the system is working well is evidenced by the ever increasing number of trademark applications which are being filed each year.

Under our Section's proposal, the public, through appropriations, would pay its reasonable share of the costs of operating the Patent and Trademark Office and the inventors and patent and trademark owners would also pay the substantially increased fees set forth in Resolution 11B, which fees would be set by Congress.

It is our understanding that in arriving at his proposed fees for Fiscal Years 1983-1985, the Commissioner and his staff, together with the budget people in the Department of Commerce, have conducted a time-consuming cost accounting analysis, which has had to take into consideration factors which are incapable of exact determination in advance, and then have built in a cushion to cover unexpected contingencies which may arise over the next three years to make sure that the fees collected will be sufficient to cover the estimated costs. The fees which the Commissioner has proposed are thus higher than would otherwise have been the case.

For each of Fiscal Years 1986-1988 the fees under H.R. 5602 will have to be adjusted upwardly to cover the higher costs enumerated above, particularly since the PTO becomes more dependent on fees to cover the cost of its operations and less dependent on Congressional appropriations.

Included in the costs for PTO operations will be capital expenditures for equipment, such as computers, dictating machines, word processors, etc. It never was the understanding of our Section when it supported Public Law 96-517 that the patent and trademark applicants and owners would be expected to pay any more than 50% of the "actual processing" of patent and trademark applications. It is totally unfair to have such applicants and owners pay the high cost of capital equipment.

Under the fees proposed by our Section,* the minimum fees for obtaining a patent for a full term of 17 years will be $3000.** Under the Section's proposal, an inventor would pay a minimum of $900 in fees to obtain his patent and retain it for 7-1/2 years before the second maintenance fee or tax of $750 would be due.

Most importantly, however, under our Section's proposal, the fees would be set by Congress and could only be changed by Congress. Our Section believes that such fees should remain in effect for a period not in excess of four years, so that Congress will be required to

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* Resolution 11B of Appendix.

** This is the sum of the $200 filing fee, $400 issue fee and maintenance fees of $300, $750 and $1350 payable 3-1/2, 7-1/2 and 11-1/2 years, respectively, after issuance.

review PTO fees at least at four-year intervals.* Thus, every four years the Patent and Trademark Office will have its performance reviewed by Congress and Congress can determine whether the programs previously proposed by the Commissioner in support of higher fees are being carried out and, if not, why not. More importantly, while such review is being conducted, the patent and trademark owners and their attorneys can also be heard by Congress. After all, who is closer to day-to-day operations of the Patent and Trademark Office than the members of the bar who are representing inventors and patent and trademark owners before the PTO on a daily basis and who have immediate, first-hand knowledge of what is occurring, where the problems are and can offer constructive suggestions?

Our Section has grave concerns about the adverse effect that high patent fees will have on independent inventors and small businesses, and, consequently, on the creation of more jobs in the United States, particularly in these times of high unemployment. Recently Catherine England, an economist with The Heritage Foundation, stated:**

> "The contributions of small businesses to the American economy are impressive: 97 per cent of all firms, 43 per cent of the gross national product, 73 per cent of retail sales, 76 per cent of construction dollar volume, and 58 per cent of private non-agricultural employment."

In her article, she referred to a survey of 5.6 million firms by MIT which found

> "that between 1969 and 1976 those companies with less than twenty-one employees created 66 per cent (net) of all new jobs

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* Resolution 7 of Appendix.

** The Daily Record, Baltimore, Tuesday, March 23, 1982.

> (new employment less jobs lost). During that period, firms with 500 or less employees created 87 per cent (net) of all new jobs."

The author also referred to a report of the Office of Management and Budget stating that

> "---between 1953 and 1973 firms with less than 1000 employees accounted for 50 per cent of all major U.S. innovations. These small businesses produced four times as many innovations per research and development employee as did larger firms. During that period small firms produced twenty-four times as many major innovations per R&D dollar as did those with more than 10,000 workers."

It is the small businesses which create the bulk of the new jobs which will be hurt the most, if, in seeking patent protection for their inventions, they must pay the high fees necessary to bear substantially 100% of the cost of operating the PTO.

Most small businesses are begun by one or more individuals with an idea and the hope that by hard work and perserverance they can get started in a business and eventually, hopefully, begin to make money. The history of industrial growth in the United States is based on the successes of individual inventors who risked all on their inventions and who established small businesses, some of which have grown into today's large businesses and industries.

Inventors should always be encouraged to file for patents. Even though many inventors do not ever achieve a return equivalent to the amount spent on obtaining their patents, the hope of success is always there when they file their patent applications. Those inventors who have been successful are the ones who have changed the manner in which we now live in the United States and others live throughout the world.

Tributes to inventions, inventors and the patent system have come from all three branches of our Government. Our founding fathers recognized the importance of patents when they adopted, without

dissent, at the Constitutional Convention, the vital provision in Article 1, Section 8, that Congress shall have the power

> "To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

One wonders where our country would be today without the wisdom and foresight of those who incorporated that important provision into our Constitution.

President George Washington, addressing Congress on January 8, 1790, said in support of the pending Bill to establish a patent system

> "...I cannot forbear intimating to you the expediency of giving effectual encouragement as well to the introduction of new and useful inventions from abroad, as to the exertions of skill and genius in producing them at home."

Thomas Jefferson who as Secretary of State, together with the Secretary of War and the Attorney General, comprised the Board responsible for granting patents under the Patent Act of 1790, and who, according to available records, made a personal examination of all the applications that came before the Board, stated:

> "The issue of patents for new discoveries has given a spring to invention beyond my conception."

In 1824, Daniel Webster in a speech in Congress, declared that

> "invention is the fruit of a man's brain, that industries grow in proportion to invention, and that therefore the Government must aid progress by fostering the inventive genius of its citizens."

President Abraham Lincoln, himself a patent owner, recognized the importance of the patent system when he stated:

> "The Patent System added the fuel of interest to the fire of genius."

President Franklin D. Roosevelt appreciated what the patent system did for the country during his years in Office when he stated:

> "The American Patent System has promoted countless applications of the arts and sciences to the needs and well-being of our people."

He paid special tribute to the patent system during World War II, stating:

> "Patents are the key to technology, technology is the key to production, and production is the key to victory."

President Dwight D. Eisenhower best summed up the patent system, saying:

> "Soundly based on the principle of protecting and rewarding inventors, this system has for years encouraged the imaginative to dream and to experiment--in garages and sheds, in great universities and corporate laboratories. From such explorations on the frontiers of knowledge has welled a flood of innovations and discoveries which have created new industries and reactivated old, giving more and more Americans better jobs and adding greatly to the prosperity and well-being of all."

Even the United States Supreme Court acknowledged the importance of the patent system when it stated:

> "The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and useful Arts.' Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered." Mazer et al v. Stein et al, 347 US 201, 74 S.Ct. 460 (1954).

A former Secretary of Commerce stated in the foreword of the 1969 publication of his Department entitled, "Do You Know Your Economic ABC'S?":

> "The United States patent system, which is as old as our Constitution, has a profound effect upon the lives of all Americans. It gives the creative among us an opportunity to profit from their inventions; it provides the foundation and means for industrial growth through the continuous development and protection of new products and processes. By stimulating innovation, it brings employment for millions of our citizens and greater conveniences and comforts for all."

The same publication credits inventions for creating jobs, stating:

"It is obvious that the industries which our inventors and their patents bring about are responsible for the creation of jobs. Tens of millions of American workers can trace their jobs directly to inventions; almost no jobs can be found that are not due, in some measure, to patented inventions put to use in industry."

This same Department of Commerce, four years earlier in its publication "The Story of the United States Patent Office", published in 1965 in commemoration of the 175th anniversary of the first Patent Act of 1790, said in the Foreword:

"Under the Patent System American Industry has flourished. New products have been invented, new uses for old ones discovered, and employment given to millions.

Under the Patent System a small, struggling nation has grown into the greatest industrial power on earth.

The Patent System is one of the strongest bulwarks of democratic government today. It offers the same protection, the same opportunity, the same hope of reward to every individual. For a hundred and seventy-five years it has recognized, as it will continue to recognize, the inherent right of an inventor to his government's protection. The American Patent System plays no favorites. It is as democratic as the Constitution which begot it.

* * *

The Patent System is the best, most workable method as yet devised for protecting inventions, fostering industrial and technical progress, and ultimately giving the world the benefits of the individual inventor's genius."

This is the same Department of Commerce which today has taken the contrary position that the public does not benefit from the patent and trademark systems and that the principal beneficiaries are the patent and trademark owners.

The founding fathers gave to Congress the power to promote the progress of science and the useful arts. Under that power Congress created the Patent and Trademark Office and eventually assigned jurisdiction of it to the Department of Commerce. Unfortunately, over the last fifteen to twenty years, the PTO has been treated as a

neglected stepchild by several Administrations who have systematically undercut its budget and decreased its personnel. It did not bother such Administrations or even Congress that Examiners were writing their decisions in longhand. It was not until March 31, 1982 that enough word processors were finally installed to permit the typing of all such decisions.

The country which has led the world in computer technology has not even permitted its Patent and Trademark Office to computerize all of its operations. Most of the searches are still being done manually by Examiners. The Commissioner of Patents and Trademarks, echoing the sentiments of frustrated inventors, patent and trademark owners and their attorneys, has pledged to establish the Office as a first-class operation issuing patents and trademark registrations which are readily enforceable in the federal courts. Our Section stands completely behind such goals.

We ask that Congress reassert its role of ensuring promotion of progress of science and useful arts by giving the PTO the necessary funds and establishing fees by statute, generally along the lines set forth in Resolution 11B of the Appendix.

More importantly, Congress should again assume its role of watchdog of PTO functions by having the PTO appear before it every four years and explain what it has done, what goals have been attained, what goals are still to be reached, what plans there are to reach such goals and what the costs will be. Inventors and patent and trademark owners and their attorneys should also be heard. Based upon such information, Congress can make necessary adjustments in appropriations and fees.

Only by such a commitment by Congress will this country continue on its path of invention and innovation, with new products and processes being developed and introduced, more small businesses being started, more growth of small businesses into large businesses and industries, more people being employed, and more taxes being paid into the U.S. Treasury by such businesses based upon profits and royalties received and by such employees, based upon their income.

Congress should not let this opportunity slip away. If it does, then in 1990, if any plans are made to celebrate the 200th anniversary of the first Patent Act of 1790, one wonders what will be left of the system to celebrate. Will independent inventors and small businesses who have been priced out of the system even care what has happened to it?

Respectfully submitted,

Joseph A. DeGrandi,
Chairman

APPENDIX

The following Resolutions have been approved by the members of the Section of Patent, Trademark and Copyright Law under the provisions of Article VI of the Section's By-laws and thus are established as Section positions.

Resolution 1.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law opposes in principle any requirement that the operations of the Patent and Trademark Office be funded substantially entirely by fees, because such a requirement erroneously implies that the general public does not benefit from the patent and trademark systems, while in fact the constitutional purpose of the patent system is to benefit the public by encouraging innovation and consequently expanding industries, creating new jobs and producing tax revenues for the Government, and the statutory purpose of the trademark system is to protect the public against fraud, deception or unfair competition; and further, because such a requirement would increase fees to such levels as to discourage the use of the patent and trademark systems, especially by individuals and small businesses."

Resolution 2.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law opposes in principle drastic reductions in the funding provided to the Patent and Trademark Office by the Congress such as proposed by H.R. 5602 which would reduce such funding nearly 43 percent immediately and over 90 percent in the near future; and
Specifically, the Section opposes Sections 1, 3(a), 3(b), and 3(d) of H.R. 5602 (Kastenmeier) 97th Congress and similar proposed legislation."

Resolution 3.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law opposes in principle any legislation requiring the recovery through fees of any stated percentage of the costs of operations of the Patent and Trademark Office, because such a provision

requires difficult, expensive, and time-consuming cost accounting analysis that includes some factors which are incapable of exact determination in advance so that specific percentages cannot be achieved, and because provision for the recovery of a percentage of costs tends to promote inefficiency in operations."

Resolution 4.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle a substantial increase in the fees presently payable to the Patent and Trademark Office in order to improve the quality of its operations, provided that such fees are established by Congress at such levels as to reflect the substantial benefit to the public of the patent and trademark systems, and provided further, that an additional amount corresponding to the income from fees is made available to the Patent and Trademark Office for use in the funding of its operations."

Resolution 5.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law opposes in principle legislation providing for the setting or variation by the Commissioner of Patents and Trademarks of fees relating to applications in the Patent and Trademark Office or relating to patents or registrations granted by that Office."

Resolution 6.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle the establishment of maintenance fees for patents filed after December 12, 1980, payable on an increasingly ascending scale 3-1/2, 7-1/2 and 11-1/2 years after the issue of the patent."

Resolution 7.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle legislation establishing a schedule of fees for the Patent and Trademark Office to remain in effect for a period not in excess of four years, so that Congress will be required to review the fees at least at four-year intervals."

Resolution 8.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle legislation repealing 35 U.S.C. 41 and 15 U.S.C. 1113, as amended by Sections 2 and 5 of P.L. 96-517, relating to patent and trademark fees, respectively."

Resolution 9.

"RESOLVED, that Resolution 103-4A, adopted by the Section of Patent, Trademark and Copyright Law in 1980, is hereby rescinded."

Resolution 10.

"RESOLVED, that Resolution 103-5, adopted by the Section of Patent, Trademark and Copyright Law in 1980, is hereby rescinded."

Resolution 11A.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle the proposed Fiscal Year 1983 level of funding for the Patent and Trademark Office of approximately one-hundred-fifty-five-million dollars."

Resolution 11B.

"RESOLVED, that the Section of Patent, Trademark and Copyright Law favors in principle a yearly Congressional appropriation of at least ninety-million dollars to fund partially such PTO operations, and favors in principle the Congressional setting of PTO fees sufficient to fund the remaining cost of such PTO operations generally along the following lines:

PATENT PROCESSING FEES

Base Filing (includes up to 3 independent and 20 total claims)	$ 200
Independent Claims Over 3	30 each
Total Claims Over 20	10 each
Multiple Dependent Claim(s)	100
Base Issue	400
Petitions for Automatic Extensions of Time	
First	50
Second	100
Third	200

Revival Fees Under Sections 133 and 151	$ 500
Design and Plant Patents	
Filing	125
Issue	175
Appeals	
Filing	115
Brief	115
Oral Hearing	100
Reissue	
Base Filing	200
For Each Independent Claim Above Number of Independent Claims in Original When Presented	30
For Each Claim in Excess of 20 and in Excess of Number in Original, When Presented	10
For Each Multiple Dependent Claim in Excess of Number of Such Claims in Original, When Presented	100
Base Issue	400
Maintenance Fee Level If Later Enacted by Congress	
3-1/2 years	300
7-1/2 years	750
11-1/2 years	1350

TRADEMARK PROCESSING FEES

Filing	$ 125
Renewal	200
Late Renewal	100
Section 8 Affidavit	75
Section 15 Affidavit	100
Section 8 and 15 Combined	175
Opposition	100
Cancellation	100
Appeal	100
Section 12(c) Claim	100
New Certificate	100
Certificate of Correction	100
Disclaimer to Registration	50
Amendment to Registration	100
Petitions to Commissioner	100
Concurrent Use	100

SERVICE FEES

Patent Copy	$ 1.00
Patent Copy Over 25 Pages and Color Plant Patent Copy	2.00
Trademark Copy	.40
Design Copy	$ .40
Record Assignment	20.00
For Each Item Assigned in Excess of One, Additional	3.00
Certified Trademark Copy	7.50

Mr. KASTENMEIER. Thank you, Mr. DeGrandi.

Your oral statement includes material, of course, not in your written statement, and we will be pleased to receive the proposals that your section has prepared.

Do I understand that your proposal does not increase fees, or does it increase fees?

Mr. DEGRANDI. It does increase fees, yes. We have a schedule of fees set forth in resolution 11B. But under our proposal, the fees are increased and the appropriation that Congress will have to appropriate will be at least $90 million compared to the $68 million as set forth in H.R. 5602, and to the $75 million that I believe Senator Weicker has introduced in his bill. So we are talking about a difference between $75 million versus $90 million, or $15 million.

I believe that with the two-tier system the shortfall is going to be much more than $7 million. You are eventually going to have to increase the fees or you're going to have to increase the appropriation. I believe that adopting the ABA position, having an appropriation of at least $90 million, that with these higher fees you're going to get the $155 million which is what the Patent and Trademark Office says it needs for fiscal year 1983 to operate the Office.

Mr. KASTENMEIER. Of course, you appreciate the President's position. He is asking you, as users, to do this for your country, to make some sort of contribution here. He is asking that only $68 million be appropriated, and I don't think Mr. Reagan is interested in the $90 million, in that type of increase, quite candidly.

Mr. DEGRANDI. The users are going to be paying quite a bit more than they have been. Instead of paying the minimum $65 filing fee that is now in effect, and the minimum $110 issue fee, they would be paying a $200 filing fee and a $400 issue fee. But the users are not the only ones that benefit from the Patent and Trademark Office. The public benefits to a far, far greater extent than the so-called users—the patent and trademark owners.

The public should pay its fair share. The public has been putting up close to $120 million, plus supplemental appropriations, for the last 3 years. What we're saying is go ahead and cut that appropriation by about 25 percent to $90 million. Thus you have decreased the appropriation of the Patent and Trademark Office and you have these higher fees and you're going to get the $155 million.

If you're going to ask the users, if you're going to ask the independent inventors, and the small businesses, to pay exorbitantly high fees, I personally feel that you're going to just price them right out of the market. They are not going to use the system. We're going to have a situation like we do now with Metro. Every time the fares go up, the ridership goes down. As the money coming in is decreased, the subsidies have to be increased.

Mr. KASTENMEIER. You did discuss very briefly—and I'm not sure that I understood your comments, and I understand your organization hasn't really had a chance to analyze S. 2326, Senator Weicker's two-tier approach. But there is a great deal of rhetoric in your statement, orally and as prepared, to the extent that you are interested in small business and the individual inventor, to the extent that that gives the small business enterprise and the individual inventor a break, that is, S. 2326.

Do I understand you still don't support the two-tier approach?

Mr. DEGRANDI. You appear to be giving the inventor a break by having him pay half of the fees. What you are doing is opening up a Pandora's box. You're going to have more and more users of the system, more and more applicants, looking at the language of the law and saying "Do I qualify as an independent inventor; do I qualify as a small businessman; do I qualify as a nonprofit organization? If I do, then I can take advantage of the lower fees."

But the larger companies are also going to be doing the same thing, and the foreigners are going to be doing the same thing. What I am afraid is going to happen is that, instead of appropriating, like Senator Weicker is suggesting, $7 million to cover the shortfall for the first year, if more and more applications are filed in the names of independent inventors and small businesses, that shortfall is not going to be enough. Maybe the following year it's going to have to be doubled, it may have to be tripled. You're going to have people looking at legal ways of filing their application to qualify for the lower fees.

In fact, even the large corporations must look at it very seriously. Large corporations that file 400 or 500 patent applications a year, if they could file those legally at half the price and pay only half the maintenance fees, they would be remiss if they didn't look at the statute very carefully to see if they could save that kind of money for their companies.

What I'm saying is this is going to mushroom on you and it is going to backfire 3, 4 or 5 years down the road. In starting such a system, wouldn't it be cheaper in the long run to appropriate the additional money, $90 million, and have the system remain the same for everybody?

Mr. KASTENMEIER. I don't think appropriating $90 million is likely to be in the ball park with this administration.

On one point you are not very persuasive, that Congress has determined who qualifies as a small business or a small enterprise time and time again. If we weren't able to do that, we wouldn't have the so-called Equal Access to Justice Act we had written by this committee and scores of other—the Small Business Committee can tell you precisely how to write legislation determining what is small business as opposed to that which is not small business. So I don't think that is really a major question. It may be a question of who determines what criteria are set. But there are available formulas for that and that is not a major problem, I don't think.

Well, at this point I would like to yield to my colleagues. The gentleman from Illinois, Mr. Railsback.

Mr. RAILSBACK. Thank you, Mr. Chairman.

I want to thank you for your testimony, Mr. DeGrandi.

I wonder, has the ABA set up any kind of a monitoring task force or committee to really try to oversee the operations of the Patent Office? What, if anything, has been done in that regard?

Mr. DEGRANDI. The whole section of 6,000 lawyers deals with the Patent and Trademark Office. The majority of them deal with the office on a daily basis and they know what is going on in the Patent Office.

We do have committees of our section—one of which is in constant communication with, knows the problems of, and tries to assist the Patent and Trademark Office.

Mr. RAILSBACK. The reason I asked, I am very much aware of some of the comments that you made in your statement on page 14, where you indicate that our country is No. 1 technologically, but actually we're not even employing modern data processing in the Patent Office. I am encouraged that under the new Commissioner they are making an effort to have information retrieval. In my opinion, it is long, long overdue. I think it is very important that you recognize the shortcomings and that you also try to be supportive of the efforts to improve the operation of the Patent Office and really bring it into the modern day world.

Could you review for me now—I didn't quite understand your criticism of the two-tier system as it would operate on foreign applicants for patents.

Mr. DEGRANDI. If you are going to give people the option to pay higher fees or lower fees——

Mr. RAILSBACK. How are you giving them the option if you define small business and then separate the two? That's what I didn't understand.

Mr. DEGRANDI. Small business is defined and nonprofit organization is defined, and then you have independent inventors. Now, if an inventor works for a large corporation——

Mr. RAILSBACK. Could you repeat that for me, please?

Mr. DEGRANDI. The independent inventor, under the two-tier system, the independent inventor, the small businessman, and a nonprofit organization would pay the lower fees.

Mr. RAILSBACK. That's right.

Mr. DEGRANDI. Now, will the foreigners, the foreign company now, file the application in the name of the independent inventor in the United States instead of filing it in the name of the large company? Will the foreigner give the independent inventor the title in the invention and retain for itself, say, the option of first refusal, for an exclusive license. That's one way of doing it. The invention and the application would be owned by the applicant. He would file it in his name and the patent would issue to the applicant. He could try to license it with anybody else, and if he finds a licensee, the only recourse that the company has is—he has to tell the company first, and the company said "Well, if you're going to license to our competitor, we will take the license under the same condition."

Mr. RAILSBACK. How do our patent fees compare to the patent fees in other countries?

Mr. DEGRANDI. When you talk about the filing fees and issue fees, the ones in foreign countries are fairly low. Where the foreign countries make their money is on the maintenance fees, which is nothing more than a tax. Most countries require the patentee to pay the maintenance fees every year to keep the patent in force.

Mr. RAILSBACK. Are they fairly substantial or fairly high?

Mr. DEGRANDI. They usually start off low and then work their way up to fairly high fees. They are paying over $10,000 in Germany, for example, to maintain the patent for the full life.

Mr. RAILSBACK. So as I understand it, I believe under your proposal there would be a $3,000 fee over the 17-year life——

Mr. DEGRANDI. That's right.

Mr. RAILSBACK [continuing]. And that would include the application fee, the issue fee, as well as the maintenance fee.

Mr. DEGRANDI. That's right.

Mr. RAILSBACK. So the other countries are really charging more than that, the other developed countries; is that correct?

Mr. DEGRANDI. They are charging more on the maintenance fees. That's where they make most of their money. What we will never know is how many independent inventors or small businesses have been discouraged from filing patent applications in those countries because of the fees.

Mr. RAILSBACK. Your feeling is and your theory is that it is better to have a lower application fee and then have a rather high maintenance fee, but after a longer period of time?

Mr. DEGRANDI. That is correct. What you want to do is to encourage the inventors to come into the Patent Office with their disclosures. They will file their applications, they will prosecute them, and if they are going to get patents, at that point the inventor looks at the allowed claims and makes a decision as to whether it is worth it to him to pay the $400 issue fee that we're proposing and get a patent. If he has a patent, then he has 3½ years to try to license that patent or sell that patent or go into business for himself based on that patent before the first maintenance fee would be due.

We are suggesting that first maintenance fee should be kept to $300, as low as possible, so that he then has an additional period of time up until the patent is issued for 7½ years to try to either license, or sell, or go into business for himself.

Based on experience, I find a lot of these inventors don't give up after their first or second year. At the 10th or 12th or 13th year they are still trying to push their inventions.

Mr. RAILSBACK. I would only mention that it is my understanding that during our patent history in this country, that actually the patent fees were what I guess I could call self-sustaining, up until the Second World War. In other words, the Government was recovering 100 percent of its operations——

Mr. DEGRANDI. I believe there was a time in our history when they did recover that, yes.

Mr. RAILSBACK. OK. Thank you.

Thank you very much, Mr. Chairman.

Mr. KASTENMEIER. The gentleman from Virginia, Mr. Butler.

Mr. BUTLER. Thank you, Mr. Chairman.

I came here prepared to accept the two-tier system, and now you have kind of shaken me up a little bit. Tell me, do other countries have two-tier systems?

Mr. DEGRANDI. I don't know of any other country that has a two-tier system. What I'm saying is——

Mr. BUTLER. Would you be likely to know if one did have it?

Mr. DEGRANDI. Yes; I would. I just don't know of any country that has a two-tier system. Because under the Paris Convention, you have to treat all of the applicants, the nationals and the foreigners, the same. The systems are all one tier, one fee, with the same fees for everyone.

What I am afraid of—and this is my own personal opinion, not the section's position—is that if this country starts a two-tier

system, with the idea that we're going to sock it to the big companies and let the big companies pay, there is nothing to prevent these other countries from adopting a two-tier system with the hope they are going to sock it to the big American companies or big Japanese companies.

Then, even with the large companies, you reach a point where they will be very, very careful as to the number of applications that they file, the number of patents that they get overseas, and how long they're going to maintain all those patents in those foreign countries.

I know from personal experience that a lot of large companies have drastically decreased the number of their domestic filings and, more importantly, the number of their foreign filings. In fact, the statistics that I read to you showing the number of patents issued to domestic companies and individuals between 1963 and 1966 versus 1979 and 1980 shows a 25-percent drop of patents issuing in our country, where the foreigners have increased close to 100 percent.

Mr. BUTLER. Tell me a little bit more about the Paris Convention, the expression in this area.

Mr. DEGRANDI. The Paris Convention is a treaty of 1883, and under the provisions of that treaty the foreigners are going to be treated the same as the nationals. So there are a number——

Mr. BUTLER. Do you interpret that as meaning our definition of small business or independent inventor must be applied to foreign nationals in the same way that it is applied to American citizens?

Mr. DEGRANDI. I believe it's going to have to be that way.

Mr. BUTLER. How could we police—I mean, an American company, we can determine if they meet the indices of a small business. But how can we apply that to a French company, for example?

Mr. DEGRANDI. Either through passage of legislation or through rules and regulations. You can build up a staff in the Patent and Trademark Office to try to get whatever information you can out of the foreigners, or you can have a questionnaire that they have to fill out, and somebody in the Patent and Trademark Office perhaps looks at it to see whether or not the foreign company complies with our definition of a small business or of a nonprofit organization.

All I'm saying is, the more obstacles you put in the path of either the United States or the foreign nationals, that they have to fill out questionnaires, that they have to come in with profit and loss statements, if they have to prove to the satisfaction of the Patent and Trademark Office that they are, in fact, entitled to the lower fees, and the Office has to have enough staff to monitor all of this, the cost is going to be increased to the applicants. All I'm saying is, under Senator Weicker's bill, the filing fee is going to be $150; under our proposed bill it will be just $200. For that extra $50, I think most people would be happy paying the same filing fee and be treated the same.

Mr. BUTLER. In response to my question, then, you are saying that we will have to, in order to police this two-tier criteria, we will have to increase the bureaucracy one way or another or else take our chances on the integrity of the applicant.

What sanctions can we have for a person misfiling, or what sanctions are in the Weicker bill?

Mr. DEGRANDI. I don't recall any sanctions being in Senator Weicker's bill.

Mr. BUTLER. Is it present law, if you—well, I don't want to ask you present law.

If they fail to pay the required fee, would that place in jeopardy the patent?

Mr. DEGRANDI. If they make a false oath or declaration, if they try to pay the lower fee when, in fact, they should have paid the higher fee, and this comes out later on—and it usually will come out in litigation—chances are the patent would be held invalid. That's the reason I say a lot of these companies will not pay the lower fees unless they honestly believe they are entitled to pay the lower fees. It's just a question of checking the law, checking the regulations, to see how many foreigners can legally qualify for the lower fees. They are not going to jeopardize their application or their patent by paying a lower fee when they should have paid a higher fee, because that's going to come out later on in litigation and the patent would very likely be held invalid.

Mr. BUTLER. So you think the effect of that, to have misrepresented your status, would be to place in jeopardy and possibly invalidate the patent rights, and that's a pretty extreme sanction.

I guess what occurs to me, certainly a layman undertaking to file his patent is going to not realize all of the risks in this, even though he's going to want to claim his 50-percent opportunity.

Of course, we talk about the patent filing fees, but the most inhibiting single factor, in my judgment, of the small businessman and the small inventor are the legal fees involved in processing a patent. You are asking us to go slow on increasing the costs which the Government would collect, but what is there in the program of your section that would make it easier and less expensive for the independent inventor and the small businessman that wants to file a patent, what is there in the program of your section that is trying to hold down this aspect of the cost?

Mr. DEGRANDI. Here again, if you get a small inventor or a small businessman that is in financial straits and comes to a law firm—and I can only speak for my own law firm—we take that into consideration and we will keep the fees low, and sometimes we don't even charge fees.

Mr. BUTLER. Of course, that's a matter of individual discretion.

Mr. DEGRANDI. I think you will find that true with most of your private practitioners throughout the country, that if an individual comes in with a good invention and he just doesn't have the finances, the resources, to pay the entire attorneys' fees, that the attorneys will charge either lower fees or charge no fees at all, or maybe take a percentage or an interest in the invention. There are a lot of ways to work it out.

Mr. BUTLER. That's nice to hear. I have two or three good ideas I want to bring by to you folks. [Laughter.]

Mr. Chairman, I have no further questions.

Mr. KASTENMEIER. The committee appreciates your testimony, Mr. DeGrandi. I know that you have another appearance to make, so if you would care to excuse yourself, we would understand.

Mr. DEGRANDI. Thank you very much.

Mr. KASTENMEIER. In fact, I know, too, that our next witness, Mr. Julius Jancin, who is president of the American Patent Law Association, also has another appearance. Mr. Jancin, I hope we can be a little more expeditious in your testimony than we were with Mr. DeGrandi.

We have your prepared statement and you may proceed as you wish, sir.

STATEMENT OF JULIUS JANCIN, JR.

Mr. JANCIN. Thank you, Mr. Chairman. I would like to excerpt and paraphrase from my prepared statement that I request be entered into the record.

Mr. KASTENMEIER. Without objection, your statement, as prepared, will be received and made a part of the record.

Mr. JANCIN. I appreciate this opportunity to offer the views of the APLA on H.R. 5602. Allow me to first express our support for those sections of the bill that pertain to other than feesetting. These amendments to titles 15 and 35 are meritorious improvements in the law and in our opinion are noncontroversial.

ALPA opposes the enactment of sections 3 (a), (b), and (d) of the bill, which double the levels set for patent and trademark fees by Congress in 1980 in Public Law 96-517.

We have polled our entire membership. Hundreds of practitioners from throughout the country responded in a high margin of disapproval of this fee proposal. APLA committees studied the fee-setting legislation. Thereafter, the APLA board directed me to convey the association's opposition to the Congress.

In April 1980, this subcommittee held hearings on H.R. 6933, and the Commissioner of Patents and Trademarks testified before this subcommittee as follows—and I quote:

> Under the present statutory fee schedule, patent applicants and patentees pay approximately 20 percent of the costs of processing patent applications, and the public pays approximately 80 percent. Clearly, patent applicants and patentees should shoulder a higher percentage of these costs.
>
> The higher patent fees become, however, and consequently the lower the public's share, the more likely inventors and businesses will turn away from seeking patents and disclosing inventions through patenting.

And Commissioner Diamond at that point concluded "a balance is needed."

H.R. 6933, from which Public Law 96-517 matured, as introduced, would have set patent fees to recover 60 percent of the expense of operating the patent operation of the Patent and Trademark Office, the so-called PTO. H.R. 6933 would have set trademark fees to recover 100 percent of the cost of operating the trademark operation.

This subcommittee reduced the H.R. 6933 fee-setting percentages to a 50-percent recovery of costs for patents and a 50-percent recovery of costs for trademarks. That decision, which the APLA believes was a correct one, is now found in Public Law 96-517, with new fees scheduled to become effective on October 1, 1982.

To say that the public does not benefit from the patent system is wrong. Here, for example, if you may not have seen this particular document previously, is a copy of the Official Gazette that is issued weekly by the PTO. Every page of the Gazette contains information

about two to four new patents that range in size from a jumbo, which is literally a book, to those which are possibly of a more regular size that might be compared to a chapter in a book. The incentive to invent produces such new public information regularly in all technologies for all kinds of applications and uses. Certainly the public benefits from this.

If H.R. 5602 is enacted, as of October 1, 1982, the cost of full 17-year patent protection will be increased from a current minimum of under $200 to an estimated minimum of $3,600. That is a substantial increase.

During the past 20 years, patenting by American inventors has fallen steadily and dramatically. Further in 1960, 80 percent were awarded to American inventors and 20 percent to foreign inventors. Today, only 60 percent are granted to Americans and 40 percent to foreign inventors. This slowdown of patenting, which by the way appears to be continuing, reflects the slowdown of domestic industrial innovation.

U.S. patent fees are admittedly at a low level and have not been a factor in this harmful decline. Other factors which are currently being addressed by Congress have caused the decline in U.S. industrial innovation. However, the fee levels proposed in H.R. 5602 will clearly not be a positive factor in any future decision to file patent applications.

Of course, the most serious negative impact of these high fees will be felt by small businesses and independent inventors. Some are likely to be priced out of the patent system, either partially or totally.

Another legislative intent, Weicker S. 2326, merits comment because it has been introduced to relieve small business, nonprofits, and individual inventors of the high fees in H.R. 5602 by permitting these categories of users to pay 50 percent of the fees prescribed in H.R. 5602.

I think, admittedly, the Weicker approach will soften the impact on small business and the individual inventor. I think the Weicker approach has another salutary point about it, namely, that the fees are set in the statute which provides for a certainty, as distinguished from developing fees by way of percent of cost. Having the fees in the statute means that there is an element of congressional control, which is another favorable point.

Regretfully, however, the APLA opposes this two-tier fee approach for the following key reasons: first, we cannot approve a practice that favors certain foreign nationals with lower fees over U.S. companies; and second, we believe that for the small saving, the risk of other countries adopting a two-tier fee system harmful to the United States is not worth chancing.

The intellectual property related problems directed to unfavorable treatment of nationals in developed countries, now evident in the Paris Convention Treaty, as well as the Law of the Sea Treaty negotiations, indicate that these are real, not academic, matters.

And our third reason for being opposed to the two-tier fee system is that we support equal treatment of all applicants and all nationals.

In any of this, we would request the Congress and request this subcommittee to exercise an aspect of caution by seriously consid-

ering the addition of a sunset provision so that we might all take a look in the future with respect to the decisions that we are making today and the success that these decisions will or won't have.

The underlying policy in the fee provisions of H.R. 5602 relates not to the patent system but to increasing Government revenues. In this case, that policy directly conflicts with the clear national need to stimulate research, invention, patenting, innovation, and the production for the world marketplace of American products made by or embodying new and advanced technologies.

We have serious reservations about the wisdom of establishing an arrangement whereby the PTO budget is almost entirely provided by so-called user fees. If a Commissioner can raise fees by regulation to meet perceived budget requirements, meaningful incentives to hold down costs and manpower levels will be lost.

We do support the administration's budget request of nearly $155 million, and the production goals Commissioner Mossinghoff has set for both the patent operation and the trademark operation.

Commissioner Mossinghoff estimates that if Public Law 96-517 is allowed to operate, nearly $48 million will be generated in fee income in fiscal year 1983, an increase of approximately $19 million over the current fiscal year. We believe it is fair and reasonable that a comparable $19 million amount should be added to the net public support of the PTO in this fiscal year of nearly $90 million to increase the amount authorized in fiscal year 1983 to $108 million.

With that, gentlemen, I conclude my APLA statement and will be very happy to answer any questions if there are any.

[The statement of Julius Jancin follows:]

STATEMENT OF J. JANCIN, JR., PRESIDENT, AMERICAN PATENT LAW ASSOCIATION BEFORE THE SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES, AND THE ADMINISTRATION OF JUSTICE

The American Patent Law Association (APLA) is a national society of more than 4600 lawyers engaged in the practice of patent, trademark, copyright and other fields of law relating to commercial and intellectual property rights. Collectively we represent clients of all sizes—big business to small business, non-profit organizations to independent inventors, innovators and entrepreneurs.

I appreciate this opportunity to offer the views of the APLA on H.R. 5602. Allow me to first express our support for those Sections of the Bill that pertain to other-than-fee setting. These amendments to Titles 15 and 35 are meritorious improvements in the law, and in our opinion are non-controversial.

The APLA opposes the enactment of Sections 3 (a), (b) and (d) of the Bill which double the levels set for patent and trademark fees by Congress in 1980 in Public Law 96-517.

We regret having to disagree on such an important and fundamental issue with Commissioner Mossinghoff, who in many other matters has our full support. However, we have polled our entire membership. Hundreds of practitioners from throughout the country responded in a high margin of disapproval of this fee proposal. After having been informed about such response, and after having received input from several APLA Committees assigned to study the fee setting legislation, the APLA Board of Directors voted to oppose the patent and trademark fee setting provisions in H.R. 5602, and directed me to convey the Association's opposition to the Congress.

In April of 1980, this Subcommittee held hearings on H.R. 6933 which contained, among other things, the proposal of the Administration to increase patent and trademark fees. The Commissioner of Patents and Trademarks, Sidney Diamond, testified before this Subcommittee in support of that proposal as follows:

"Under the present statutory fee schedule, patent applicants and patentees pay approximately 20 percent of the costs of processing patent applications and the

public pays approximately 80 percent. Clearly, patent applicants and patentees should shoulder a higher percentage of these costs.

"The higher patent fees become, however, and consequently the lower the public's share, the more likely inventors and businesses will turn away from seeking patents and disclosing inventions through patenting. A balance is needed."

"H.R. 6933 as introduced would have set patent fees to recover 60 percent of the expense of operating the patent operation of the Patent and Trademark Office (PTO), and trademark fees to recover 100 percent of the cost of operating the trademark operation.

This Subcommittee obviously accepted Commissioner Diamond's warning that a balance was needed, and reduced the H.R. 6933 fee setting percentages to a 50 percent recovery of costs for patents and a 50 percent recovery of costs for trademarks. That decision, which APLA believes was a correct one, is now found in Public Law 96-517 with new fees scheduled to become effective on October 1, 1982.

Currently an inventor, or his employer, pays on the average $235 in fees to obtain a patent and the 17 years protection which attaches. Public Law 96-517 will increase fees required to obtain a patent to approximately $400 and impose maintenance fees estimated at $200, $400, and $800 payable 3½, 7½ and 11½ years into the life of the patent. The maintenance fees must be paid to keep the patent in force. This law, which establishes maintenance fees for the first time in the United States, does represent a steep increase of PTO fees. However, they are reasonable as is the underlying principle that the public and patent and trademark owners benefit equally from the patent and trademark systems.

To say that the public does not benefit from the patent system is wrong. Here, for example, is a copy of the Official Gazette that is issued weekly by the PTO. Every page of the Gazette contains information about 2 to 4 new patents that range from a jumbo about the size of a book, to a regular which is more like the chapter of a book. The incentive to invent produces such new public information regularly in all technologies for all kinds of applications and uses. Certainly the public benefits from this.

If H.R. 5602 is enacted, as of October 1, 1982, patent application and issue fees are expected to increase to more than $800, and maintenance fees to approximately $400, $800, and $1,600 in 1980 dollars. The cost of full 16 year patent protection will be increased from the current minimum of $165 to an estimated minimum of $3,600. On October 1, 1982, United States filing and issue fees will be the highest for any nation in the world. Although United States maintenance fees, because of their prospective application, are more difficult to compare with foreign fees, they are expected to be among the highest, although not the highest, in the world.

As pointed out previously, a primary public benefit of the patent system is the systematic disclosure of advances in technologies. When a patent issues, the invention covered is made available in detail to the public and specifically to others laboring in that particular field. Such advances in science and technology make it possible to build on available human knowledge and experience. During the past 20 years, patenting by American inventors has fallen steadily and dramatically. With a constant level of issued patents, in 1960 80 percent were awarded to American inventors and 20 percent to foreign inventors. Today only 60 percent are granted to Americans and 40 percent to foreign inventors. This slowdown of patenting, which by the way appears to be continuing, reflects the slowdown of domestic industrial innovation. The negative impact on the economy comes not only from resulting commercial sluggishness, but from ever decreasing disclosures of of inventions which acts to further dampen innovation.

U.S. patent fees are admittedly at a low level and have not been a factor in this harmful decline. Other factors which are currently being addressed by Congress have caused the decline in U.S. industrial innovation. However, the fee levels proposed in H.R. 5602 will clearly not be a positive factor in any future decision to file patent applications. Perhaps the best that can be safely said is that this increase in fees will not encourage corporations to file patent applications.

Of course the most serious negative impact of these high fees will be felt by small businesses and independent inventors. Some are likely to be priced out of the patent system either partially or totally. This segment of the public will also be most severely pressured financially to meet the maintenance fees to keep patent protection alive until commercialization is abandoned or is successful.

Another legislative initiative (S. 2326) merits belief comment because it has been introduced to relieve small business, non-profits and individual inventors of the high fees in H.R. 5602 by permitting these categories of users to pay 50 percent of the fees prescribed in H.R. 5602—fees, by the way, which are the same as those already set in Public Law 96-517.

Regretfully the APLA opposes this two-tier fee approach for the following key reasons:

(1) We cannot approve a practice that favors certain foreign nationals with lower fees over U.S. companies.

(2) We believe that for the small "saving", the risk of other countries adopting a two-tier fee system harmful to the United States is not worth chancing. The intellectual property related problems directed to unfavorable treatment of nationals in developed countries, now evident in the Paris Convention Treaty as well as Law of the Sea Treaty negotiations, indicate that these are real, not academic, matters.

(3) We support equal treatment of all applicants and all nationals.

The proposed fee increases in H.R. 5602 are clearly a disincentive where incentives are in order. Granting patents is one of the most obviously beneficial economic services performed by the Federal Government on behalf of the public. Using this service should be encouraged. To meaningfully discourage it is simply not in the public interest.

The underlying policy in the fee provisions of H.R. 5602 relates not to the patent system, but to increasing Government revenues. In this case, that policy directly conflicts with the clear national need to stimulate research, invention, patenting, innovation and the production for the world marketplace of American products made by or embodying new and advanced technology.

This fee proposal is not only contrary to economic common sense, but to principles that are sound and important. In the Independent Offices Appropriations Act of 1952, Congress authorized Executive Branch agencies to set "fair and equitable" fees for services provided the public "taking into consideration direct and indirect cost to the Government, value to the recipient, (and) public policy or interest served". To set user fees to recover 100 percent of the administration of the Lanham Act for trademarks and 100 percent of the actual processing of patents, is to ignore the enormous public benefit these laws provide and were intended by earlier Congresses to provide.

We also have serious reservations about the wisdom of establishing an arrangement whereby the PTO budget is almost entirely provided by user fees. Government agencies operate under the budget discipline of the Office of Management and Budget and the Congressional Budget and Appropriation processes. If such discipline is taken out of these processes so that a Commissioner can raise fees by regulation to meet perceived budget requirements, meaningful incentives to hold down costs and manpower levels will be lost.

Section 1 of H.R. 5602 authorizes $68,086,000 to be appropriated to the Patent and Trademark Office (PTO) in fiscal year 1983. The Administration budget proposal for the PTO is $154,934,600. The difference of $86,848,000 is to be made up in fee revenue. By way of contrast, the amount appropriated to the PTO in this current fiscal year was $118,961,000, with approximately $29 million to be collected in fees.

We support the Administration budget request of nearly $155 million, and the production goals Commissioner Mossinghoff has set for both the patent operation and trademark operation. However, we do not agree that this substantial increase in budget should be entirely borne by patent applicants, owners, and those who register trademarks. Commissioner Mossinghoff estimates that if Public Law 96–517 is allowed to operate, $47,758,000 will be generated in fee income in fiscal year 1983, an increase of approximately $19 million over the curent fiscal year. We believe it is fair and reasonable that an equal $19 million amount should be added to the net public support of the PTO in this fiscal year of nearly $90 million to increase the amount authorized in fiscal year 1983 to $108,000,000. By doing this, the increase in the budget of the PTO will be equally shared by the public and the user of PTO services.

In conclusion, we respectfully urge this Subcommittee not to amend the fee provisions of Public Law 96–517, and to authorize some $108 million for fiscal year 1983 in accordance with a recognition that the public and users share in the benefits as well as responsibilities of the patent and trademark systems that are extremely important to the economic well-being of this country.

Thank you.

Mr. KASTENMEIER. Thank you very much, Mr. Jancin.

I have just one question, and then I will yield to my colleagues.

You listened very carefully to Mr. DeGrandi speaking for that section of the American Bar Association——

Mr. JANCIN. Yes.

Mr. KASTENMEIER. In what respect, if at all, does the position of your association differ from theirs? Is there any particular way it differs?

Mr. JANCIN. Yes. I would say that—if I can enumerate them, there probably are these differences:

Mr. DeGrandi described or characterized a so-called ABA bill approach, so that, in effect, we are possibly looking at a triangle which might be 5602, Weicker 2306, and the ABA approach.

The APLA is saying that triangle should be a square, because we believe that what the Congress did in the 96th Congress when it enacted 96-517 was correct, should be recognized and supported.

If I may, I did make some notes as questions were asked of Mr. DeGrandi, and there are some comments that I would like to make.

The question was raised with respect to the two-tier patent fee system, what is wrong with it, and possibly the following will express some concern that I have personally.

When H.R. 5602 was first brought to my attention and I realized that the fees would be increased, I raised the question with the appropriate administration leadership whether consideration had been given to provide relief to small investors, small business or nonprofits. The answer that I was given was yes, but "we decided against it" because the Paris Convention, by way of example, requires national treatment, as Mr. DeGrandi described. At that point in time that pretty well put the issue to rest.

With time, however, it became clear that more and more concern was being given to the high fees, as evidenced by people who spoke to me. Some practically grabbing me by the lapels and asking what will we do about this high fee problem. I also received letters—and I imagine that you gentlemen received letters, too. The fee issue became more critical. Something had to be done, and that something got to my attention when I saw a draft of what then became the Weicker bill. When I saw the provision in the draft that said, in effect—and this is what is in the bill—that small businesses, nonprofits and individual inventors will pay 50 percent of what everybody else will pay. That caused me to wonder what kind of a "fix," if I may use that word, would be used to take care of the two-tier fee problem that had been described to me previously. On inquiry, I learned that there were some studies underway.

One way of taking care of problems with individual inventors is to ask them to sign an affidavit and if they don't tell the truth there can be a criminal sanction against them of the kind we already have in the declaration in the patent practice, and they may lose their patent rights.

But the problem with the small business and the nonprofits which was being studied, has not so far as I know—and this is based upon inquiry—been solved. It is perceived by the administration that the problem is not a big problem; in fact, it's viewed to be a minor problem, and nothing will be done about it. I feel uncomfortable with this solution. Maybe it is a small problem, and maybe things will go along very nicely. But I think that when we take the story that I have just told you and we couple that with the possibility that other countries might go to a two-tier system and create a certain amount of mischief, then are we wise, are we pennywise and pound foolish in saying "well, we're going to buy that kind of

an approach and make it better for a certain category of patent and trademark user"? Are we potentially buying a lot of trouble?

I don't know. I really have to say that I'm not sure that anybody knows today, and that makes the decisionmaking extremely difficult.

Mr. KASTENMEIER. Thank you, Mr. Jancin.

The gentleman from Illinois, Mr. Railsback.

Mr. RAILSBACK. Thank you, Mr. Chairman.

Mr. Jancin, I am wondering what is your position with regard to the voluntary arbitration of patent disputes, including issues of validity or infringement?

Mr. JANCIN. I understand the issue that you're talking about. I personally favor it. It has not been before the American Patent Law Association. We are having a meeting next week, and it is a matter that I will attempt to get before the association and the board.

My guesstimate at the present is that we would come out and support that provision four-square.

Mr. RAILSBACK. That's good to hear.

I also want to commend the ALPA for its general support of trying to modernize and make more efficient the Patent Office. I guess I would encourage you to keep up that work.

Thank you, Mr. Chairman.

Mr. JANCIN. Thank you very much, and we appreciate the help of the subcommittee, too.

Mr. KASTENMEIER. The gentleman from Virginia, Mr. Butler.

Mr. BUTLER. Thank you, Mr. Chairman.

I think the witness anticipated most of my questions. I am still in a position of real concern about the information that both you and the preceding witness gave us about the declining level of American inventor applications. You don't attribute this is the existing fee schedule.

Mr. JANCIN. Oh, no. As a matter of fact, I would characterize the existing fee schedule as being bargain basement prices. They are really quite low. I have no problem with what the Congress did in enacting 96-517. They are increased quite substantially there.

Mr. BUTLER. What are we going to do, or what can we do to encourage—I have the impression that a lot of innovative American inventors who are not going to the trouble or the expense of filing their application simply because of the costs—as I mentioned earlier, the legal fees involved and the cost of defending the patent when it comes along.

What can we do about encouraging these people to make the best use of their product of their thought?

Mr. JANCIN. I think that we have done some things already. By way of example, I think the new Court of Appeals for the Federal circuit will help. You mentioned the high cost of litigation and the APLA did support the court measure.

I think the arbitration measure is another way of helping out. I think that some of the tax credits for R&D considerations that are going on within the Congress—As you know, there has been a great awareness of innovation and the need for productivity and things that are related here in the past few years. It is just, in my

opinion, taking some effort here and some there. There isn't any one single thing.

Mr. BUTLER. Thank you.

Do you have the same generosity expressed by the previous witness for those impoverished inventors that come to you with a good idea?

Mr. JANCIN. Yes, sir, I think so. If I may say so, in once sense that is an irrelevant point with respect to what we're addressing here, because——

Mr. BUTLER. Well, that's the license we sometimes take to ourselves.

Mr. JANCIN. I understand. Well, I think a problem we have here is something we might call a "sticker shock". That's a term I got from Mr. Iaccoca when he is advertising his cars. It's just a terrible jump that particularly some categories of inventors are going to experience when they find that the fees possibly have been a few hundred dollars going up to several thousand, and whatever the attorney fees have been, just look upon them as being the constant.

Mr. BUTLER. That will be surprising, though, won't it?

I yield back, Mr. Chairman.

Mr. KASTENMEIER. On behalf of the committee, Mr. Jancin, we appreciate your appearance this morning. You have been very helpful to us and I hope your testimony is as enlightening before the next committee you are appearing before.

Mr. JANCIN. Thank you. May I leave?

Mr. KASTENMEIER. Yes.

Mr. JANCIN. Thank you.

Mr. KASTENMEIER. Next I would like to greet, as the gentleman from Virginia has already introduced, Mr. Harrison McCandlish, chairman of the patent, trademark and copyright law section of the Virginia State Bar.

We have your statement in its entirety as well, Mr. McCandlish, and will accept it and make it a part of the record. You may proceed as you wish.

STATEMENT OF HARRISON E. McCANDLISH

Mr. MCCANDLISH. Thank you, sir. I welcome this opportunity to testify in opposition to H.R. 5602.

I am speaking on behalf of the patent and trademark section for the Virginia State Bar, and rather than read the prepared statement, I will just summarize or highlight some of the major points. I do ask, however, that our updated or amended prepared statement be entered in the record of this hearing because it does address the Patent Office's most recent compromise proposal which we, incidentally, find to be unsatisfactory.

Mr. KASTENMEIER. Without objection, your statement in its entirety, together with a number of appendixes—you have two—will be accepted and made a part of the record.

Mr. MCCANDLISH. Thank you.

As background, I just briefly want to point out that since the relocation of the Patent Office to Arlington, Va., northern Virginia has become one of the major centers of the patent and trademark profession in this country, and that the patent and trademark sec-

tion of the Virginia State Bar has grown comparably with that patent and trademark sector.

As for myself, I have devoted my entire legal career to the patent and trademark field, starting as a patent examiner in 1956, and then as a private practitioner from 1958 to the present time.

We share the American Patent Law Association's position essentially in all respects. Specifically, our position is that we oppose H.R. 5602 to the extent that it increases Patent Office fees to the 100-percent cost recovery level. We also oppose the recent Patent Office compromise proposal because it offers nothing more than a token relief to small business and the independent inventor.

Lest our specific position becloud our full position on the matter, the latter should also be made clear. We do favor a first class Patent Office system, and we do favor issuance of quality patents. But at the same time we also favor access to the patent system by all and not just by big business and the wealthy.

Our chief concern with H.R. 5602 is that it will price the patent system out of the reach of the small businesses and independent inventors, to say nothing about the counterproductive effect upon larger companies and the growth of technology in this country. So if H.R. 5602 is enacted, we believe that the patent system will become nothing more than an exclusive club for large companies and the wealthy.

Although the chief concern here is for the small businesses and independent inventors, the high fees under H.R. 5602 no doubt will cause just about all businesses and all independent inventors to cut back on their patent activity.

I think an example here would be worthwhile to identify the overall costs that are incurred by an inventor as he proceeds to obtain a patent.

According to a recent survey by the American Patent Law Association, the legal cost alone for preparing an average patent application was running about $1,100 in 1980. To this you have to add another $800 for prosecuting that patent application after it is filed in the Patent Office. Finally, you have to add the Patent Office fees, which under the current schedule are a minimum of $175. So that what you come out with is a total cost of roughly $2,000 under the current fee schedule. So under the current fee schedule, if the inventor has a budget of $6,000, he would be able to afford three patents.

But under H.R. 5602, the cost for that same patent would rise from $2,000 to something on the order of $5,400 or more. So with the same $6,000 budget, the inventor will be forced to cut back his patent activity by two-thirds. By not paying all of the maintenance fees on the first patent, the inventor could possibly trade off part of the life of the first patent to obtain the second patent. But even with that trade off, he would probably be forced to cut back on his patent activity by one-third.

Now, the cutback here is dramatically underscored by a survey which was taken of the patent and trademark section of the Virginia State Bar. According to that survey, 87 percent of the responding members indicated that independent inventors would have to cut back substantially if the fees were raised to the 100-percent cost recovery level. The survey also indicated that 67 per-

cent of the responding members felt that small businesses would cut back substantially if the fees were raised to the 100-percent cost recoverability level. As a matter of fact, 95 percent said that at least some cutback would occur.

A cutback is bound to occur. To suggest otherwise would be to ignore the tried and tested principle that as the price of a service or product goes up, the demand for the service or product goes down. So we will have a cutback.

So the question becomes, what is the significance of the cutback? More importantly, what is the significance of our patent system? I think the late Senator Everett Dirksen had the answer. He said, and I quote, "There has never been a substitute for the effectiveness of our patent system to stimulate innovation, disclosure, and commerce." Putting the celebrated Senator's statement into different words, the patent system here in our country has historically provided for the incentive to create. The incentive to create, in turns, stimulates the growth of technology. The growth of technology, in turn, means more jobs, more new jobs. That, then, is the significance of the patent system.

So if the use of the patent system is discouraged through high fees, particularly under 5602, the incentive to create is going to be removed. And removing the incentive retards the growth of technology, which in turn leads to fewer new jobs. So then, that is the significance of the expected decline in patent activity which will come about under 5602. As a matter of fact, it even will occur to some extent under the current law of 96-517.

Furthermore, the high fees here will work at cross-purposes with all the recent Government attempts to stimulate our slumping innovation in this country. What good is it, for example, to encourage innovation by allowing small businesses and nonprofit organizations to retain title to patents if the patent fees are to be raised so high that it's going to price the patent system out of their reach in the first place?

Before considering some of these compromise proposals and our recommendations for them, I would like to briefly comment on a couple of the arguments that have been made in support of 5602.

First, the supporters for 5602 attempt to justify the bill by noting that the increase in patent filing and issue fees under H.R. 5602 does not really exceed the rise in the Consumer Price Index since 1965, when the patent fees were increased last. The problem with that argument is that——

Mr. KASTENMEIER. I wonder, Mr. McCandlish, if you could identify those supporters, or the source of the statements?

Mr. MCCANDLISH. Commissioner Mossinghoff himself.

The problem with that argument is that filing and issue fees are not the only fees. When all the fees are considered, the total greatly exceeds the Consumer Price Index rise since 1965. The Consumer Price Index, therefore, falls far short of justifying the huge increase under H.R. 5602.

A second argument that was advanced by the Commissioner, I believe here at the hearing, and in his prepared statement, is that only a 2-year decline was experienced in patent applications when Patent Office fees were last increased in 1965 by an average of $170. But comparing that paltry increase of $170 to the whopping

increase of more than $3,000, is like comparing a case of the sniffles to pneumonia. If it took 2 years to recover from an increase of $170, just think how long it is going to take to recover from an increase of something in excess of $3,000.

For the foregoing reasons, we urge that 5602 be rejected. What we should be thinking of here are ways of encouraging innovation, not discouraging it. Any increase in fees, especially over the 50 percent level, is going to discourage innovation—which leads us to these compromise proposals.

The most recent Patent Office compromise proposal offers only token relief. Total fees would only be reduced for small businesses and independent inventors by an insignificant amount of about $400, from a minimum of $3,200 to something like $2,800. If there is to be a compromise, Senator Weicker's bill is more appropriate, because it does offer a material relief to the small business and independent inventor.

However, we do offer the following recommendations for perhaps making Senator Weicker's bill or anything akin to it more effective:

Instead of tying the Patent Office fees to the Consumer Price Index, we should have a "sunset" provision whereby Congress can make a review of the fees based on, first, inflation, but more importantly and second, on an expected decline that we will encounter in our patent activity. It may be that after 3 to 5 years down the road it is found that the fees were so high that there will be a need to stimulate innovation by lowering the fees, not raising them.

Our next recommendation is that maintenance fees should be weighted more heavily than the processing fees. This will alleviate the impact and burden of the higher fees and give the inventor a greater opportunity to exploit and commercialize his invention.

Third, we would offer the recommendation of backloading maintenance fees, or at least rescheduling the maintenance fees, so that instead of being payable 3½, 7½, and 11½ years into the life of the patent, they would perhaps be payable, say, at 5, 9, and 13 years into the life of the patent. This would give an inventor, especially an independent inventor, more time to exploit or commercialize his invention before he has to begin to pay those heavy maintenance fees—and they are, indeed, heavy.

Gentlemen, that does conclude my statement. I would be pleased to respond to any questions.

[The statement of Mr. McCandlish follows:]

Updated 2/22/82

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PATENT, TRADEMARK, AND COPYRIGHT LAW SECTION

1981-1982

April 22, 1982

The Honorable Robert W. Kastenmeier and
Members of the House Subcommittee on
Courts, Civil Liberties and the Administration
of Justice

Re: H.R.5602

Gentlemen:

The accompanying Prepared Statement has been updated to address the Patent Office's proposed compromise which was just made yesterday on H.R.5602.

Very truly yours,

Harrison E. McCandlish
Chairman

HEMc/cm

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UPDATED

STATEMENT OF
HARRISON E. McCANDLISH
CHAIRMAN OF THE PATENT, TRADEMARK
AND COPYRIGHT LAW SECTION OF THE VIRGINIA STATE BAR

BEFORE THE
SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES AND
THE ADMINISTRATION OF JUSTICE

COMMITTEE ON THE JUDICIARY

U.S. HOUSE OF REPRESENTATIVES

APRIL 22, 1982

ON

H.R.5602, A BILL TO AUTHORIZE
APPROPRIATIONS TO THE PATENT AND TRADEMARK OFFICE

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I welcome this opportunity to appear before this Subcommittee to testify in opposition to H.R.5602. I am the Chairman for the Patent, Trademark and Copyright Law Section of the Virginia State Bar.

INTRODUCTION

The Patent, Trademark and Copyright Law Section (PTC Section) was founded to address patent and other intellectual property matters on federal and state levels.

Since the relocation of the Patent and Trademark Office to Arlington, Virginia, Northern Virginia has become one of the major centers of the patent and trademark profession in this country. The PTC Section has grown comparably with Virginia's patent and trademark sector.

As for myself, I have devoted my entire legal career to the patent and trademark field, starting as a Patent Examiner in the Patent Office in 1956 and then as a private practitioner from 1958 to the present time.

Because of our immense concern about the adverse impact of H.R.5602, the Board of Governors for the PTC Section has authorized me to speak on the Section's behalf. I would appreciate it is you would enter this statement in the record of this hearing.

THE FAR-REACHING IMPACT OF H.R.5602

By amending P.L. 96-517, H.R.5602 will precipitously raise Patent Office fees to recover virtually 100 percent of the Patent Office's patent and trademark processing costs. To reach the 100 percent recovery level under the 1983-1985 budget plans, minimum fees, by conservative estimates, will be increased by almost eighteen-fold over fees currently charged by the Patent Office which will be enough to give any business or individual inventor a bad case of sticker shock.

Because of the huge increase, the far-reaching impact of H.R.5602 on inventors and our economy cannot be overestimated.

THE PTC SECTION OPPOSES THE PATENT OFFICE FEE INCREASE TO THE 100 PERCENT COST RECOVERY LEVEL IN H.R.5602

Our specific position is clear: We strongly oppose H.R.5602 to the extent that it proposes to increase Patent Office fees to the 100 percent cost recovery level. Moreover, we oppose any increase for anyone over the 50 percent cost recovery level under P.L. 96-517. It goes without saying that we are therefore strongly opposed to the Patent Office's last-minute compromise proposal under which small businesses and individual inventors would still be required to pay the same high maintenance fees ($2400.00 or more) as large companies. The matter of this unacceptable compromise proposal and Senator Weicker's compromise Bill S.2326 are addressed in the last section of this prepared statement.

We are joined in our position by the American Patent Law Association and by other associations stretching across the country from Washington, D.C. to Los Angeles, California.

Lest our specific position becloud our full position on the matter, the latter should also be made clear.

We favor a first class patent system. We favor issuance of quality patents by the Patent Office. But we also favor access to the patent system, not just by big businesses and the wealthy, but also by small businesses and the individual inventor.

Our deep concern with the 100 percent cost recovery plan is that it will simply price our patent system out of the reach of small businesses and individual inventors, to say nothing about the counterproductive impact on larger companies and the already slumping innovation in this country. In short, the fee increases in H.R.5602 are so high that if the bill is enacted, our patent system will become virtually an exclusive club for large foreign and domestic companies and the wealthy.

This concern appears to be shared by Senatro Mathias who was recently quoted as warning that the 100 percent cost recovery plan could "sow the seeds of the system's destruction" (emphasis added).

SMALL BUSINESSES AND INDIVIDUALS ACCOUNT FOR 37 PERCENT OF PATENTABLE INNOVATION IN THIS COUNTRY

One cannot begin to appreciate Senator Mathias' concern without first appreciating the substantial extent to which small businesses and individual inventors contribute to innovation in this country.

According to an OTAF report[1] and other Patent Office figures[2], individuals and small businesses (with 500 employees or less) in this country account for more than one out of every three patents issued to U.S. based corporations and individuals. Individuals alone, as measured by the number of unassigned patents, accounted for 25 percent of all patents issued over the 1963-1981 period to the private U.S. sector (i.e., U.S. based corporations and U.S. individuals combined).

The extent to which small businesses and individual inventors contribute to innovation in this country is therefore indisputable substantial. The bottom line total of fees under H.R.5602 is likewise indisputable substantial.

1/ Office of Technology Assessment & Forecast, U.S. Patent and Trademark Office (see Appendix A).

2/ See Appendix B.

THE STICKER SHOCK: WHAT H.R.5602 WILL COST THE INVENTOR

Currently, an inventor pays a minimum of $175.00 and an average of $230.00 in Patent Office fees to obtain a patent and also to obtain the full 17-year protection which attaches. P.L. 96-517 increases the fees to the 50 percent cost recovery level, effective October 1st of this year.

Th achieve the 50 percent recovery level, Patent Office fees just for obtaining a patent (generally referred to as processing fees) will increase to at least approximately $400.00, and by earlier Patent Office estimates, $1400.00 will be added in the form of maintenance fees to bring the total fees to at least $1800.00

To achieve the 100 percent cost recovery level under H.F.5602, the processing fees just for obtaining a patent will rise to at least $800.00.

We estimate that those processing fees will average closer to $1000.00 which, rather than being in line with other countries, is significantly more than the processing fees exacted by any other major country in the world.

The maintenance fees will approximately double under H.R.5602. Different Patent Office estimates place the maintenance fees in the $2400.00 to $2800.00 range.

The bottom line price demanded from an inventor for obtaining and maintaining a patent under H.R.5602 will therefore become a bare-bones minimum of $3200.00 under the most conservative estimate and is expected to be more on the order of $3600.00 to $3800.00. This represents a precipitous rise of at least $3025.00 over the minimum fees now charged by the Patent Office.

Supporters of H.R.5602 attempt to justify the bill by noting that the rise in patent filing and issue fees do not exceed the rise in the Consumer Price Index since 1965 when the Patent Office fees were last increased. But when all of the fees - not just patent filing and issue fees - are considered, the total greatly exceeds the Consumer Price Index. The Consumer Price Index therefore falls far short of justifying a total fee increase of well over $3000.00. Indeed, if the fee increase is to be based on the Consumer Price Index, it should be limited to about $1000.00, which is about $2000.00 shy of the increase under H.R.5602.

FOUR COMPELLING REASONS WHY PATENT OFFICE FEES SHOULD NOT BE RAISED TO THE 100 PERCENT COST RECOVERY LEVEL

Although the quantum jump in fees is disturbing in itself, there are more compelling reasons why the 100 percent cost recovery level should not be adopted.

First, after many hearings less than two years ago, Congress wisely decided in 1980 that the cost of operating the Patent Office should be evenly divided in accordance with the benefits conferred on both the inventor and the public. In considering the bill that matured into P.L. 96-517, Congress therefore adopted the 50 percent recovery plan after rejecting a proposal to set Patent Office fees at the 60 percent cost recovery level as being too burdensome on small businesses and individuals.

If a 60 percent cost recovery level at a 1981 Patent Office budget of about $108 million was unacceptably burdensome in 1980, then it unequivocally follows that a 100 percent cost recovery level at a 1983 Patent Office budget of close to $155 million is even more burdensome today. Moreover, a 100 percent cost recovery level of any Patent Office budget ignores the substantial benefit which the public derives from our patent system.

Second, the high fees under H.R.5602 will discourage independent inventors and companies of all sizes from filing for patents, which in turn will retard the growth of technology in this country. Commerce and ultimately the public will

therefore suffer.

Third, raising the Patent Office fees to the high levels under H.R.5602 will work at cross purposes with recent governmental attempts to stimulate the slumping innovation in this country. What good is it, for example, to encourage innovation by allowing small businesses and non-profit organizations to retain title to patents for federally funded projects, on the one hand, while raising Patent Office fees so high as to discourage those small businesses and non-profit organizations from getting patents on the other hand?

Fourth, the potent combination of allowing the Patent Office to set fees and to recover virtually 100 percent of its costs through fee revenues is inherently susceptible to misuse. For all practical purposes, it will virtually eliminate meaningful administrative and Congressional incentives to hold the Patent Office budget at a reasonable level. The door will therefore be open to an upward spiral of budget and fee increases. That spiral has already begun in expectation of the increased fee revenue under H.R.5602.

THE DEEP CONCERN FOR SMALL BUSINESSES AND INDIVIDUAL INVENTORS IS WIDELY SHARED

In the face of upwardly spiraling fees, all businesses, no matter how affluent, will be forced to cut back on their patent activity. But the chief concern is with the small businesses and individual inventors who make up more than one-third of our innovation base and who can least afford the fee

increases under H.R.5602.

For example, in a recent survey[3] of the PTC Section, 94 percent of the responding members felt that the proposed increase in Patent Office fees to the 100 percent cost recovery level would adversely affect individual inventors, while 90 percent of the responding members believed that the proposed increase in fees would adversely affect small businesses.

Signal Magazine (a publication of the Armed Forces Communications and Electronics Association) reflects our concern and in its current issue[4] warns that the 100 percent cost recovery measures "appear to endanger the innovation that historically springs from the independent inventor, small businesses and corporations." Signal Magazine sounds an even more ominous note, warning that "these huge fee increases will have a distinctly adverse affect on the defense industrial base."

Signal has sent its message. It deserves this Subcommittee's full consideration.

3/ See Appendix C

4/ See Appendix D

H.R.5602 IS BOUND TO HAVE A SIGNIFICANT IMPACT

Despite these clear warnings, supporters of H.R.5602 shirk off the significance of the drastically increased fees by observing that only a two-year decline was experienced in patent applications when Patent Office fees were last increased in 1965 by an average of $170.00. Comparing that paltry increase of $170.00 to the whopping increase of at least $3035.00 under H.R.5602, however, is like comparing a case of the sniffles to pneumonia. If it took two years to recover from a $170.00 increase, think how long it will take to recover from an increase of more than $3000.00.

In downgrading the impact of the fee increases, supporters of the bill also claim that "[P]atent fees are a very small fraction of the total costs to devleop a creative idea to a commercial product." In making such a statement, supporters of the bill seem not to recognize that most individuals and many companies must borrow money or otherwise attract outside capital to meet high costs of manufacturing and marketing new products. The facility to meet these business costs, therefore, is no indication that inventors can afford the high Patent Office fees without cutting back on their patent activities.

The cutback is bound to occur, and it will be substantial. Consider the following example which tells a revealing story of the extent of the cutback.

According to a recent survey published by the American

Patent Law Association in October 1981, the legal costs for preparing an average patent application was running at a median amount of $1035.00 in 1980. To this amount add about $800.00 for expenses in prosecuting the patent application in the Patent Office after the application is filed. Finally, add the minimum total Patent Office fees of $175.00 under the present fee schedule and you have a total cost of roughly $2000.00.

Under the schedule of fees currently charged by the Patent Office, an inventor having a limited budget of $6000.00 could therefore afford three patents. But under H.R.5602, the total cost for obtaining and maintaining the same patent will increase from $2000.00 to at least $5335.00 because of the fee increase of $3035.00. Where the inventor could afford three patents under the current fee schedule, he will henceforth be able to afford only one patent under H.R.5602. With the same limited funds, the inventor will therefore be forced to cut his patent activity by two-thirds.

By not paying all of the maintenance fees for one patent, the inventor could trade part of the life of the first patent to obtain a second patent. But even with the tradeoff, he would have to cut his patent activity by one-third.

The foregoing example of cutbacks is underscored by the PTC Section's survey[5] in which 86 percent of the responding

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5/ See Appendix C.

members thought that the number of applications filed by individual inventors would go down substantially, while 67 percent felt that the number of patent applications filed by small businesses would go down substantially. Furthermore, virtually all of the responding members predicted that small businesses would be forced to cut back on their patent activity.

COMMERCE IS THE REAL LOSER UNDER H.R.5602

The discouraging decline in patent activity will not be confined to small businesses and individuals, but more significantly, will extend across the board to all companies as indicated by the PTC Section's survey. There can be no doubt that the decline will occur.

To suggest otherwise would require a person to ignore the tried and tested economic principle that as the price of a service or product goes up, the demand for that service or product goes down even for essential items such as oil and gasoline. Which leads us to the most important questions of all: What is the significance of the decline in patent activity and, more importantly, what is the significance of our patent system itself?

The singular fact that we are here today debating the matter of who should share in the relatively low cost of operating our Patent Office is a conclusive indication that we have indeed lost sight of the true significance of our patent system. How else can we account for the myopic and erroneous

attitude that our patent system is nothing more than a specialized federal program which benefits only the so-called user?

It is time, therefore, to recall the incisive words of the late Senator Everett Dirksen who said: "There has never been a substitute for the effectiveness of the patent system to stimulate innovation, disclosure and commerce."

In substance, the reward of patents under our patent system offers the strong incentive to create. The incentive to create promotes the growth of technology in this country which in turn creates new jobs. The public therefore directly benefits in two ways: First through the growth of technology itself, and second through the creation of new jobs. This then is the real significance of our patent system.

If patent activity is discouraged through the high fees under H.R.5602 - as it surely will be - the incentive for innovation and disclosure of inventions will be impaired. That means a cutback in our already stunted technological growth. Commerce will therefore suffer, and there will be fewer new jobs, all at a time when our economy is slumping and unemployment is rising.

But for the incentive of an accessible patent system, many worthwhile inventions would not have seen the light of day. As just one example, let me tell you about a direct experience with the small business inventor who invented and commercialized

the safety inertial crash barriers which you see along Virginia's Shirley Highway and other roads in the country. He frankly acknowledged that if it were not for our patent system, his invention would not have come into being.

Fortunately for the numerous persons whose lives have been saved by the safety barriers, the patent costs were low enough to make the patent system accessible to our inventor.

The Commissioner of Patents and Trademarks himself fully recognizes the meaningful role that our patent system plays in the growth of technology of this country. In his testimony before this Subcommittee he testified that the growing backlog of patent applications in the Patent Office was "inhibiting the introduction of new technology into commerce..." (emphasis added).

To counteract this troublesome situation, the Commissioner has proposed a costly program for reducing the backlog and thereby accelerating the issuance of patents. The program is of particular interest because it serves as yet another example of public benefit.

The public and industry as a whole will certainly benefit from the program because the introduction of new technology into commerce will be accelerated. Businesses in general will also benefit because they will be able to plan new products with a greater degree of certainty that their new products will not be infringing someone's patent. But what about the inventor - the patent applicant himself who is being asked to

principally bear the cost of the program?

Direct experience shows that accelerated issuance of patents is of no significant benefit to the inventor except on those infrequent occasions where the patent is needed because of an infringement situation or because of some special consideration involving exploitation of the invention. Indeed, the vast majority of inventors benefit from delayed - not accelerated - issuance of patents because the delay effectively lengthens the patent life and gives the inventor a longer opportunity to exploit his invention before the maintenance fees come due.

The public and industry as a whole therefore benefit primarily and most directly from accelerated issuance of patents, not the vast majority of the inventors. That being the case, the public should continue to pay its fair share of the Patent Office costs.

The 50 percent cost recovery program under P.L. 96-517 provides a fair and equitable distribution of Patent Office costs in accordance with the benefits conferred on the public and the inventor. That sound policy was settled by Congress in 1980, and there is no reason to change it now for anyone.

H.R.5602 should therefore be rejected without further debate. This bill is a product of an impulsive and ill-advised action to realize a relatively trivial cutback in government appropriations without giving any consideration whatsoever to the impact of the high fees.

THE COMPROMISE PROPOSALS AND
THE RECOMMENDATIONS

The Patent Office's compromise proposal submitted just yesterday is totally unacceptable because it only offers token relief to small businesses and independent inventors. Under this compromise proposal, only the Patent Office processing fees for obtaining a patent would be reduced to one-half the amount required under the original version of H.R.5602. The maintenance fees demanded from small businesses and independent inventors, however, would not be reduced from the high level of H.R.5602.

Under the Patent Office's compromise proposal, therefore, the total minimum fees demanded from small businesses and independent inventors would be reduced by the insignificant sum of $400.00 from $3200.00 to $2800.00.

It would be totally unrealistic to assume that small businesses and independent inventors will not be discouraged by the high maintenance fees alone. If an inventor realizes that he cannot afford the high maintenance fees, he certainly will not invest the sum of at least $2500.00 in Patent Office and legal fees to obtain the patent because all he would get for his investment would be a 3 1/2 year patent, which is when the first maintenance comes due. If the inventor cannot afford at least the first two installments of the maintenance fees, he therefore is not likely to file for a patent in the first instance. The result will be that he will

no longer have the incentive to create because the maintenance fees alone priced our patent system out of his reach.

If there is to be a compromise, Senator Weicker's bill in its original form would be significantly more appropriate with certain provisos because it does offer material relief to small businesses and independent inventors. Instead of granting the Commissioner of Patents and Trademarks the one-time power to adjust the fees in accordance with the Consumer Price Index as provided for in Senator Weicker's bill, we recommend a "sunset" provision, whereby Congress may assess the status of fees three years later not just in relation to inflation, but more importantly in relation to the decline which is expected in patent activity even under Senator Weicker's compromise. If a substantial decline occurs, it may be advisable to reduce Patent Office fees at some later date to stimulate innovation.

Instead of obtaining half of the fee revenue through maintenance fees, as is presently the case, we also recommend that the maintenance fees be weighted more heavily than the processing fees (i.e., those fees required to obtain the patent), and that the maintenance fees should be backloaded or rescheduled to be payable 5, 9 and 13 years into the life of the patent. These measures will have the beneficial effect of reducing the adverse impact of the fees and of giving the inventor a reasonable time to exploit and commercialize his invention before maintenance fees come due.

Mr. Chairman, this concludes my prepared statement. I will be pleased to respond to any questions you or the Subcommittee may have.

APPENDIX A

OTAF SPECIAL REPORT - ALL TECHNOLOGIES

PATENT ACTIVITY (1/63-12/81)

BY DATE OF PATENT GRANT

UTAF SPECIAL REPORT - ALL TECHNOLOGIES

1979-81 AVERAGES

PERCENT GROWTH	26.17
PERCENT FOREIGN	39.55
PERCENT CORPORATE OWNED	75.74
PERCENT GOVERNMENT OWNED	2.40
PERCENT U.S. OWNED OF FOREIGN	7.31
1979-81 XR/CR	0.00

DEFINITIONS

PERCENT GROWTH = 1979-81 PATENTS/1972-81 PATENTS X 100.

PERCENT FOREIGN = 1979-81 U.S. PATENTS WITH A FOREIGN RESIDENT INVENTOR/1979-81 PATENTS X 100

PERCENT CORPORATE OWNED = 1979-81 U.S. PATENTS ASSIGNED TO CORPORATIONS/1979-81 PATENTS X 100.

PERCENT GOVERNMENT OWNED = 1979-81 U.S. PATENTS ASSIGNED TO THE U.S. AND FOREIGN GOVERNMENTS/1979-81 PATENTS X 100.

PERCENT U.S. OWNED OF FOREIGN = 1979-81 U.S. PATENTS WITH A FOREIGN RESIDENT INVENTOR THAT ARE ASSIGNED TO A U.S. ORGANIZATION/1979-81 U.S. PATENTS WITH A FOREIGN RESIDENT INVENTOR X 100.

1979-81 XR/CR = 1979-81 U.S. PATENTS WITH A CROSS REFERENCE DESIGNATION/1979-81 U.S. PATENTS WITH AN *ORIGINAL PRIMARY DESIGNATION.*

PATENT ACTIVITY 1/63-12/81) BY DATE OF PATENT GRANT

	NUMBER OF PATENTS															
	63-67	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
TOTAL	249968	53103	67559	64429	78362	74763	74142	76278	72902	70227	65269	66100	48852	61619	65770	1234643
U.S. ORIGIN	231825	45783	50395	47077	56011	51496	51503	50649	46713	44277	41484	41252	30079	37356	39224	865124
FOREIGN ORIGIN	58143	13320	17164	17352	22351	23267	22639	25629	25289	25950	23785	24848	18773	24463	26546	369519
WEST GERMANY	15841	3442	4523	4435	5525	5726	5587	6153	6036	6180	5537	5856	4527	5747	6250	91359
JAPAN	4416	1464	2152	2625	4030	5149	4939	5868	6352	6543	6217	6911	5251	7125	8388	77453
UNITED KINGDOM	11696	2491	3176	2954	3479	3161	2855	3145	3043	2991	2651	2722	1910	2406	2475	51138
FRANCE	6231	1446	1809	1731	2215	2228	2143	2566	2367	2408	2108	2119	1604	2088	2181	35244
SWITZERLAND	4127	822	1058	1112	1281	1305	1326	1454	1456	1475	1347	1330	1025	1265	1239	21622
CANADA	4036	897	993	1066	1332	1237	1346	1326	1296	1192	1219	1226	862	1061	1135	20241
SWEDEN	2427	569	675	628	843	774	762	925	914	1002	862	826	573	822	766	13368
ITALY	1967	477	556	571	727	837	759	867	738	752	756	725	596	866	883	11958
NETHERLANDS	2192	476	559	543	696	672	686	731	617	744	768	659	525	694	641	11103
U.S.S.R.	236	95	159	218	333	356	382	492	421	426	394	412	354	460	373	5111
BELGIUM	760	169	221	233	305	319	283	368	277	334	255	264	185	244	263	4459
AUSTRIA	599	160	191	189	251	271	236	294	310	296	243	276	222	265	279	4080
AUSTRALIA	521	119	155	144	200	192	222	234	248	261	243	281	211	265	319	3585
DENMARK	445	82	144	138	169	173	154	176	146	178	155	168	105	167	130	2520
CZECHOSLOVAKIA	264	96	132	118	153	110	94	112	117	111	93	91	50	55	41	1637
NORWAY	236	49	69	68	77	88	83	91	103	103	106	89	80	79	93	1414
FINLAND	110	31	43	46	99	69	68	109	98	109	105	125	77	121	140	1330
ISRAEL	177	38	61	46	54	55	84	88	95	105	94	99	84	113	123	1316
S. AFRICA	236	35	65	50	71	54	86	86	74	83	68	81	64	74	111	1238
SPAIN	190	48	59	57	74	60	87	89	93	102	96	92	49	65	58	1219
MEXICO	394	40	67	43	64	43	42	51	67	78	42	24	36	41	43	1075
HUNGARY	107	21	22	37	38	48	46	62	51	75	80	66	63	87	98	901
NEW ZEALAND	66	13	16	14	17	26	25	20	28	33	32	41	23	51	47	452
POLAND	35	25	31	33	31	21	25	27	36	26	24	33	29	36	38	450
ARGENTINA	100	18	17	23	22	29	28	24	24	24	20	21	24	18	25	417
BRAZIL	67	13	18	16	14	16	18	21	17	18	21	24	19	24	23	329
ROMANIA	16	21	21	37	35	33	25	35	17	15	18	11	14	10	10	318
CHINA(TAIWAN)					1				23	28	52	29	38	65	80	316
LIECHTENSTEIN	54	15	14	23	26	10	14	15	13	21	11	11	5	15	20	275
IRELAND	23	10	13	12	29	18	28	17	15	20	17	21	10	17	17	267
BULGARIA	7	1	7	9	11	10	16	13	24	19	37	33	14	23	27	246
HONG KONG	37	7	7	8	23	7	15	9	11	20	9	21	13	27	33	243
INDIA	34	15	18	16	18	19	21	17	13	17	17	14	14	4	6	231
EAST GERMANY									21	31	25	24	19	35	52	207
LUXEMBOURG	25	7	2	1	5	8	6	19	16	15	16	16	21	13	27	197
OTHER CNTRIES (77)	471	118	110	108	165	153	147	185	113	114	115	116	78	97	111	2201
U.S. ORIGIN	231825	45783	50395	47077	56011	51496	51503	50649	46713	44277	41484	41252	30079	37356	39224	865124
U.S. CORP. OWNED	164864	33351	37073	34948	40853	37855	36912	36073	33395	32136	29546	29388	21125	25913	27592	620910
U.S. GOVT. OWNED	6951	1453	1806	1761	2136	1764	2078	1727	1482	1807	1480	1228	951	1225	1112	29367
U.S. INDIV. OWNED	59410	10764	11299	10096	12597	11555	12346	12549	11181	10081	10248	10401	7809	9940	10243	210522
FOREIGN OWNED	600	206	217	272	428	322	267	300	255	253	210	244	194	280	277	4325
FOREIGN ORIGIN	58143	13320	17164	17352	22351	23267	22639	25629	25289	25950	23785	24848	18773	24463	26546	369519
U.S. OWNED	7435	1596	1885	2028	2321	2119	2048	2207	2254	2322	2018	2045	1443	1774	1887	34982
FOREIGN OWNED	51108	11724	15279	15324	20030	21148	20591	23422	23035	23628	21767	22803	17330	22689	24659	334537
FOREIGN CORP.	36994	8837	11779	11855	15780	16732	16412	18612	18566	19469	17427	18768	14339	18495	20387	264852
FOREIGN GOVT.	1308	134	258	216	84	71	70	53	175	230	220	273	214	344	362	3712
FOREIGN INDIV.	13106	2753	3242	3253	4166	4345	4109	4757	4294	3929	3720	3762	2777	3850	3910	65973

CIAF SPECIAL REPORT - ALL TECHNOLOGIES

PATENT ACTIVITY (1/63-12/81) BY DATE OF PATENT GRANT

PERCENT OF PATENTS

	63-67	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
U.S. ORIGIN	80	77	75	73	71	69	69	66	65	63	64	62	62	60	60	70
FOREIGN ORIGIN	20	23	25	27	29	31	31	34	35	37	36	38	38	40	40	30
WEST GERMANY	5	6	7	7	7	8	8	8	8	9	8	9	9	9	10	7
JAPAN	2	2	3	4	5	7	7	8	9	9	10	10	11	12	13	6
UNITED KINGDOM	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4
FRANCE	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
SWITZERLAND	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CANADA	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2
SWEDEN	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ITALY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NETHERLANDS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
U.S.S.R.							1	1	1	1	1	1	1	1	1	
BELGIUM																
AUSTRIA																
AUSTRALIA																
DENMARK																
CZECHOSLOVAKIA																
NORWAY																
FINLAND																
ISRAEL																
S. AFRICA																
SPAIN																
MEXICO																
HUNGARY																
NEW ZEALAND																
POLAND																
ARGENTINA																
BRAZIL																
ROMANIA																
CHINA(TAIWAN)																
LIECHTENSTEIN																
IRELAND																
BULGARIA																
HONG KONG																
INDIA																
EAST GERMANY																
LUXEMBOURG																
OTHER CNTRIES (77)																
U.S. ORIGIN	80	77	75	73	71	69	69	66	65	63	64	62	62	60	60	70
U.S. CORP. OWNED	57	56	55	54	52	51	50	47	46	46	45	44	43	42	42	50
U.S. GOVT. OWNED	2	2	3	3	3	2	3	2	3	3	2	2	2	2	2	2
U.S. INDIV. OWNED	20	18	17	16	16	15	17	16	16	14	16	16	16	16	16	17
FOREIGN OWNED					1											
FOREIGN ORIGIN	20	23	25	27	29	31	31	34	35	37	36	38	38	40	40	30
U.S. OWNED	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
FOREIGN OWNED	18	20	23	24	26	28	28	31	32	34	33	34	35	37	37	27
FOREIGN CORP.	13	15	17	18	20	22	22	24	26	28	27	28	29	30	31	21
FOREIGN GOVT.														1	1	
FOREIGN INDIV.	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	5

PATENT ACTIVITY (PATENTS GRANTED 1/67-12/81) BY DATE OF PATENT APPLICATION

	NUMBER OF PATENTED APPLICATIONS															
	PRE 68	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
TOTAL	225497	62965	65946	65923	66329	63333	66256	66324	65717	65469	65041	63267	53612	14655	105	1010328
U.S. ORIGIN	170463	45334	46388	45836	45556	42408	42713	41779	42125	41411	40223	38244	32421	9588	87	684576
FOREIGN ORIGIN	55034	17631	19458	20087	20772	20925	23543	24545	23592	24058	24818	25023	21191	5067	18	325752
WEST GERMANY	14294	4520	4773	5027	4998	5047	5742	5354	5446	5545	5889	5970	4931	1245	5	79283
JAPAN	6790	2842	3752	4369	4755	4585	5862	6722	6870	6564	7013	7226	6421	1679	8	74458
UNITED KINGDOM	11095	2893	2344	2725	2560	2667	2780	2882	2657	2594	2591	2420	1956	454	1	42243
FRANCE	5871	1762	1895	1854	2021	2111	2211	2223	2169	2121	2073	2185	1720	372	1	30571
SWITZERLAND	3561	1035	1111	1175	1182	1279	1282	1353	1349	1315	1297	1314	974	236		19443
CANADA	3363	1026	1081	1142	1143	1134	1166	1197	1131	1203	1223	1135	1004	253	1	17196
SWEDEN	2086	684	729	691	728	709	864	956	993	855	832	777	628	113		11519
ITALY	1662	590	628	716	672	698	644	741	723	741	764	776	748	183	1	10462
NETHERLANDS	1877	540	606	552	647	578	638	655	679	652	691	681	513	109		9418
U.S.S.R.	544	233	261	307	346	392	429	388	396	427	444	453	318	51		4989
BELGIUM	782	246	252	236	279	248	284	278	295	241	227	249	130	63		3875
AUSTRIA	602	195	238	229	226	218	279	268	253	282	270	297	240	35		3632
AUSTRALIA	516	142	169	172	177	209	237	239	229	300	253	274	260	39		3215
DENMARK	413	149	146	134	157	148	157	140	170	144	154	154	107	25		2198
CZECHOSLOVAKIA	382	115	147	87	97	102	96	109	92	86	55	56	39	6		1469
NORWAY	198	63	72	78	75	68	88	101	103	90	112	94	68	16		1226
FINLAND	124	56	52	72	79	91	87	91	123	113	119	134	110	23		1254
ISRAEL	181	48	49	58	64	71	82	105	97	102	119	106	94	16		1192
S. AFRICA	179	53	59	48	79	64	75	76	86	82	77	90	84	8		1054
SPAIN	178	63	67	63	67	76	89	79	104	86	75	68	55	5		1075
MEXICO	172	55	43	40	35	48	54	64	63	34	35	43	35	11		724
HUNGARY	94	28	41	38	53	47	60	59	74	73	81	73	78	18		817
NEW ZEALAND	57	13	13	23	18	20	25	33	25	43	40	48	31	11		401
POLAND	89	27	26	18	26	22	27	31	21	29	34	34	37	6		427
ARGENTINA	55	23	26	24	22	26	17	25	23	23	25	22	17	4	1	333
BRAZIL	49	18	9	14	17	19	16	17	22	20	24	27	21	1		274
ROMANIA	72	28	32	21	32	33	12	14	19	10	13	15	7			308
CHINA(TAIWAN)				1	1	2	11	25	41	44	35	67	72	17		316
LIECHTENSTEIN	54	16	23	15	11	8	15	16	17	12	11	20	12	5		234
IRELAND	35	20	23	22	19	14	23	11	15	22	18	13	11	6		252
BULGARIA	20	6	9	11	13	17	16	21	30	33	19	24	19	7		244
HONG KONG	27	12	13	11	9	8	13	12	18	13	28	27	17	10		218
INDIA	52	14	14	12	17	12	15	19	11	16	11	8	4	2		227
EAST GERMANY						5	16	20	35	17	31	30	46	7		207
LUXEMBOURG	17	1	8	5	9	11	22	11	13	17	20	20	5			179
OTHER CNTRIES (77)	433	113	147	136	130	144	109	116	120	105	114	92	84	28		1841
U.S. ORIGIN	170463	45334	46388	45836	45556	42408	42713	41779	42125	41411	40223	38244	32421	9588	87	684576
U.S. CORP. OWNED	125689	32980	33664	33040	32586	30532	30505	30371	30230	28965	28075	26699	22700	6993	64	492793
U.S. GOVT. OWNED	6572	1714	1813	1621	1589	1514	1381	1568	1482	1329	1156	1166	915	315	3	24141
U.S. INDIV. OWNED	37444	10362	10601	10868	11104	10136	10598	9882	10222	10893	10716	10103	8563	2218	18	163748
FOREIGN OWNED	758	278	310	307	277	226	229	258	191	224	256	276	243	62	2	3894
FOREIGN ORIGIN	55034	17631	19458	20087	20772	20925	23543	24545	23592	24058	24818	25023	21181	5067	18	325752
U.S. OWNED	6479	1924	1474	1814	1774	1868	2007	2262	2074	1892	1932	1874	1538	393	1	29622
FOREIGN OWNED	48555	15627	17584	18273	18998	19057	21536	22283	21518	22166	22886	23149	19593	4668	17	296130
FOREIGN CORP.	37232	12362	13919	14358	15154	15205	17211	18307	17636	18884	18761	18911	16120	4037	15	237312
FOREIGN GOVT.	813	125	70	63	69	65	162	196	206	242	294	355	265	56		2985
FOREIGN INDIV.	10510	3340	3595	3852	3775	3787	4163	3800	3676	3840	3827	3883	3208	575	2	55833

CHF SPECIAL REPORT - ALL TECHNOLOGIES

PATENT ACTIVITY (PATENTS GRANTED 1/67-12/81) BY DATE OF PATENT APPLICATION

PERCENT OF PATENTED APPLICATIONS

	PRE 68	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	TOTAL
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
U.S. ORIGIN	76	72	70	70	69	67	64	63	64	63	62	60	60	65	83	68
FOREIGN ORIGIN	24	28	30	30	31	33	36	37	36	37	38	40	40	35	17	32
WEST GERMANY	6	7	7	8	8	8	9	9	8	8	9	9	9	8	5	8
JAPAN	3	5	6	7	7	7	9	10	9	10	11	11	12	11	8	7
UNITED KINGDOM	4	5	4	4	4	4	4	4	4	4	4	4	4	2	1	4
FRANCE	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3
SWITZERLAND	2	2	2	2	2	2	2	2	2	2	2	2	2	2		2
CANADA	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
SWEDEN	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
ITALY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NETHERLANDS	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
U.S.S.R.					1	1	1	1	1	1	1	1	1			
BELGIUM																
AUSTRIA																
AUSTRALIA																
DENMARK																
CZECHOSLOVAKIA																
NORWAY																
FINLAND																
ISRAEL																
S. AFRICA																
SPAIN																
MEXICO																
HUNGARY																
NEW ZEALAND																
POLAND																
ARGENTINA															1	
BRAZIL																
ROMANIA																
CHINA(TAIWAN)																
LIECHTENSTEIN																
IRELAND																
BULGARIA																
HONG KONG																
INDIA																
EAST GERMANY																
LUXEMBOURG																
OTHER CNTRIES (77)																
U.S. ORIGIN	76	72	70	70	69	67	64	63	64	63	62	60	60	65	83	68
U.S. CORP. OWNED	56	52	51	50	49	48	46	45	46	44	43	42	42	48	61	49
U.S. GOVT. OWNED	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3	2
U.S. INDIV. OWNED	17	16	16	16	17	16	16	15	16	17	17	16	16	15	17	16
FOREIGN OWNED															2	
FOREIGN ORIGIN	24	28	30	30	31	33	36	37	36	37	38	40	40	35	17	32
U.S. OWNED	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3
FOREIGN OWNED	22	25	27	28	29	30	33	34	33	34	35	37	37	32	16	29
FOREIGN CORP.	17	20	21	22	23	24	26	28	27	28	29	30	30	28	14	23
FOREIGN GOVT.												1				
FOREIGN INDIV.	5	5	5	6	6	6	6	6	6	6	6	6	6	4	2	6

APPENDIX B

Commissioner Mossinghoff testified at the March 11, 1982 hearing before this Subcommittee that about 5000 patents per year are issued to small businesses having 500 employees or less. When the 5000 patents are combined with the number of patents issuing to U.S. individuals as indicated by the OTAF report of Appendix A, the result shows that the small businesses and individuals in this country account for 37 percent of all patents issuing to U.S. corporations and U.S. individuals.

APPENDIX C

RESULTS OF PTO FEE INCREASE SURVEY
VIRGINIA STATE BAR - PATENT, TRADEMARK &
COPYRIGHT LAW SECTION

Question

Do you believe that PTO fees should be set so that the PTO eventually becomes substantially self-supporting (i.e., 100% recovery of examining and maintenance administration costs)?

Answer

Yes - 12.5%
No - 87.5%

Question

Do you think that individuals will be adversely affected by the proposed increase of fees to the 100% recovery level?

Answer

Yes - 94%
No - 6%

Question

Do you think that small businesses will be adversely affected by the proposed increase of fees to the 100% recovery level?

Answer

Yes - 90%
No - 10%

Question

Will the proposed increase of fees to the 100% recovery level enhance or impair the willingness of business to make the necessary monetary investments for the growth of technology in this country?

Answer

Impair - 80%
Enhance - 6.7%
No change - 13.3%

Question

Will the proposed increase of fees to the 100% recovery level cause businesses to resort more often to trade secret protection thereby avoiding disclosure of their inventions to the public?

Answer

Yes - 83%
No - 17%

Question

If the new proposed fees were to be implemented, what effect on filing will be noted, based upon your experience and knowledge?

Answer

	Slightly Up	Slightly Down	Substantially Up	Substantially Down	Substantially Unchanged
Individual	0%	9%	0%	86%	5%
Small Business	0%	24%	0%	67%	9%
Fortune 501-1000	0%	43%	3%	33%	23%
Fortune 100-500	0%	52%	0%	10%	38%
Fortune 1-100	0%	55%	0%	6%	39%
Foreign	0%	46%	3%	33%	18%

APPENDIX D

SIGNAL MAGAZINE

(A PUBLICATION OF THE ARMED FORCES

COMMUNICATIONS AND ELECTRONICS ASSOCIATION)

MARCH 1982 ISSUE

FEDERAL SIGNALS

New CIA Charter

President Reagan signed the new Central Intelligence Agency (CIA) Charter shortly before the end of 1981. The Charter (Executive Order 12333) is noticeably different in tone and emphasis from the previous Charter under the Carter Administration. The document states the goals, duties, conduct and general provisions of U.S. intelligence activities. The first dominant characteristic of the Charter is the emphasis on the positive aspects of the intelligence community rather than the negative. It is evident in the wording of the Charter that this Administration is encouraging more vigorous intelligence efforts. The second prominent change is an area under the subtitle of collection techniques. The document states that previously specified techniques may be used but, "*These procedures shall not authorize: Unconsented* physical searches in the U.S. by agencies other than the FBI, except for searches by counterintelligence elements of the military services directed against military personnel within the U.S. or abroad for intelligence purposes, when authorized by a military commander empowered to approve physical searches for law enforcement purposes, based upon a finding of probable cause to believe that such persons are acting as an agent of foreign powers." This gives military commanders additional authority to combat any counterintelligence activities. A thorough review of the new CIA Charter leads to the conclusion that the United States and the Allied intelligence community enjoy renewed and vigorous support.

Progress in Halting Shortage

The first step towards a more comprehensive policy affecting the shortage of scientific and engineering personnel in the U.S. has taken the form of a "white paper" originating in DOD. The paper suggests four unified plans of action: (1) Synthesize the various studies conducted by both private and public sector organizations on shortages of S&E personnel nationally, and analyze the data from a defense viewpoint; (2) Develop additional data on the current status of S&E personnel in DOD's in-house laboratories; (3) Provide policy-level commitment, identification of resources and direction to assist the individual services' currently fragmented efforts to attract and retain S&E personnel; (4) Develop, test and implement new approaches with existing efforts. The most pronounced areas of the shortage identified to date are in electrical engineering and computer sciences. The vigor and health of these two areas of endeavor drastically affect C³I. It is expected that this new plan of action will create an umbrella effect in streamlining the various studies and programs. One particular problem to be examined is the inequitable pay scale for science and engineering personnel in civil and military service in comparison with the private sector. Results of the data collected so far will be known this spring and implementation of short and long-term reviews will begin shortly thereafter.

Patent Fee Increase

When it was announced that 100 percent of the Patent Office costs should be paid by the user, no one ever imagined the impact it would have on research and development. An amendment to PL 96517 now before Congress will drastically increase patent fees. It is predicted by knowledgeable persons that if this amendment is adopted it will virtually cut patent applications in half. Not only will larger companies cut back on patent application filings, but small businesses and independent inventors will not have the necessary funds to file a patent. The proposed changes will increase from roughly $240 at present to $4,000 to cover filing, processing and maintenance costs. These costs will not stop there, for they will increase to support the operations of the Patent and Trade Office (PTO) exclusively. All the patents issued by the PTO are published, allowing R&D efforts to begin at the "fringe" of current expertise rather than performing redundant research and development. Such Draconian economy measures appear to endanger the innovation that historically springs from the independent inventor, small businesses and corporations. With budgets being cut not only in government but also in the private sector, it is clear these huge fee increases will have a distinctly adverse affect on the defense industrial base. The past is evidence that we have benefited a thousand times over from one person's invention. If an inventor cannot afford to file a patent, an innovation is lost to U.S. productivity.

by Deborah Arney, Associate Editor

Mr. KASTENMEIER. Thank you, Mr. McCandlish.

I concede that those patent intervals for maintenance fees are likely to be considered. I don't know that we will do so at this point in time, but obviously those are not sacrosanct.

I would like to yield to the gentleman from Virginia, Mr. Butler.

Mr. BUTLER. Thank you, Mr. Chairman.

We have a pretty comprehensive statement from the witness. I only want to ask him one or two questions.

Do you share the concerns about the two-tier system that has been expressed by the two previous witnesses?

Mr. MCCANDLISH. Perhaps in general, yes, but not in specifics. I think there are ways that you can find to implement the two-tier system. Certainly it won't be without its ramifications. There certainly would be certain complications. But there are certain procedures that could be adopted or followed.

We haven't investigated them all and we haven't considered them all, but there is some merit to looking into them. As I said before, if there is to be a compromise, Weicker's bill would be the type of compromise to have because of the substantial relief that it offers to independent inventors and small businesses. There lies your chief concern.

In relation to that, I just might address the question that was raised with the other two witnesses in terms of legal fees. It is notable that the fees under H.R. 5602, the Patent Office fees themselves will vastly exceed the legal fees that a law firm or an average law firm would charge for obtaining an average patent for an inventor. Those legal fees you could say would run, for an average patent application, without any real complication, for roughly $2,000.

When the fees of the Patent Office are raised to greatly exceed those legal fees, there is bound to be considerable discouragement on the part of the inventor coming in and trying to get a patent. Certainly all efforts are made to take care of those independent inventors that do not have adequate funds, say, to be able to afford a full hourly rate of an attorney.

Any law firm will take on an independent inventor or a small business. Even at times they won't even get paid unless somehow the invention is successfully exploited or commercialized. In fact, I am sitting on a pretty big bill right here today hoping that some licensee will undertake a license, but if they don't, I know that the inventor doesn't have the money.

Mr. BUTLER. Well, I am still concerned about the objections to the two-tier in terms of the bureaucracy that would have to administer that program. And, of course, it would increase the legal fees because that would be one more aspect of proof that you would have to identify and work into your application. I guess somewhere you have to tell them what an independent inventor you were.

Mr. MCCANDLISH. All this is very true. There will be an increased bureaucracy I should think. There will be additional procedures. There will be additional legal fees where the question arises, does a business meet the standard of a small business to take advantage of the 50 percent reduction. There is no doubt about that. The extent and scope of this is difficult to tell at this time. Certain-

ly there are ramifications. As a matter of fact, there are ramifications to this entire fee increase.

When the European countries increased their fees substantially, they made various and sundry adjustments to dampen the shock or the impact that we are not doing here. In England, for example, you come in with a very low filing fee, and then there are intermediate fees as you go up, ever-increasing.

Another feature that we don't have here and which is in Europe is what they call delayed examination. An inventor has the opportunity or the choice of delaying examination of his patent application for a certain period of time in order to exploit the invention or commercialize it in that time before he has to start paying the heavy maintenance fees. In Germany, he can delay it up to 7 years.

Unfortunately, the program of the Patent and Trademark Office is going the other way. They want to accelerate the issuance of patents, which means that the time for paying those maintenance fees under this accelerated program will be reduced. So that in 3½ plus 1½, that is in 5 years, the inventor will have to expect to pay the first maintenance fee following the filing of his patent application.

So there are several ramifications here that do deserve careful consideration. I would say we shouldn't rush headlong into it, although I would say at this point there are only two choices that are on the table. One is to stay with Public Law 96-517, at least for the time being, in order to study or examine the situation in greater detail and greater care. I would suggest that that procedure be followed. But if there is to be a compromise, then the only compromise that can be had would be Senator Weicker's bill in some form or other, where the independent inventor and small business gets a 50 percent reduction across the board, both as to processing fees and as to maintenance fees. Those are our only two choices at this moment.

I would advise that we stay with Public Law 96-517 at least for another year and to study the situation with greater care before we rush headlong over the precipice.

Mr. BUTLER. Thank you.

I yield back, Mr. Chairman.

Mr. KASTENMEIER. Thank you, Mr. McCandlish, for your appearance this morning. We appreciate your testimony.

The Chair might add that the Virginia Bar Association, that your appearance is representative of many State and other bar associations. We are not able to have as many as would have liked to have appeared, but because of Mr. Butler's entreaty and because the Virginia Bar Association encompasses physically where the Patent Office is located, it seemed appropriate.

There are many others: the City Bar Association of New York, of New Jersey, and others have very knowledgeable and very interested patent sections as well as other associations throughout the country. It is just not possible for us to have all of them, but we are very pleased to have you here this morning.

Mr. MCCANDLISH. I certainly did appreciate the opportunity to testify here.

Incidentally, the witness list is in error. It is not the Virginia Bar Association, but it is the Virginia State Bar itself. We are the

authorized patent and trademark section for the Virginia State Bar itself.

Thank you.

Mr. KASTENMEIER. That concludes our first panel.

Next we are pleased to greet a very distinguished practitioner, a person who has been, in terms of patent policy and operation of the Patent Office and other matters, in the forefront nationally, to bring as different perspective.

Mr. Manbeck is very well known in the patent community in this country. He is the general patent counsel for the General Electric Corp. and we are very pleased to greet him. He has made contributions to other legislation involving patents before the subcommittee.

Mr. Manbeck, your own statement is quite brief, quite short. You may proceed from it, if you wish, or however you choose to proceed.

TESTIMONY OF HARRY F. MANBECK, JR., GENERAL PATENT COUNSEL, GENERAL ELECTRIC CO., ACCOMPANIED BY DOUGLAS HENDERSON, ESQ.

Mr. MANBECK. Thank you, Mr. Kastenmeier.

May I be permitted to have Mr. Douglas Henderson join me? He is a well-known practitioner here in Washington and has been very active in one thing that I am going to testify to, particularly as the chairman of the patent committee of the Chamber of Commerce of the United States.

Mr. KASTENMEIER. Mr. Henderson, we are pleased to have you also.

Mr. HENDERSON. Thank you, Mr. Kastenmeier.

Mr. MANBECK. You were very kind with your introduction, sir, so I will skip who I am and where I'm from.

I appear today for two reasons. First, to urge that appropriate funding be provided to the U.S. Patent and Trademark Office to enable it to continue its vital and important role in our American industrial society, and second, to ask this committee to consider adding a provision to H.R. 5602 which would allow for the arbitrability of patent disputes if the parties involved wished to take that route.

I will not read my entire prepared statement. I will skip somewhat in order to save time.

Users of the patent system, other than perhaps the U.S. Government, do so in the hopes or expectation of a commercial benefit. A patent, when issued, is an asset. It may be of great value or of little value, depending on the commercial viability of the technology to which it relates. But assuming it does apply to commercially usable technology, it is important that the patent application be processed without undue delay, yet receive a thorough and thoughtful examination. Delay in issuance is bad and improperly issued patents can be a disaster both for the patent owner and those against whom the faulty patent may be asserted.

If increased fees are needed to give us a first-class Patent Office, which will provide prompt and efficient patent examination, I certainly support them, and so I believe do the responsible patent counsel at many other major corporate users of the patent system.

I have talked to a number of chief patent counsel and patent managers with specific reference to this testimony in order to satisfy myself to that effect. We want a good system and we are willing to pay for it.

Mr. KASTENMEIER. Mr. Manbeck, are you free to identify those people?

Mr. MANBECK. Yes, I am. I will read you a list of lawyers, patent managers, and in each case I have specific permission to give their names.

Mr. Rudolph Anderson at the Merck Corp.; Mr. Cruzan Alexander of 3M; Mr. George Frost of General Motors; Mr. John Hagan of American Cyanamid; Mr. Alan Jones of Kodak; Mr. Clemment McHale of Westinghouse; Mr. John Maurer of Monsanto; Dr. Pauline Newman of FMC; Mr. Thomas O'Brien of Union Carbide; Mr. Robert Orner of the General Telephone and Electronics Corp.; Mr. John Pegan of the United States Steel Corp.; Mr. Richard Witte of Proctor & Gamble; and Mr. Ron Zibelli of Xerox. And I talked to Dr. Dick Waterman at Dow, and for some reason his name is not on the list. But he also agreed.

Now, these are the people that I specifically talked to. I just tried to get what I felt to be a representative sample from a number of industries. I did not attempt to make an exhaustive survey on my own. As I say, these gentlemen, and Miss Newman and myself, do support increased fees for a good system.

We do, however, part company in one significant way from the Commissioner's present proposal as set out in HR. 5602. The level of the fees which would result from that proposal will obviously increase our patenting costs to a notable degree. But we can live with them as a price for a better Patent Office. But to cast in stone the concept of a 100-percent fee recovery, with the Commissioner having the power to adjust the fees without approval by the Congress, is in our judgment a mistake. In saying this, let me make it clear I am not questioning the ability or bona fides of the present Commissioner, who is an outstanding individual and one of the better Commissioners in my working lifetime.

We oppose the adjustable 100-percent recovery because it will remove most, if not all, of the pressure on the Patent and Trademark Office to keep costs down over the years. The unrestricted authority to increase fees is a blank check, and it will be difficult for an administrator to eschew using that blank check in the future.

Let the Congress establish fixed fees now in the range that the Commissioner is proposing; this will enable the Office to do what it needs to do over the next several years, and if more money is needed 3 to 5 years from now, the administration then in power can come back to Congress to justify why more money is needed. Hopefully, that need to come back will exert sufficient pressure to cause continuing economies to be introduced in the management of the office.

Also, most of us in the commercial sector believe that the public benefit from the patent system is such that the users should not be required to pay the entire cost. Congress will, we hope, keep the public benefit in mind when it decides on an appropriate level for the new fees.

That concludes my testimony on fees.

As a second point of this testimony, I would like to urge this committee to add a provision to H.R. 5602 which would expressly authorize the use of voluntary arbitration in the resolution of patent disputes.

Commercially important patents often come into controversy either as to their scope or validity. Sometimes these controversies can be resolved only by litigation. But patent litigation is extremely time-consuming and very expensive. The fees involved are often $500,000 or more for each party, and it takes years to get to a final judgment. In many situations, both parties would prefer a quicker, less expensive way to a decision between them.

In most commercial matters, voluntary arbitration has been encouraged since it reduces the workload on the courts and settles matters in a short period. However, a cloud has hung over the use of arbitration in patent cases since a few lower courts have regarded patent validity as being so important that it should be reserved for decision by the courts. Patent validity is important, but the amounts involved in most patent controversies pale beside the large stakes which are frequently in dispute in labor and construction arbitrations.

Mr. Kastenmeier, I can continue or I can summarize and save a little time, whichever you prefer.

Mr. KASTENMEIER. Since we have reached the noon hour, perhaps it would be best, Mr. Manbeck, for you to summarize.

Mr. MANBECK. We have developed, almost in parallel, a proposed amendment to the patent law which would allow voluntary arbitration. And when I say almost in parallel, there are two groups which have worked on this. One is the patent council of the U.S. Chamber of Commerce, and the other is a committee of the patent and trademark section of the ABA.

We think this amendment would do the job which is needed to be done. It would specifically authorize people to arbitrate if they wanted to do so; it would provide that the results of the arbitration would be enforceable in court; it would require, however, that notice would have to be given to the Patent Commissioner of the arbitration of the patent involved, and a copy of the award furnished to him. Thus, if anybody wanted to find out about it through the judicial process they would be able to do so. We think it would be a step ahead in reducing the workload on the courts and letting us take care of some matters today which become unduly complicated and unduly expensive.

I was told this morning by Mr. Wolfe that Mr. Railsback will offer this language as an amendment, and I would very much like to urge support for it by the rest of the subcommittee. As I say, Mr. Henderson was involved very heavily in the development of this language.

Thank you.

[The statement of Mr. Manbeck follows:]

TESTIMONY

of

HARRY F. MANBECK, JR.

General Patent Counsel
General Electric Company

on

PATENT OFFICE FEES

and

THE ARBITRABILITY OF PATENT DISPUTES

before

Subcommittee on Courts, Civil Liberties

and The Administration of Justice

Committee on Judiciary

U.S. House of Representatives

April 22, 1982

My name is Harry F. Manbeck, Jr. and I am the General Patent Counsel of the General Electric Company, a diversified manufacturer of electrical and other products. I appear today for two reasons; first, to urge that appropriate funding be provided to the United States Patent and Trademark Office to enable it to continue its vital and important role in our American industrial society, and; second, to ask this committee to consider adding a provision to H.R. 5602 which would allow for the arbitrability of patent disputes if the parties involved wish to take that route.

In January, 1980 the Research and Policy Committee of the Committee for Economic Development issued a statement on "Stimulating Technical Progress". I will refer to this statement later in respect to the arbitration of patent disputes. But considering first the funding of the Patent and Trademark Office, the statement expressly recognized that "it is vital to provide adequate funding to eliminate the unnecessary backlog in the work of that office". This is, I believe, the view of American industry. We want and need an effective patent system, and the whole system depends upon an efficient, properly funded office.

Users of the patent system, other than perhaps, the United States Government, do so in the hopes or expectation of a commercial benefit. A patent when issued is an asset; it may be of great value or of little value depending on the commercial viability of the technology to which it relates. But assuming it does apply to commercially usuable technology, it is important

that the patent application be processed without undue delay, yet receive a thorough and thoughtful examination. Delay in issuance is bad and improperly issued patents can be a disaster both for the patent owner and those against whom the faulty patent may be asserted.

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We do, however, part company in one significant way from the Commissioner's present proposal as set out in H.R. 5602. The level of the fees which would result from that proposal will obviously increase our patenting costs to a noticeable degree but we can live with them as a price for a better Patent Office. But to cast in stone the concept of a 100% fee recovery, with the Commissioner having power to adjust the fees without approval by the Congress, is in our judgement a mistake. In saying this, let me make it clear that I am not questioning the ability or bona fides of the present Commissioner, who is an outstanding individual and one of the better, if not the best, Commissioner in my working lifetime.

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Also, most of us in the commercial sector believe that the public benefit from the patent system is such that the users should not be required to pay the entire cost. Congress will, we hope, keep the public benefit in mind when it decides on an appropriate level for the new fees.

Turning now to the second point of my testimony, I would like to urge this committee to add a provision to H.R. 5602, which would expressly authorize the use of voluntary arbitration in the resolution of patent disputes.

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In most commercial matters, voluntary arbitration has been encouraged since it reduces the workload on the courts and settles matters in a short period. However, a cloud has hung over the use of arbitration in patent cases since a few lower courts have regarded patent validity as being so important it should be reserved for decision by the courts. Patent validity is important, but the amounts involved in most patent controversies pale beside the large stakes which are frequently in dispute in labor and construction arbitrations.

The need for the availability of arbitration in patent matters has become increasingly recognized in recent years. The McClellan Bill S.2255 which passed the Senate in 1976, but which was not taken up in the House, contained a provision which expressly sanctioned patent arbitration. Since that time a number of responsible organizations have made specific recommendations supporting patent arbitration. The Committee for Economic Development in its 1980 statement said, and I quote, "We believe that arbitration should be a legitimate method for solving patent problems. Arbitration is common in resolving disputes in almost all other commercial areas, including very large labor settlements, and it is difficult to see why it

should not be allowed for patent questions. Although compulsory arbitration cannot be required because such a requirement would be a violation of due process, it should be available when both parties wish to use it voluntarily. The results of arbitration are, of course, binding only on the participants. We, therefore, recommend that public policy be modified to permit voluntary arbitration of patent disputes, including questions of both infringment and validity."

The Chamber of Commerce of the United States has also endorsed voluntary arbitration as a desirable vehicle for handling patent disputes. The Patent Council of the Chamber, under the Chairmanship of Mr. Douglas Henderson, has developed specific language which, if enacted into law, would implement the Chamber's general recommendation. A copy of their suggestion is attached to the written version of my testimony for your consideration.

The proposed language expressly states that disputes as to patent validity and infringement may be arbitrated, and that agreements providing for such arbitration shall be valid and enforceable. The arbitration proceedings shall be governed by Title 9 of the United States Code and the arbitrator must consider the various defenses provided for in section 282 of the patent code if they are raised by any party. Any award would be final and binding, except that the parties could agree for a reformation of the award by a court if the patent in question is later found in litigation to be invalid or unen-

forceable. Notice of the arbitration award would have to be given to the Commissioner of Patents and Trademarks and would be entered in record of prosecution of the patent. The award would be unenforceable until the notice is given.

We believe these provisions would establish a workable procedure that would help the patent system and hopefully relieve the courts from some of their patent workload in the future. The awards would be binding only on the parties to the arbitration, and if a patent were declared invalid or non-infringed by the arbitrator, any member of the public interested in the patent could learn of that result through the required notice to the Commissioner.

The Patent, Trademark and Copyright Section of the American Bar Association has also spoken in favor of patent arbitration, passing a resolution to that effect a few years ago, and over the last year, a committee of the PT&C Section under the leadership of Mr. Auzville Jackson has been considering what should be recommended for any legislation on the point. The language now recommended by that Committee is identical in most respects to the suggestion of the Chamber Patent Council. However, it is not yet an official PT&C Section position.

Thus, I think it is fair to say that both industry and responsible members of the patent bar support the enactment of appropriate legislation. We do indeed hope you can consider it.

Thank you for giving me the opportunity to present these views.

Proposed 35 USC 294
Voluntary Arbitration

'(a) Contracts involving patents or rights under patents may contain a provision requiring arbitration of any disputes as to patent validity or infringement arising under the contracts, and the parties to an existing dispute as to patent validity or infringement may, after such dispute has arisen, agree in writing to settle such dispute by arbitration. Any such provision or agreement shall be valid, irrevocable, and enforceable, except for any grounds as exist at law or in equity for revocation of any contract.

'(b) Arbitration of such disputes, awards by arbitrators and confirmation of awards shall be governed by Title 9, United States Code, to the extent such title is not inconsistent with the section. In any such arbitration proceeding, the defenses provided for under section 282 of this title shall be considered by the arbitrator if raised by any party to the proceeding.

'(c) An award shall be final and binding as between the parties to the arbitration and shall have no force or effect on any other person. The parties may agree that in the event a patent which is the subject matter of an award is subsequently adjudicated to be invalid or unenforceable in a decision from which no appeal can or has been taken, such award may be modified by any court before whom application for modification is raised by any party to the arbitration. Any such modification shall govern the future rights and obligations between said parties as of the date of the modification.

'(d) After the award is rendered, the patentee or other party to the proceeding shall give notice thereof in writing to the Commissioner. There shall be a separate notice prepared for each patent involved in such proceeding. Such notice shall set forth the names and addresses of the parties, the name of the inventor, and the name of the patent owner, shall designate the number of the patent, and shall contain a copy of the award. The Commissioner shall, upon receipt of such notice, enter the same in the record of the prosecution of such patent.

'(e) The award shall be unenforceable until the required notice is given.

Mr. KASTENMEIER. I appreciate that. As a matter of fact, we have worked before with the U.S. Chamber of Commerce on the resolution of minor disputes. They have been in the forefront there, and this is totally consistent with that approach; that is, to find other, less expensive, more expeditious ways of resolving disputes. I think they merely transferred this interest over to the patent area which, as we all know—both Mr. Butler approaching it from the standpoint of attorneys fees and Mr. Railsback's interest in this.

The gentleman from Illinois wanted me to state to you that he is very interested in your "arbitrability" amendment or approach, as you call it, of patent disputes. I think, however, in that respect, it would be good for the record to ask a couple of questions. I will try to be brief.

I think it has been ascertained that the large patent attorney groups have not really taken a position on this yet, have they? Their sections haven't been able to meet and to approve this approach?

Mr. MANBECK. The patent section of ABA has an existing resolution endorsing arbitration. The language which we present to you has been approved by a committee of the ABA patent section. It has not gone specifically to them—and as a matter of fact, I do not think there would be a resolution which would adopt this language, as such. This sort of thing usually goes in as a committee report, and we are to that stage. It will be in this year's record.

APLA has not picked it up yet. The Intellectual Property Owners organization, I believe is in general agreement—lets see, who else. Of course, none of the State bar associations have——

Mr. KASTENMEIER. Do you know whether Commissioner Mossinghoff or the Patent Office, or the Department of Commerce, has looked at the proposal and has expressed any view about it?

Mr. MANBECK. Yes, it has been shown to the Commissioner and he is in favor of it.

Mr. KASTENMEIER. Do you know of any opposition to it?

Mr. MANBECK. None whatsoever. As a matter of fact, we took it into the administrative office of the courts and reviewed it there with an individual whom we believe to be—perhaps responsible is the wrong word, but at least one who was interested and could give us a clue. He suggested we take one thing out. We had in there originally that the award had to be reported to the district court in the district of the arbitration hearing as well as the Commissioner, and he recommended we take that out, that we give it just to the Commissioner, because that's where everybody would go anyway and it would relieve the workload in the clerk's office.

Mr. KASTENMEIER. If you can speak from a detached point of view, would the nature of the parties have any particular advantage depending on who the party was, if it were a small vendor versus a large American corporation? Would the disparity in the parties be reflected in the utility or advantage to be gained by voluntary arbitration?

Mr. MANBECK. I don't want the small business people to come in and say I'm the fox watching the chickens, but I really believe that the availability of voluntary arbitration is to everybody's benefit.

We had a case, for example, in St. Louis some years ago where an inventor sued us, and which I would have been just delighted to

arbitrate with him if it had been available and if he would have been willing to do it. We won the case, but it cost us a lot of money and I presume it cost him some money, too. Actually, I think it would give the smaller inventor a less expensive way—assuming the corporation were willing to go along with it—to resolve his differences. Now the inventor has no choice but to sue.

That choice, incidentally, still remains with him.

Mr. KASTENMEIER. We say to you we don't have to make the decision this morning, although we will have to make the decision in a matter of days. I say that because, notwithstanding the fact we were scheduled this morning to proceed to mark up following this hearing, we will lack a quorum and not be able to mark up 5602 or the other bill relating to this general subject to which this might be appended until Tuesday next, I think, at the earliest.

You are correct about Commissioner Mossinghoff. I am told there is a letter dated April 20, 1982, to Mr. Sawyer of this committee, in which the Commissioner, in effect, endorses your proposal. We can look at it——

Mr. MANBECK. I really know of no opposition, Mr. Kastenmeier.

Mr. KASTENMEIER. I appreciate that and I will yield to the gentleman from Virginia.

Mr. BUTLER. Thank you.

Does the voluntary arbitration involve any Federal expense?

Mr. MANBECK. No, none, except for whatever it costs the Commissioner to enter the award in the file once it's given.

Mr. BUTLER. Well, that was one of my differences with the dispute resolution mechanism which the chairman was equating with this.

Tell me how it would work. Here is an inventor, an owner of a patent floating around there, and he perceives that General Electric is appropriating his product. Now he has the option of suing——

Mr. MANBECK. That's right.

Mr. BUTLER. How are his options altered by including this——

Mr. MANBECK. He has an added option. First of all, he could still sue us. That right is not affected in any way. But either one of us could say to the other, "Look, we have not gotten together on this. We just can't agree. But instead of taking the thing to court, would you agree to go before a panel of the American Arbitration Association or some other appropriate panel and have—" really, an arbitration is a minitrial usually "and have a proceeding in front of either an arbitrator or three arbitrators and abide then by their decision." And what you do besides agreeing to arbitrate, you usually agree—that's too strong—I have seen it agreed in matters other than patents. You would hope you would agree on what the award would be, depending on which side won, or you could leave it to the arbitrator's discretion. In other words, you would decide by contract just what the arbitrator could do.

Mr. BUTLER. How does that differ from the rights presently available to the parties?

Mr. MANBECK. Arbitration has been criticized and agreements to arbitrate have not been enforced by a few lower courts on the basis that these decisions should be reserved for the courts.

Mr. BUTLER. And does this "voluntary" arbitration make the agreement binding on the courts?

Mr. MANBECK. Yes. But it does not do this—It is binding in the sense that the court would be required to enforce it, unless there is some horrible circumstance where it could be proved that the arbitrator was biased, bribed, something like that. But the award would not affect anybody but the parties to it.

In other words, let's suppose the private inventor comes to General Electric and we arbitrate and we get an award which the General Electric Co., regards as good, or one that it regards as bad. But let's take the good first. We proved to the arbitrator's satisfaction that whatever we're making is not infringing. The inventor can turn around and move against another company and this award will not affect his rights against the other company in any way, except that I suppose the other company would try to get the proofs that went into the arbitration so that they would be in front of the court.

Mr. BUTLER. If he had chosen to go to court and sue General Electric, would that prejudice his rights to sue some other——

Mr. MANBECK. If he lost on validity, yes, he would be through, because you only get one shot under the current Supreme Court decision.

On the other hand, if he lost on infringement, he could still move against somebody else on the question of infringement.

Mr. BUTLER. How does voluntary arbitration alter that?

Mr. MANBECK. It doesn't.

Mr. BUTLER. So that right is not altered by going through the arbitration?

Mr. MANBECK. Except as to the party he's going to arbitration with. He can still do anything he wants to with third parties.

Mr. BUTLER. A dissatisfied participant in arbitration, what are his rights with reference to review of the decision by the arbitrators?

Mr. MANBECK. Generally, you——

Mr. BUTLER. I mean, is this a matter that would depend on the contract?

Mr. MANBECK. It is a matter which would depend on the contract, absolutely.

Mr. BUTLER. But they can contract away, if they choose to, the right to appeal it to a court?

Mr. MANBECK. That's right, or they can insist on it.

Mr. BUTLER. That contract is now given the sanction of a statute?

Mr. MANBECK. It is given the same sanction as arbitration contracts are in other phases of the law. Mr. Butler, very, very large amounts are arbitrated in labor contracts. You recall the Steelworkers trilogy cases where the Supreme Court was very strong on getting the labor disputes to arbitrators rather than being in the courts. We think there are significant advantages to everybody, patent owners, prospective defendants, and the courts, to have this alternate form available if they want to use it, but only if they want to use it.

Mr. BUTLER. I'm not quarreling with you. I am just trying to figure it out exactly.

Now, one more question, Mr. Chairman, if I may. What are the rights of either party to force the other to arbitration? Do both have to agree to it?

Mr. MANBECK. They both must agree.

Mr. BUTLER. And the statute does not alter that?

Mr. MANBECK. Absolutely not.

Mr. BUTLER. You heard the arguments against the two-tier system today. What is the validity of those?

Mr. MANBECK. I very much want to answer that. Before I do, may I ask Mr. Henderson if he has anything to add on that point? Mr. Henderson is a litigating lawyer; I am not. It might be helpful if he has anything to add.

Mr. HENDERSON. I would add two points.

One, the small inventor who goes against General Electric Co., if you are representing him, what you do initially is you contact the General Electric Co. and you see if you can settle the matter. Sometimes there is a good will to settle it but an honest disagreement about a point. It may be that there is a disagreement as to whether a certain piece of prior art makes the patent invalid, or whether the claims are broad enough to read on the structure that General Electric might be manufacturing or, of course, any other company. I'm using General Electric as an example.

If you are representing the small inventor and you reach that impasse, frequently—and I'm not just saying small inventors, but small companies and even medium-sized companies are concerned about the tremendous cost of litigation and the high risk. Patents have not done well in court. You must advise your client that he may spend all this money and you still take a chance that the court will invalidate your patent on something that hasn't even been thought of.

It would be lovely, in those circumstances, to be able to arbitrate. And there are arbitration provisions already in the statute that apply to most other areas that parties get involved in. Indeed, those provisions would seem to be broad enough to cover patents. But the courts have held that "No, we want patents to come before courts and we don't want them arbitrated."

We think that the public policy is that we ought to discourage litigation if we can, and that we ought to have arbitration available to us. That's the purpose of having a specific arbitration provision for patents, so we can provide this alternative remedy, as you have accurately described it, for the individual inventor, the small company, or even a large company, that would like to not spend a lot of money in litigation to resolve the dispute.

Mr. BUTLER. Mechanically, are you recommending that we change the—what code section would you recommend we change in order to make this?

Mr. MANBECK. You just add it in title 35—excuse me. It would go in the Patent Code.

Shall I go ahead on the fees?

Mr. BUTLER. If the chairman will surrender the time.

Mr. Chairman, if you would rather have him file his response to that question, that would be sufficient.

Mr. KASTENMEIER. I think it would be useful, however, for you to comment on that question.

Mr. MANBECK. You know, old ways die hard, and something new one always worries about. I think this is the way many of us look on the two-tier fee system. We don't know where it's going to go.

On the other hand, speaking personally now and not as a representative of anybody, I am indeed concerned that the fee arrangement be such that the small, financially weak individual or company still have access to the Patent Office. I would not like to see a fee structure which would shut out somebody with a truly deserving invention.

Now, I do have a problem, however, in taking just the definition of small businesses as in the Small Business Act and individuals as nothing more, because there are, for example, some very well-to-do private inventors who use the system all the time and who are equally as able to pay as any corporation. There are some small businesses—well, their owners are wealthy; I don't know how else to say it—who also can easily afford to pay whatever the fees may be.

Now, it seems to me the Congress is not making a mistake in providing for lowered fees for those who really need it, but that it ought to somehow let the Commissioner of Patents or some administrator to be able to put a need test in before the lower fee is actually afforded to the individual. This could be done, for example, by requiring him to file an affidavit, and if he were to file a false affidavit, he would place his entire patent at risk when he gets it, and hopefully he is looking for a valuable asset that is worth a lot more than those few hundred dollars in fees.

Mr. KASTENMEIER. I think that conforms with at least one formulation of an amendment, and I think that is sage advice. I certainly commend you for it.

I expect that a large corporation, that the fee bill would be substantial in the future. I have no idea——

Mr. MANBECK. I have computed what I think the change in fees would do to us, if you would be interested to have it.

Mr. KASTENMEIER. I would be curious, yes. The reason I say that is I have no idea whether—it depends on the corporation, obviously, but a corporation like General Electric or a large corporation that is substantially engaged in innovation, would they be pursuing 50 or 200 patents a year? I have no idea what it might cost as a result——

Mr. MANBECK. So you will understand, this is a rolling 5-year average. Over the last 5 years we have filed an average of 1,155 patent applications each year, and we have issued 821 in an average year.

Now, taking an average filing fee of $125, and an average issue fee of $150, we feel we are spending somewhere in the neighborhood of $260,000 to $275,000 in fees now, under the current fees.

If the present newly enacted 1980 law, Public Law 96-517, is left unchanged, our filing and issue fees, using these same numbers of applications and issued patents, will go to about $435,000 a year.

If we go to, as it has been called, 100 percent recovery, our filing and issue fees will go to $870,000 a year, and then as the maintenance fees phase in over a period of years, I guess it would be double that.

We, for a good many years, have been the largest user of the patent system in the sense of patents issued. I don't think anybody else's bill will be that large.

Mr. KASTENMEIER. That's interesting. I know there was some issue with AT&T with respect to the disposition of their patents, and I would have thought, since they include Bell Laboratories, that they, too, would be very large in the patent area.

Mr. MANBECK. They are large users.

The reason we have so many is that our product line is so very diverse compared to them. I want to make it very clear that in many areas we are a "have not" and not a "have" in patent coverage.

Mr. KASTENMEIER. I thank you for that testimony. It has been very, very illuminating. And while I suppose we could pursue this further, I think the morning has gone into the noon hour and we will terminate our colloquy here.

On behalf of the committee, Mr. Manbeck and Mr. Henderson, we greatly appreciate your appearance.

Mr. MANBECK. Thank you.

Mr. KASTENMEIER. The last witness this morning represents the United States Trademark Association, Mr. Houston L. Swenson. He is president of the association.

I am sorry you have had to wait so long, Mr. Swenson. I hope you can be relatively precise in the presentation of your testimony this morning. I think we have your statement, and you may proceed as you wish.

TESTIMONY OF HOUSTON L. SWENSON, PRESIDENT, UNITED STATES TRADEMARK ASSOCIATION

Mr. SWENSON. Thank you. I admire your fortitude in pursuing this matter.

The United States Trademark Association does appreciate this opportunity to provide you with our comments on H.R. 5602. You have received our written comments and I am going to just summarize the most salient features of those comments.

First, our organization is 104 years old, and among our purposes are to protect the interests of the public in the use of trademarks, to promote and further the concept of trademarks, and to protect the rights of trademark owners. We represent the owners of a majority of trademark registrations in the United States. We are also unique in that we are the oldest and largest organization in the world dedicated solely to trademark matters.

I and all other USTA officers are employees of trademark owners. Our comments are necessarily confined to the trademark related issues in 5602.

Now, when Public Law 96-517 passed in 1980, it required the Commissioner of Patents and Trademarks to recover 50 percent of trademark registration processing costs through increased fees. This concept of establishing fees significantly departs from the concept of Congress setting trademark fees. A concept that has been in our trademark registration laws for over a hundred years, even before 96-517 and its 50-percent cost of recovery fees, has been put into effect.

The administration has introduced a bill before us which requires fees be set at 100 percent. Do the supporters of this bill really believe the public receives little or no benefit from a register of trademarks? That is certainly what a 100-percent concept conveys. Our Federal register of trademarks has from its very inception been recognized as a benefit to the public. True, this register of marks, when examined by a party who wishes to select a new mark that doesn't conflict with any prior mark, clearly receives benefits from the register. But the ability to avoid such conflicts also results in substantial benefits to the public, including the accurate identification of goods that the consumer purchases, and likewise reduced litigation expenses.

The trademark operation of PTO also serves as a quasi-judicial body in handling many types of trademark disputes that would otherwise go through our Federal courts. Trademark rights—without being professorial here, I must define a bit what a trademark is and the rights with respect to the trademark. Those rights are acquired through use. It is not a grant from Congress or the PTO. Those rights are actually obtained by that party going on the market with a product, using that mark on the product.

Now, he becomes a voluntary registrant. These additional rights, if he should elect to voluntarily register the mark, do not substantially enlarge his existing rights in that trademark.

Nevertheless, we do have this trademark register, and that's what 5602 is about, about the registration of trademarks. The more complete this register is, the greater its effectiveness in reducing conflicts resulting from confusingly similar marks. This voluntary registration system is working more effectively since the 1946 Trademark Act was passed, with added incentives for trademark owners to register their marks.

USTA supports the administration's view that the PTO must receive significant revenue increases, and we endorse many of the programs that Commissioner Mossinghoff is attempting to enact on his limited funds. It is essential, though, that the means for doing this, of upgrading the trademark operation, that these means do not adversely effect existing incentives for trademark owners to register their marks.

A percent of cost recovery concept which requires the setting of fees by the Commissioner presents many problems. You have heard quite a few of these already. The Commissioner's proposed fees for applications, renewals, and affidavits, the main revenue-producers, reflect how much of an increase over today's fees are. We have attached a chart that compares those proposed fees of the Commissioner with existing fees, and they represent, with respect to these three main revenue producers, a 1,000-percent increase. That is 10 times today's fees.

Won't there be a likelihood of some reduced participation by trademark owners? If no appropriations are made for trademark operations, what happens if the Commissioner's cushion for covering the possibility of reduced trademark application filings and, therefore, the revenue that won't be coming in, what happens if this falls short of budgeted expenses? Well, 5602 says that if this happens the Commissioner must again increase fees to come back

up to 100-percent cost recovery. But when? Not until 3 years from now.

This increase, though, would cause even more reduced voluntary participation by trademark owners, and the register will progressively be less complete.

Now, the OMB has alluded to overconsumption by users which have created excessive costs, and I believe this is what we're talking about on user fees, overconsumption causes excessive cost to the public. If OMB's intention is to reduce registrations by requiring registrants to bear 100 percent of cost, it has completely misunderstood the goal of developing a complete register of trademarks.

USTA has an alternative proposal which we believe will provide the necessary funds for a first class trademark operation without adversely affecting the Government's goal of obtaining a complete register of marks. The fees in this proposal are in exhibit A of our written comments. These fees are set by statute and not by the Commissioner to reflect spiraling PTO expenses. However, USTA's fee structure does necessitate an appropriation of $4 million, which at this point we would request be added on to the $58 million, bringing it up to a total of $62 million—$4 million is what trademark owners are asking.

Now, this is about half the amount of taxpayers money used toward last year's trademark registration operating expenses. It will reduce the 100-percent concept of fees by 30 percent if we can have a $4 million appropriation, and that is because our own proposed fees of the USTA are still seven times higher than today's fees—700 percent. But compared to 1,000 percent, we think there's an area there where incentives perhaps aren't as adversely affected.

Based on last year's expenditures for trademark services, it is reasonable to expect the fees that USTA proposes will cover trademark processing. The $4 million we request can then be directed toward automation and other improvements which are needed to reach the 1960's level of PTO's trademark operation performance. That's when a trademark registration could be obtained in 8 or 10 months. Now it's 25 months, about the same as a patent grant. And the complexities, I think you recognize, are somewhat different between them.

Even then, if we reach our goal, which now is 3 months for first action in a trademark application, and 13 months for the registration, we are talking about waiting for that until 1985 with our most optimistic goals as expressed between the Commissioner and the association.

In summary, the administration has recognized the need for an improved patent and trademark system that will strengthen our economy. This is a public benefit that in no way pales when compared to the relatively small benefits the trademark owner obtains from voluntarily registering his marks. One beneficiary, trademark owners, cannot support the entire expense of the PTO's trademark operations, and an appropriation is needed. We must reinstate the practice of having Congress control fees by statute, followed by periodic reviews and adjustments when needed.

We should not impose on the Commissioner of PTO the burden to establish fees which are uncontrolled by Congress, a blank check

technique that can unduly escalate fees and tend to institutionalize inefficiency.

In short, if Congress is willing to provide the skeleton, $4 million, for funding a first-class trademark registration operation, trademark registrations will provide the muscle and flesh with an increase of fees of about 700 percent.

We have reviewed the fees accompanying Mr. DeGrandi's statement for the PTC, ABA, and these fees do conform with our desires and we would request that you give these serious consideration.

This concludes my presentation.

[The statement of Mr. Swenson follows:]



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EXECUTIVE OFFICES

STATEMENT OF
THE UNITED STATES TRADEMARK ASSOCIATION

on the
FY 1983 AUTHORIZATION FOR THE PATENT AND TRADEMARK OFFICE (PTO)
(HR 5602)

before the
SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES AND THE
ADMINISTRATION OF JUSTICE
of the
COMMITTEE ON THE JUDICIARY
U.S. HOUSE OF REPRESENTATIVES

April 22, 1982

Mr. Chairman and members of the Committee, The United States Trademark Association (USTA) appreciates the opportunity to comment on HR 5602, legislation to authorize the U.S. Patent and Trademark Office (PTO) for FY 1983. My name is Houston L. Swenson. I am Trademark Counsel to Eli Lilly & Company and the 1981-82 President of USTA.

USTA is a 104-year-old, non-profit membership corporation whose purposes are to protect the interests of the public in the use of trademarks (brand names, logos or designs that distinguish the goods or services of one merchant from another), to promote the interests of trademark owners in the use of their trademarks and to serve as an educational resource on the use, registration and protection of trademarks. The membership of USTA consists primarily of owners of trademarks and those who represent owners of trademarks. The majority of all United States trademark registrations in effect today are owned or have been prosecuted by members of our Association. USTA is the oldest and largest organization in the world today exclusively dedicated to the trademark concept. Because USTA's interests are limited to trademarks, this statement will be confined to the trademark-related provisions of HR 5602.

HR 5602 proposes a highly controversial change in the manner in which trademark fees are set. Enactment of HR 5602, as introduced, would eliminate all federal funding for the Trademark Office. Despite its willingness to support higher trademark fees, USTA opposes this legislation because it is contrary to the goals and stated purposes

of the Federal Trademark Statute. Accordingly, USTA seeks the reinstatement of some monies in the budget to administer the Trademark Office and execute the law.

This statement will address two major issues pertinent to this Committee's deliberations: (1) The effect of HR 5602 on the funding of the Trademark Office; (2) The effect of HR 5602 on the Lanham Act provisions unrelated to the PTO's finances.

Funding of the Trademark Office

HR 5602 proposes that the fee provisions of Public Law 96-517 be amended. PL 96-517 was passed into law in 1980 but its provisions for the funding of Trademark Office operations by filing fee increases have never been implemented. To understand the trademark community's strong objection to the Trademark Office funding provision of HR 5602, this Committee must consider (i) how the Trademark Office has been funded in the past, (ii) how it would be funded if PL 96-517 were implemented as enacted, and (iii) how the Trademark Office would be funded if the provisions of HR 5602 are enacted.

The system by which the Trademark Office has been funded in the past has strictly limited its spending to the amount of annual appropriations received. Revenues from fees were classified as miscellaneous receipts and were disregarded during the budget process.

The funding system created by the existing language of PL 96-517 provides in relevant part:

> "(a) All fees for services performed by or materials furnished by the Patent and Trademark Office will be payable to the Commissioner.
> (b) All fees paid to the Commissioner and all appropriations for defraying the costs of the activities of the Patent and Trademark Office will be credited to the Patent and Trademark Office Appropriation Account in the Treasury of the United States, the provisions of section 725e of title 31, United States Code, notwithstanding.
> (c) Revenues from fees will be available to the Commissioner of Patents to carry out, to the extent provided for in appropriation Acts, the activities of the Patent and Trademark Office.
> (d) The Commissioner may refund any fee paid by mistake or any amount paid in excess of that required." (PL 96-517, Sec. 3 (1980), amending 35 U.S.C.§ 42).

In addition, under the provisions of PL 96-517, Sec. 5, fees for the filing and processing of applications for the registration of trademarks would be "set and adjusted by the Commissioner to recover in aggregate 50 per centum of the estimated average cost to the Office of such processing."

The Fee Issue

USTA has never supported the fee structure created by PL 96-517 because it opposes the concept of setting trademark fees on the basis of recovering a strict percentage of costs. USTA believes that in principle any formula for setting trademark filing fees that formally attempts to apportion costs on the basis of benefits received is ill-conceived. The nature of the trademark registration system makes it impossible to allocate the system's benefits to trademark owners or the taxpaying, consuming public and to accurately divide the Trademark Office costs between them. From a practical standpoint, a percentage fee structure is particularly difficult to administer and requires the PTO to expend its limited resources on computing the individual service costs of its operations appropriate for allocation. Furthermore, because the government budgets in three-year cycles, all fee formulas are necessarily based on questionable predictions of future costs and workloads.*

Of greatest concern is that at the time PL 96-517 was under initial consideration, USTA was told that with respect to the appropriations process, this percentage fee recovery formula was intended as a means for improving the Trademark Office's deplorable operating condition. Because such fee revenues would augment, not replace, appropriations from general revenues, the Trademark Office would be assured of the funding it required. It appears that the fee provisions of PL 96-517 (and the proposed amendment to it) are being implemented to provide operating expenses rather than supplemental revenues for improvements.

The FY 1983 authorization level contained in HR 5602 assumes that PL 96-517 will be amended so that trademark owners (users) will pay 100% of trademark costs. This change in the law is interpreted to mean that no general fund revenues will be needed to operate the Trademark Office. It expects that all costs of administering and executing the Federal Trademark Statute will be recovered through fees imposed on those who file applications for the registration of trademarks.

When taken in the context of "user fees" in general, a budget containing no general fund revenues for trademarks infers that those who file applications for the registration of marks or oppose the registration of another's mark are the only users and beneficiaries of the system. This is not the case.

*Questions then arise as to what happens when unanticipated short falls in filings result in overestimated fee revenues that do not meet the percentage cost recovery levels mandated by statute? Are examiners fired? Does printing grind to a halt? Is the PTO given emergency authority to immediately increase fees one more time? Similarly, what happens when filings exceed expectations and fee revenues are greater than the statutorily-set percentage? Could applicants sue the government to receive a rebate for being overcharged? Would the PTO be forced to disperse its surpluses?

The purpose and benefits of the trademark registration system, as provided in the 1946 Federal Trademark Statute, are identified in the 1946 Senate Judiciary Committee report on the Act:

> "The purpose underlying any trade-mark statute is twofold. One is to protect the public so it may be confident that, in purchasing a product bearing a particular trade-mark which it favorably knows, it will get the product it asks for and wants to get. Secondly, where the owner of a trade-mark has spent energy, time and money in presenting to the public the product, he is protected in his investment from its misappropriation by pirates and cheats. This is a well-established rule of law protecting both the public and the trade-mark owner."

To demand that only those who voluntarily register their marks should pay all the costs of maintaining the trademark registration system as administered by the Trademark Office is to deny that members of the public benefit substantially from a complete and accurate register of the marks being used in commerce and that any effort on the part of the federal government to contribute to the creation of such a register is inappropriate.

Ownership rights in a trademark are based on use, not registration, and owners must actively work to protect these rights. Marks must be continually defended against pirates, cheats and inadvertent misuse. Failure to vigorously protect a mark easily can result in a loss of rights. Indeed, all judicial decisions denying these trademark rights, in whole or in part, are always based on the consumer confusion that results when an owner cannot or does not sustain a mark's singular identity.

The federal government's commitment to create a federal register of trademarks used in commerce evolved over a period of years as it became evident that a complete record of such marks would reduce the possibility of consumer confusion and decrease the occasions that businesses inadvertently claimed ownership rights in the same mark. The private sector was incapable and powerless to undertake such a task because legal incentives were necessary in order to encourage trademark owners to subject their marks to the federal registration process when their trademark interests are established by use and valid trademark rights are protected by common law.

The growing number of applications being filed each year is not, as OMB suggests, an example of "subsidized prices promot(ing) over-consumption leading to increased government costs and burdened government resources."* It is an indication that the federal trademark system's goal is being realized and that businesses are respond-

*Major Themes and Additional Budget Details, Fiscal Year 1983, p.217 (copy attached)

ing, as intended, to the incentives instituted by the federal government.

Should filing fees increase to such levels that costs would outweigh the incentives provided to those businesses that voluntarily register, opportunities for consumer confusion would increase, business confidence in marketing new products would decline and the courts would be called on with increasing frequency to settle disputes over the ownership of given marks. All of these conflict with the overall goals of economic recovery being pursued today.

The Spending Issue

The practical problems associated with the Commissioner setting fees for the processing of trademarks that recover 100% of costs to the Office are immense. It (i) places too much discretionary authority in the hands of the Commissioner, (ii) provides no incentives to economize, (iii) forces the PTO to devote additional resources to budgetary considerations and administrative concerns, and (iv) makes the finances of the PTO entirely dependent upon unpredictable work flows.

The FY 1983 budget submission for the Trademark Office suggests that no general fund revenues are needed to operate the Trademark Office and execute the Federal Trademark Statute. As a result, 1983 trademark applicants are being called upon to fund every expenditure of the Office. This is contrary to the Administration's own budget statements and requires that 1983 users pay the costs of program items for which they receive no direct benefits.

USTA does not purport to know what the costs of a first-class efficiently-run Trademark Office are but believes that some control must be retained by Congress to ensure that the costs of the Office do not increase unnecessarily. Because under the present proposal the Trademark Office will have fee revenues at its disposal, USTA encourages that limits on their use be instituted. USTA recognizes that a substantial increase in spending authority is needed to improve the Office's deplorable condition. However, this authority should be restricted and any additional authority to reprogram spending should be permitted only after careful oversight by this Committee or the Judiciary Committee. It is not the intent of USTA to tie the hands of the Commissioner of Patents and Trademarks but USTA does not believe it is appropriate for a government official to be given a blank check in the spending of fee revenues.

The FY 1983 budget request for the Trademark Office contains several items the costs of which USTA does not believe it appropriate for Trademark Office applicants to pay. Some of these are explained below:

Automating the Office, including the purchase of additional terminals, development of a machine-readable data base of all active trademark registrations, and other substantive program changes. Besides being capital expenditures, the PTO requested and was funded for these items in FY 1982.	$933,000
Overtime so that existing backlogs can be cleared (6 professional staff years, 12 clerical).	381,000
Equipment for new personnel	151,000
The Trademark Trial and Appeal Board, which serves a quasi-judicial function and exists as an alternative to the federal district courts.	984,000
Printing costs associated with the publication of marks for which registration is sought in order to give the public an opportunity to oppose registration.	802,000
Maintaining the Trademark Search room (estimate).	300,000
Executive Direction and Administration costs that are necessary to execute the law.	1,201,000

USTA is not alone in its belief that the costs of these items are not appropriately recoverable through fees. When this Committee considered HR 6933, now PL 96-517, certain items were to be excluded when fees were determined. Quoting from the Committee report:

> "Certain costs of operating the PTO confer no direct benefit on applicants but rather go to meet the responsibility of the Federal Government to have a PTO in order to execute the law. For example, the costs of executive direction and administration of the office, including the Office of the Commissioner and certain agency offices involved with public information, legislation, international affairs and technology assessment. Maintaining the public search room confers a general public benefit ... ."

OMB echoed this sentiment in its Major Themes publication when it explained the amendment proposed to PL 96-517:

> "The proposed change would increase fees charged from the current 50 percent to 100 percent of application processing costs ... . The Federal

> Government would continue to fund the public search room and other non-processing functions ... . These changes are proposed as part of the administration's effort to impose or increase user fees where a service provides special benefits to an identifiable recipient above and beyond those that accrue to the general public." (emphasis added) (Supra at p. 220)

The Administration's view of the contribution a first-class trademark operation makes to the economy is also apparent throughout the budget submission for the Trademark Office. Quoting from pages PAT 64-65:

> "In order to meet the administration's goals of strengthening the American economy, the Department of Commerce has determined that improving the quality and timeliness of patent and trademark production and services ... is essential. (P)rogram improvements (directed) toward establishing the statute of the United States patent and trademark (systems) equal to the United States position in the world economy ... are sought."

The PTO's FY 1983 Budget does not provide funding for even the most skeletal trademark system. In short, HR 5602 not only suggests that trademark applicants underwrite all the costs associated with the processing of applications, it expects them to pay all of the costs of maintaining the system, executing the law and operating the Trademark Office.

USTA Recommendations

USTA recommends that two changes be made in HR 5602 and proposes for the Committee's consideration some further suggestions that USTA believes would improve the Office's financial operations.

1. Statutory Fees. USTA urges this Committee to return to the pre-PL 96-517 practice by which Congress set statutory trademark fees. USTA strongly endorses the schedule of fees prepared by the Commerce Department's Public Advisory Committee for Trademark Affairs.* These fees strike the necessary balance between two primary factors: (i) the need to substantially increase trademark fees but not to an extent that the cost of participating in the system exceeds the benefits received, and (ii) the need for fees to raise sufficient

*It is noted that with two minor exceptions these fees have received the support of the American Bar Association Section on Patents, Trademarks and Copyrights.

revenues to enable a sizable reduction in the Trademark Office's net cost to the federal government. The proposed schedule further contemplates fee increases that in all cases but one exceed what the fees would be based upon a cost of living adjustment since such fees were last set by Congress. Cumulated, the proposed fees would increase from $45 to $300 the cost of acquiring and maintaining a trademark registration for one registration and would increase the cost of renewal from $25 to $200. Based on the Trademark Office's own projection of the workload, approximately $11 million in revenues would be raised from such fees in 1982. Attached is an extended chart of fees showing the trademark fees currently in effect, those fees adjusted to CPI, the PTO's proposed fees based on 100% cost recovery and the alternative fee proposal proposed by the Commerce Department Public Advisory Committee and supported by USTA and ABA/PTC Section.

2. A $4 Million Appropriation. USTA believes that the Trademark Office merits an appropriation of $4,000,000 from general revenues. This is not an arbitrary amount. First, it reflects what the Commissioner has admitted to be the minimum necessary to sustain the office and execute the Federal Trademark Statute which presumes the existence of a Trademark Office. Second, it reflects a 50% reduction in the amount Congress spent last year on trademarks. Third, it reflects a recognition that the costs of clearing existing backlogs, capital expenditures and those Trademark Office activities undertaken principally for the public benefit should not be funded solely by 1983 trademark applications.

Coupled with the fee revenues resulting from the substantially higher fees that USTA endorses, the Trademark Office would have sufficient funds to meet the program needs it has determined as necessary. Additionally, USTA believes that the PTO's financial base would reflect more accurately the benefits and goals of the Federal Trademark Statute and would represent more appropriately and realistically the intent of the user fee concept.

3. Spending Limitations. USTA believes that a limit should be placed on the amount of fee revenues that can be spent by the Trademark Office in a given year. USTA acknowledges that substantial problems have developed in the PTO over the years and that significant program increases are necessary to remedy them. Notwithstanding, USTA does not believe that spending which exceeds the levels set forth in the FY 1983 budget submission are warranted.

4. Congressional Review. USTA suggests the inclusion of a provision that fees be reviewed regularly and adjusted when appropriate. In light of the fact that prior to the enactment of PL 96-517 in 1980 fees had not been increased for over 15 years, USTA believes that it is imperative that Congress commit to a regular review of trademark fees so that the financial needs of the office can be addressed as they emerge.

5. Investment Account. Because the PTO maintains deposit accounts, USTA proposes that the Commissioner of Patents and Trademarks, with the concurrence of the Secretary of Commerce, be given the authority

to invest the unused balances in its deposit accounts, perhaps in an interest-bearing checking account. This authority might also be extended to surplus fee revenues should they exist.

6. No Year Account. USTA encourages this Committee to consider accelerating the date on which PTO funds are placed directly into the "no year" PTO account in the U. S. Treasury. (PL 96-517, Sec. 3). Both the PTO and USTA anticipate a substantial increase in filings just immediately prior to the implementation of higher fees. Revenues generated by this surge should be available to the PTO at the time when the Trademark Office will actually be processing those applications.

7. Exclusive Use of Trademark Fee Revenues. As contained in HR 5602, USTA endorses the provision that trademark fee revenues not be diverted to any non-trademark related activities. USTA does not believe that trademark fee revenues should be used to administer or pay the resulting cost of any international agreements which the U.S. may enter into.

USTA has developed draft language to accomplish each of these objectives and makes itself available to discuss it with this Committee at its convenience.

"Housekeeping" Amendments

HR 5602 also proposes several amendments to the Lanham Act. It is only because of their non-controversial nature that they have come to be called "housekeeping," as some of them are clearly substantive in nature. USTA has reviewed these amendments and raises no objection to them.

USTA is grateful for the opportunity to present its position and thanks the Committee for its attention. It is confident that this Committee will give full consideration to an appropriation for the Trademark Office which reflects the significant contribution to the economic well-being of the nation. USTA makes itself available to the Committee to answer any questions it may have.

From: Major Themes and Additional Budget Details, Fiscal Year 1983.
(Executive Office of the President, Office of Management and Budget.)

CHAPTER 7
USER FEES

The Federal Government provides numerous services that directly benefit narrow, clearly identifiable groups of business and private users. However, because these services evolved over time — the first navigation aids for ships began in 1789; permanent disposal sites for radioactive waste from nuclear power plants will begin operating nearly two centuries later — the Federal agencies providing these services recover widely varying proportions of their costs through fees on the users.

Last September, President Reagan announced that the Administration would apply uniform principles of cost recovery to the current patchwork of user fees for Federal services. The President directed all Federal agencies to:

- review their activities to determine the extent to which benefits accrue to clearly identifiable users; and
- seek to recover the cost of providing those benefits through the use of specific fees instead of placing the burden on the general taxpayer.

In the 1983 Budget, President Reagan has proposed to increase or institute 15 categories of user fees. Such fees are expected to reduce the revenue required from general taxes to support subsidized services by $2.5 billion in 1983 and $3.5 billion in 1984.

Inconsistency in Past Federal Policy

Past Federal policy toward the recovery of cost from clearly identifiable groups receiving program benefits has been inconsistent. In some cases, few if any costs are recovered; in others close to 100% of program costs are obtained. Without the changes the President has proposed, there will be continued subsidization of particular businesses and individuals who receive Federal services. Examples of inconsistencies include:

- The nation-wide system of barge canals and waterways is a service that the Federal Government provides without recovering more than a small fraction of its costs. In 1981, the Corps of Engineers spent $700 million to build and maintain inland waterways. The barge operators and other users of the system paid only $20 million in fees to offset these costs, approximately 3%.

  By contrast, the users of the Federal Highway system have been supporting its construction through a dedication of the Federal gasoline tax, diesel taxes, and other excise taxes on highway users since the Highway Trust Fund was established in 1956. Unlike the inland waterway users, highway users paid 100% of the cost of the Federal highway program in 1981.

- Another example of the inconsistency in current Federal user fee policy under current law concerns the services the Federal Government provides to the electric utility industry. Work on the disposal of waste from nuclear plants is currently funded entirely by the general taxpayer. In 1981 the Federal Government spent $174 million on developing commercial nuclear waste disposal facilities and brought in no offsetting receipts from the electric utility industry.

  Yet, at present, Federal agencies supply utilities with enriched uranium fuels for nuclear generating plants under arrangements that recover all of the costs of production over time. In 1981, the uranium enrichment program spent $1.59 billion and collected $1.25 billion in fees.

- In 1981 $7 million was collected from general aviation users for aeronautical charts purchased from the National Oceanic and Atmospheric Administration. Although they paid an average of $1.15 for each of these charts, it cost the Federal Government $4.00 per chart to prepare and distribute the charts. The general taxpayer thus picked up more than

two-thirds of the cost of providing this service to the aviation industry. The general taxpayer also subsidizes in a higher proportion the sale of nautical charts to yacht owners and commercial shippers.

By contrast, the Federal Government collects 100% of the cost of providing consular services to U.S. citizens in foreign countries through user fees. Such consular services include notorization and authorization, copying and recording of documents, and preparing and sending of messages.

Advantages of User Fees

User fees have several important advantages over the use of general revenue financing for the provision of government services. The advantages include:

- enhanced equity;
- increased economic efficiency; and
- alleviation of Government's competitive advantage over the private sector.

Enhanced Equity. Those identifiable groups who directly benefit from the existence of a service should pay that portion of the cost of providing the service rather than the general taxpayer. The beneficiaries of the services for which the Administration is instituting new or increased fees consist in general of corporations or the relatively affluent. By charging these groups directly, we can avoid the necessity of imposing additional taxes on lower- and middle-income citizens. Examples of user fees which promote enhanced equity include:

- *Fees for NOAA Aeronautical and Nautical Maps and Charts.* Currently, the National Oceanic and Atmospheric Administration provides commercial and private owners and operators of all types of aircraft and vessels with maps and charts at a price that is less than one-third the cost of production and distribution. This proposal would gradually increase prices for maps and charts to achieve full cost recovery by 1985. Additional revenues generated by this policy amount to $14 million in 1983 and $44 million by 1985.
- *Coast Guard User Fees for Operating Expenses.* At present, nearly all services rendered by the Coast Guard for the general public are provided without charge, including issuing licenses, inspecting facilities, certifying vessel construction, maintaining aids to navigation, providing rescue assistance service, and other services. Boat and yacht owners and the maritime community are well defined groups benefitting directly from these services. Legislation will be proposed in early 1982 that would authorize the Secretary of Transportation to initiate fees for certain Coast Guard services. Fees for direct services involving a transaction (e.g., licenses and inspections) would be set according to the cost of providing the service. Other services (e.g., maintaining navigation aids and providing search and rescue services) would be financed by an annual fee or other type of charge. Revenues generated by this proposal amount to $200 million in 1983 and full cost recovery of $800 million in 1984.
- *Corps of Engineers Navigation User Fees.* Locks, dams, and channels are constructed and maintained by the Corps of Engineers and TVA for barge traffic on inland waterways. The Corps also dredges harbor channels and constructs and maintains other facilities for ocean-going and Great Lakes traffic. Construction and upkeep of both inland and deep draft waterways have traditionally been provided at near zero cost to commercial users. Such a benefit is a subsidy to the multi-billion dollar waterborne transportation industry. In the 1982 Budget, the Administration proposed legislation for user fees to recover new construction and maintenance expenses for commercial projects. Congress has thus far failed to enact such fees. Such fees would bring in $448 million in additional revenues in 1983.
- *Fees for Commercial Nuclear Waste Disposal.* The Federal Government is responsible for assuring permanent disposal facilities for high level radioactive waste resulting from the generation of electricity by nuclear power plants. The development of these facilities is currently being financed by the taxpayer. Legislation is now pending in Congress that will mandate a fee (one mill per kilowatt hour) on electric utilities that are generating nuclear

waste. The income generated will be used to establish a fund for developing underground geologic repositories. Such a fund will support a business-like, self-sustaining operation for waste disposal. Revenues from the fee are expected to be $300 million in 1983.

- *Fees for Energy Regulatory Licenses and Services.* The Federal Energy Regulatory Commission (FERC) issues permits and licenses and sets rates for producer sales of natural gas, operation of oil and natural gas pipelines, development of hydroelectric power, and interstate wholesale sales of electric power. Fees are now charged for pipeline and hydropower activities. Under this proposal new fees will be charged to companies making license and other applications to the FERC. Fees will be extended to services such as electric and natural gas rate determinations not now under fees. For services such as pipeline approvals and hydropower licenses, existing fees will increase substantially. It is expected that these proposed changes will bring in an additional $35 million in offsetting receipts in 1983 if enacted.

Increased Economic Efficiency. Since government services are subsidized, the price paid by the consumer of those services is below the cost of providing the service. Subsidized prices promote over-consumption leading to increased government costs and burdened government resources. Further, subsidized benefits can lead to an inefficient allocation of available Federal Government resources. By providing direct benefits to one type of business (or group of individuals) at no cost, the government is in effect putting competing businesses at a disadvantage. Such a distortion leads to an over-allocation of resources to the subsidized business and an under-allocation of resources to the non-subsidized business. Examples of proposed user fees that can lead to increased economic efficiency include:

- *Patent and Trademark Fees.* The Patent and Trademark Office (PTO) assists and encourages the development of business and industry by providing protection to individuals for inventions and registering trademarks. PTO receives over 100,000 patent applications and over 50,000 trademark applications annually. A growing backlog of applications has resulted in ever-increasing turnaround time for the issuance of patents. This proposed change would increase fees charged from the current 50% to 100% of application processing costs in order to have those individuals who benefit from patent/trademark protection pay the cost of the service. Increased revenue from fees will result in a more prudent use of resources and permit enhanced program operations to reduce application processing time. Increased revenues resulting from this proposal are estimated to be $39 million in 1983.

- *User Fee for Grievance Arbitration.* Currently, the Federal Mediation and Conciliation Service (FMCS) provides lists of qualified arbitrators to parties in dispute over terms of a collective bargaining agreement. In 1981 FMCS issued about 33,200 lists of arbitrators. The National Mediation Board (NMB), in connection with railroad industry grievances under collective bargaining agreements, compensates and pays expenses of neutral referees, appoints neutral referees when parties do not agree to one, and maintains offices for the National Railroad Adjustment Board. Under this proposal, a general provision would be added to the Labor-HHS appropriation bill enabling and requiring both agencies, beginning in 1983, to charge users of these services a fee equal to the total costs of Federal services. Requiring parties to pay for these services is expected to slow the rate of increase in arbitration caseloads and lead parties to find less costly and more productive ways of handling grievances. Such a proposal is expected to bring in $1 million in 1983 to completely offset these program costs.

- *Veterans Housing Loan Guarantee User Fee.* The Veterans Administration's Loan Guarantee Program provides guarantees to lending institutions for residential housing loans made to veterans. An average of 330,000 loans are guaranteed each year. This proposal would require payment of a 0.5% funding fee at the time of settlement on each loan guaranteed. Such a fee would help decrease the cost of this program to the government. It is expected that this proposal will bring in an additional $95 million in offsetting receipts in 1983 if enacted.

- *Commodity Futures Trading Commission User Fees.* The CFTC is an independent regulatory agency whose purpose is to encourage the efficiency of the futures market, to assure their integrity and to protect participants against abusive trade practices, fraud, and

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deceit. The CFTC plans to initiate actions to recover the full cost of regulatory operations. Recovery of the cost of CFTC regulation (some $23 million in 1983) through transaction fees and licenses transfers the regulatory cost from the general taxpayer to the identifiable beneficiaries. Growth in the markets to be regulated increases demands on available resources for regulation.

Alleviation of Government's Competitive Advantage Over the Private Sector. When the Federal Government subsidizes services that are provided in the private sector it can lead to an unfair competitive advantage which can cause the private sector to under-supply such services. Examples of user fees that can lead to an alleviation of government's competitive advantage over the private sector include:

- *Recreation User Fees.* Several Federal Government agencies provide recreational facilities for the public at a fraction of the cost of providing them. Under this proposal existing entrance fees at Federal recreation areas will be increased, and the number of areas where fees are charged will be expanded. Increased recreational user fees for public facilities will lessen unfair competition with private recreation developments which have to recover all of their costs without direct subsidies. It is expected that increased fees will bring in more than $60 million in additional offsetting revenues in 1983.

- *GNMA Mortgage-Backed Securities-Fees.* The Government National Mortgage Association (GNMA) Mortgage-Backed Securities program provides Federal guarantees on securities backed by FHA, VA, and FmHA mortgages. GNMA now charges a commitment authority application fee of $500 per pool package of commitments. This fee has not increased since it was established in early 1971. Increased fees will bring in an additional $4 million annually in offsetting receipts in 1983 and help offset the competitive disadvantage of private sector mortgage-backed securities programs.

Additional Benefits Provided by User Fees

User fees can provide additional program benefits in that they generate revenues which can be used to enhance funding resulting in increased program development, operation, and efficiency. Examples include:

- *Aviation User Fees.* The Administration is proposing legislation that would increase the ticket tax on scheduled air carrier flights and general aviation fuel taxes and reinstitute other aviation taxes to their pre-1981 levels. Receipts from these taxes would be deposited into the Airport and Airway Trust Fund. Historically, the trust fund has paid for about 40% of FAA expenses including all FAA capital programs plus certain field maintenance costs. The increased user fees are coupled with an administration proposal to increase capital funding levels and finance 85% of total FAA costs from the trust fund — i.e., all FAA costs attributable to air carriers and general aviation. This proposal reflects the Administration's commitment to modernizing the National Airspace System if the users pay all allocable costs of development, acquisition, operation and maintenance. The proposal is expected to bring in almost $1.2 billion in additional offsetting receipts in 1983.

- *Patent and Trademark Fees.* The Patent and Trademark Office (PTO), which provides patent protection to individuals for inventions and registering trademarks, has experienced a growing backlog of applications resulting in ever-increasing turnaround time for the issuance of patents. Increased fees will be used to offset the costs of improved PTO service. Program expansion will permit a reduction of application processing time. Fee-derived revenue will also permit development of a fully-automated application processing system in subsequent years to further improve service and maintain or reduce costs.

Cases Where User Fees Will Not Be Applied

In cases where the general public is the recipient of the benefits of a Federal program rather than a clearly identifiable group, user fees will not be imposed. Further, in instances where collection of user fees is infeasible or not cost-beneficial, user fees will not be implemented. Some examples include:

- *The Patent and Trademark Office.* Patent protection serves the public by providing an incentive to disclose new technology. Disclosure of this information is a key to increased productivity and economic growth. Since the details of the invention are made public in the files of the PTO public search room, the cost of this and similar activities will be borne by general tax revenues.
- *Coast Guard Services.* User fees will not be proposed for those services that benefit the public in general. Such services include military readiness, enforcement of laws and treaties, and marine science.
- *Recreational Services.* Appropriate fees will be raised and/or charged at those areas and facilities where they can be administered economically. It is not feasible to collect fees at every recreational area as many of the areas are too small, remote, or sporadically used. Many of the areas may have access through a large number of entry points and staffing the entrances would be uneconomic.

Summary of the 1983 Proposals

By instituting the fees described above, the Administration will:

- Reduce the revenues required from general taxes to support subsidized services to clearly identifiable groups by over $3 billion.
- Apply consistent principles of cost recovery to all agencies supplying services.
- Reduce subsidies to business and other private users of Federal services.
- Encourage a prudent utilization of Federal Government resources.
- Alleviate Government's competitive advantage over some private sector businesses.
- Enhance program efficiency and quality of service.

Patent and Trademark Fees

AGENCY: Department of Commerce FUNCTIONAL CODE: 376

Funding

	($ in millions)						
	1981	1982	1983	1984	1985	1986	1987
PROGRAM LEVEL:							
Budget Authority	116	121	155	167	176	182	182
Outlays	112	120	152	163	172	178	178
OFFSETTING RECEIPTS:	—	—	87	96	105	113	117
Current Law	—	—	48	53	57	62	64
Policy Increase	—	—	39	43	48	51	53
PERCENT RECOVERED (BA):	—	—	56	57	60	62	64
Current Law	—	—	31	32	32	34	35
Policy Increase	—	—	25	25	28	28	29

Program Description

The Patent and Trademark Office (PTO) assists and encourages the development of business and industry by providing patent protection to individuals for inventions and registering trademarks. PTO receives more than 100,000 patent applications and more than 50,000 trademark applications annually.

A growing backlog of applications has resulted in ever-increasing turnaround time for the issuance of patents. Without the changes described below, it will continue to take more than two years to process a patent application, with an average increase of two months per year for 1983 and beyond.

Proposed Change

The proposed change would increase fees charged from the current 50% to 100% of application processing costs. The purpose of the change is to have those individuals who benefit from patent/trademark protection pay the cost of the service. In the case of patents, 50% of the processing cost would be recovered prior to issuance of the patent and 50% would be recovered through maintenance payments over the 17-year life of the patent. Approximately 15 years after the fees are instituted, full cost recovery for patent processing would be achieved. Increased fee revenues would be invested in program operations to reduce processing time. The Federal Government would continue to fund the public search room and other nonprocessing functions such as U.S. represenation at international patent meetings and the expenses of the commissioner's office.

Rationale

- These changes are proposed as part of the Administration's effort to impose or increase user fees where a service provides special benefits to an identifiable recipient above and beyond those that accrue to the general public.
- The 17-year monopoly provided by patent protection enables the patent holder to obtain exclusive and substantial returns from commercial application of the invention. Therefore, 100% of the costs of processing the patent is a fair charge for the benefits received. In addition, since 50% of cost recovery occurs through maintenance payments, the patent holder has the option of allowing the patent to lapse (by stopping payment) if the invention is not profitable.
- Patent protection also serves the public by providing an incentive to disclose new technology. Disclosure of this information is a key to increased productivity and economic growth. Since the details of the invention are made public in the files of the PTO public search room, the cost of that and similar activities should be borne by general tax revenues.

- By increasing fees and initiating maintenance payments, the U.S. system of fees would generally be in line with the systems in other industrialized countries. Therefore, no relative disincentive to using the U.S. system should result, especially in light of the size of the U.S. market.

- In the context of severe fiscal constraint, the goal of efficient and effective patent and trademark systems is not attainable without the increased fees proposed.

Effects of the Proposed Change

- In most areas, the user fees proposed will not even keep pace with past inflation. The average patent filing fee established by the Congress in 1965 was $85. Simply escalated by the growth in the average salary of a patent examiner, that $85 in 1965 is equivalent to about $400 in 1984. The average filing fee projected under the Administration's proposal is $330. The average $145 patent issue fee in 1965, when similarly escalated, would be about $700 in 1984, or roughly 42% more than the proposed $500 issue fee. The proposed fees for other PTO services follow a similar pattern.

- Increased fees will be used to offset the costs of improved PTO service. Program expansion will permit a reduction of processing time to 18 months by 1987 for patents and 13 months by 1985 for trademarks. These are considered to be the optimum processing times for patent and trademark applications. Fee-derived revenue will also permit development of a fully-automated application processing system in future years to further improve service and maintain or reduce costs.

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EXECUTIVE OFFICES

TRADEMARK FEES

A Comparison

TYPE OF FEE	FEE IN EFFECT	ADJUSTED TO CPI*	PTO PROPOSAL	ENDORSED BY USTA
Trademark Filing	$ 35.00	$ 104.62	$ 200.00	$ 125.00
Renewal	25.00	105.17	300.00	200.00
Late Fee	5.00	21.03	50.00	100.00
Section 8 Affadavit	10.00	29.79	100.00	75.00
Petition to Commissioner	15.00	44.68	50.00	100.00
Opposition/Cancellation	25.00	105.17	300.00	100.00
Hearing	(None)	----	100.00	(None)
Appeal from Examiner	25.00	105.17	100.00	100.00
New Certificate	15.00	44.68	50.00	100.00
Certificate of Correction	15.00	44.68	50.00	100.00
Certified Copy	1.00	4.21	10.00	7.50
Amendments to Registration	15.00	44.68	50.00	100.00
Printed Copy of Registration	.20	.60	.40	????
Assignment	20.00	59.58	20.00	100.00**
Each Additional Item	3.00	8.94	????	20.00
Claim Under Section 12(c)	10.00	42.07	50.00	100.00
Section 15 Affadavit	(None)	----	100.00	100.00

*Through January 1982. Source: Bureau of Labor Statistics (Consumer Price Index, All Urban Consumers, U.S. City Average, All items, 1967=100).

**The American Bar Association has not formally endorsed an increase in the trademark assignment fee.

THE ASSOCIATION OF THE BAR
OF THE CITY OF NEW YORK
42 WEST 44TH STREET
NEW YORK 10036

COMMITTEE ON TRADEMARKS AND UNFAIR COMPETITION

JAMES L. BIKOFF
CHAIRMAN

401 East 65th Street
New York, NY 10021
(212) 988-1757

May 14, 1982

The Honorable Robert W. Kastenmeier
House Office Building
Washington, D.C. 20515

Ref: H.R. 5602 - Appropriations for the Patent and Trademark Office of the Department of Commerce

Dear Mr. Kastenmeier:

The Trademarks and Unfair Competition Committee of the Association of the Bar of the City of New York has approved the following resolution opposing H.R. 5602:

"RESOLVED: This Committee does not favor the concept of 100% cost recovery as embodied in the proposed amendment to Public Law 96517, which currently provides for a 50% recovery. Such an amendment has been proposed by the Commissioner of Patents and Trademarks and was recently presented in H.R. 5602.

Even assuming that the "cost" of the Trademark Division can be accurately measured (which is doubtful), the Committee does not believe that 100% cost recovery is appropriate and consistent with the Lanham Act or with the acquisition of trademark rights in this country. A 100% cost recovery basis does not encourage any cost efficiencies in the operations of the Trademark Division. Further, the concept of 100% cost recovery ignores the fact that the public also derives substantial benefits from an efficient and accurate trademark system. Trademark rights are acquired by common law use and if the fees for registration were onerously high, it would result in substantially fewer owners seeking registration. Thus, the purposes of encouraging registration and of increasing revenue could both be thwarted.

The Committee endorses the position that any increased fees should be placed in a segregated fund or would be used only for the Trademark Division and not used for offsetting the costs of any other government agency or function. We view such a requirement as a prerequisite to supporting any increase in the fees for Trademark Division. Specifically, the Committee believes that the proposed application fees in H.R. 5602 would discourage applications and that the high opposition and cancellation fees would encourage resort to the courts rather than the Trademark Trial and Appeal Board. This Committee, however, does support a substantial increase in the fees for the operation of the Trademark Division of the Patent and Trademark Office as it did in its resolution in May of 1981.

The Committee now supports the increased fee schedules which have been suggested by the United States Trademark Association and the Section on Patent, Trademark and Copyright Law of the American Bar Association."

This resolution was prepared and unanimously passed by the Association's Committee on Trademarks and Unfair Competition. The Committee is composed of attorneys whose work, in private practice, and as in house counsel, for various corporations, involves them in trademark matters in the Patent and Trademark Office.

It is the Committee's strong belief that passage of H.R. 5602, which would result in funding of the Trademark operations of the United States Patent and Trademark Office entirely by user fees, is inconsistent with the goals and purposes of the Lanham Act and ignores the public benefits of the United States trademark system.

We ask that the above resolution and these statements be made part of the record in any hearings to be held on H.R. 5602. If the Committee can be of any further assistance in amplifying these views or providing testimony at any hearing scheduled in connection with H.R. 5602, please let me know.

Respectfully submitted,

James L. Bikoff
Chairman

JLB/jgd

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March 10, 1982

RECEIVED

MAR 10 1982

The Honorable Robert W. Kastenmeier
Rayburn House Office Building
Suite 2232
Washington, D.C. 20515

Re: H.R. 5602
To Authorize Appropriations to the Patent and Trademark Office in the Department of Commerce

Dear Congressman Kastenmeier:

Since we never received a reply from the Subcommittee on Courts, Civil Liberties and the Administration of Justice to our letter of February 25, 1982 requesting permission to testify before the Subcommittee during the March 10 hearing (now set for March 11) on the above Bill, I am submitting herewith a copy of the Statement that I would have made on behalf of our Section at such hearing. I request that the Statement be made a part of the written record with respect to the Subcommittee's report on H.R. 5602.

Under the proposed provisions of Section 3(a) and 3(b) of the Bill, the minimum government fees necessary to obtain a patent for the full term of seventeen years would be at least $3200. Up until December 12, 1980, an inventor had only to pay a minimum of $175 to obtain his patent. Under Public Law 96-517 (96th Congress) of December 12, 1980, the fees were changed effective October 1, 1982, whereby the inventors and the trademark owners were to pay one-half of the cost of operating the Patent and Trademark Office and the public was to pay the other half.

Under the provisions of H.R. 5602, the inventors and trademark owners are being asked to pay substantially all of the costs of PTO operations. We believe, contrary to the Administration's position, that the public is the principal beneficiary of the patent and trademark systems, for reasons set forth in our accompanying Statement, and therefore the public should pay a reasonable share of the PTO operating costs.

Our Section is very concerned about the negative impact on innovation and invention in this country which would occur if inventors were asked to pay $3200 in government fees to obtain a patent for seventeen years. Accordingly, our Section has scheduled a special emergency meeting in Washington on March 23, 1982 to fully discuss H.R. 5602 and its ramifications with respect to decreasing invention and innovation in the United States. We also will be looking at the impact that such high fees will have on individual inventors and small businesses, particularly since statistics show that small businesses create more new jobs than do large ones.

Our Section will again ask to testify before Congress following its March 23 meeting.

Sincerely,

Joseph A. DeGrandi

JAD:rrd

Enclosure

cc: The Honorable Peter W. Rodino, Jr., Chairman, Committee on the Judiciary
The Honorable Jack Brooks
The Honorable Don Edwards
The Honorable John Conyers, Jr.
The Honorable John F. Seiberling
The Honorable George E. Danielson
The Honorable Romano L. Mazzoli
The Honorable William J. Hughes
The Honorable Sam B. Hall, Jr.
The Honorable Michael L. Synar
The Honorable Patricia Schroeder
The Honorable Billy Lee Evans
The Honorable Dan R. Glickman
The Honorable Harold Washington
The Honorable Barney Frank
The Honorable Robert McClory
The Honorable Thomas F. Railsback
The Honorable Hamilton Fish, Jr.
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The Honorable Carlos J. Moorhead
The Honorable John M. Ashbrook
The Honorable Henry J. Hyde
The Honorable Thomas N. Kindness
The Honorable Harold S. Sawyer
The Honorable Daniel E. Lungren
The Honorable F. James Sensenbrenner
The Honorable Bill McCollum

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STATEMENT OF

JOSEPH A. DeGRANDI, CHAIRMAN

SECTION OF PATENT, TRADEMARK AND COPYRIGHT LAW

AMERICAN BAR ASSOCIATION

submitted to the

SUBCOMMITTEE ON COURTS, CIVIL LIBERTIES AND THE ADMINISTRATION OF JUSTICE

of the

COMMITTEE ON THE JUDICIARY

U.S. HOUSE OF REPRESENTATIVES

concerning

H.R. 5602

AUTHORIZE APPROPRIATIONS TO THE PATENT AND TRADEMARK OFFICE IN THE DEPARTMENT OF COMMERCE

March 10, 1982

Statement to the

Subcommittee on Courts, Civil Liberties and the Administration of Justice

of the

Committee on the Judiciary

U.S. House of Representatives

March 10, 1982

I am Joseph A. DeGrandi, Chairman of the Section of Patent, Trademark and Copyright Law of the American Bar Association. My statement on H.R. 5602, the Bill to Authorize Appropriations to the Patent and Trademark Office in the Department of Commerce, is being presented solely on behalf of the Section of Patent, Trademark and Copyright Law and does not represent the position of the American Bar Association itself. To date, the Section's views on the proposed budget for the United States Patent and Trademark Office for the Fiscal Year 1982-1983 have not been submitted to -- and therefore have neither been approved nor disapproved by -- the House of Delegates or Board of Governors of the American Bar Association.

The Section of Patent, Trademark and Copyright Law, which consists of approximately 6,000 lawyers, essentially all of whom are in private or corporate practice, strongly disagrees with the present position of the Administration, as presented through the Department of Commerce and the Patent and Trademark Office (PTO), that inventors and users of registered trademarks should pay for substantially all of the cost of the operation of the Patent and Trademark Office. The attempted

justification for such position is that the nation's inventors and trademark owners are the principal beneficiaries of the patent and trademark systems. While it is true that inventors and trademark owners do derive benefits, the public is really the principal beneficiary of the patent and trademark systems and the Letters Patent and trademark registrations which are issued. Accordingly, the public should continue to pay a reasonable share of the cost of implementing the patent and trademark systems from which the public so greatly benefits.

Can anyone seriously contend that the public is not the principal beneficiary of Chester F. Carlson's invention of the "dry" photocopying process and apparatus? Are not the principal beneficiaries the industries which his invention spawned, the hundreds of thousands of people employed by such industries, the millions of daily users of the "dry" or xerographic photocopying machines in the United States and around the world, and the United States Government which received and continues to receive corporate and individual income taxes from such industries and their employees? After unsuccessfully presenting his invention over a period of years to more than twenty companies, Chester F. Carlson finally interested Battelle Development Corporation in his invention in 1944. Commercial rights were given to the Haloid Company in 1947, later renamed Xerox Corporation, and Xerox introduced its first office copier in 1958. Chester Carlson eventually did benefit financially during the next ten years until his death in 1968, but that benefit is miniscule compared to what the public has received.

Ironically, in this day of technological development, the present Administration appears to be unaware of the essential need to promote the progress of science and useful arts, and yet our founding fathers, in what then, technologically speaking, were relatively dark ages, recognized that such need was so vital to our nation's welfare that it was specifically incorporated into our Constitution. Hence, Article 1, Section 8, expressly empowered Congress to "promote the progress of science and useful arts" and the nation's inventors, such as Chester Carlson, have succeeded in promoting such progress through their many patents that have resulted from our time tested system.

The Carlson example is but one of the thousands of examples that can be readily given to rebut the erroneous contention that the inventors are the principal beneficiaries of their patents and thus should pay for substantially all of the costs of our Government's operation of the Patent and Trademark Office.

The manifest public benefits of our trademark system were acknowledged by the Administration in its budget proposal for the PTO:

> "Stimulate business investments and protect consumers by providing prompt registration of trademarks, in accordance with law, and to provide the public with information concerning pending and registered marks."

In reporting out the bill which became the Federal Trademark Act of 1946, commonly referred to as the Lanham Act, Congress stated:

> "The purpose underlying any trade-mark statute is twofold. <u>One is to protect the public</u> so it may be confident that, in <u>purchasing a product bearing</u> a particular trade-mark which it favorably knows, it will get the product it asks for and wants to get. Secondly, where the owner of a trademark has spent energy, time and money in presenting to the public the product, he is protected in his investment from its misappropriation by pirates and cheats. This is a well-established rule of law <u>protecting</u> both <u>the public</u> and the trade-mark owner." (Emphasis added)

Since there is an obvious public benefit in the trademark registration system in the PTO, the public should bear the cost of the trademark operation, or at least a reasonable share.

It is extremely important that all parties who adopt and use trademarks for goods and services be encouraged to register those marks in the PTO. Such registrations permit later users, whether individuals or small or large companies, to ascertain the availability and registrability of proposed trademarks which they wish to adopt and use and thus avoid conflicts with previous users. If the cost of obtaining such registrations is priced too high and individuals and small business use their marks but are dissuaded to register them with the PTO, it will be very difficult and expensive for later users to find out about such earlier uses, leading to confusion by the public as to the source of the goods and services, and to more conflicts among trademark users and further congestion of the courts.

The members of our Section are in daily contact with the Patent and Trademark Office, filing and prosecuting patent and trademark applications, conducting searches in the public patent and trademark search rooms in an effort to ascertain whether a particular invention is patentable or whether the manufacture and sale of a new product will infringe an unexpired U.S. patent or whether a particular trademark is available for use on a new product which a company intends to market. As a result, our members are fully aware of the serious deficiencies in the PTO operation and services which have been increasing during the last several years, due to inadequate funding.

We are all aware of the growing concern in this country about our nation's decline in innovation and technology. This concern has been

expressed by the present and past Presidents of the United States, by members of Congress, by corporations, by the news media, and by individual citizens. The basic prerequisite for the expenditure of research and development funds by inventors, small companies and even large corporations is the assurance that their investment will be protected by the issuance of high quality patents which will be respected by competitors and enforced by the Courts. No one will invest money to design or develop a new product or process if he knows that immediately upon placing it on the market it will be copied by competitors who can undersell the inventor since they did not incur the financial expenses of research and development.

It is well known that many patents involved in infringement litigation today are held invalid by the federal courts because the infringer has been able to find more pertinent prior art references, either patents or printed publications, which the Examiner in the Patent and Trademark Office was unable to find during his search. Examiners spend an average of about fifteen hours per patent application with a considerable amount of this time being spent manually searching the issued U.S. patents for references which anticipate the disclosed invention. There is even no assurance today that all pertinent patents will be in the files which the Examiner searches.

It is a national embarrassment that the United States, one of the technology leaders of the world, does not have its data base of existing patents, publications and trademarks on computers so that manual searching by the Examiners could be eliminated. Under the present Administration proposal, if and when such data base is computerized, the inventors and trademark owners, not the public, are to pay for this cost.

The patents, both U.S. and foreign, which are in the Patent and Trademark Office constitute one of the most important scientific data bases in the world. When placed in computer retrievable form, such data base would be accessible not only to the PTO but to the public, including universities, manufacturers, researchers, developers and the like. Any scientist, researcher, or individual would have prompt access to all available data in any field of technology so there would be no need to spend time and effort and money to re-invent the wheel. What better way is there to promote the progress of science and the useful arts than to continually update such data base with patents granted to inventors each week. Our Section submits, however, that inventors and trademark owners should not have to carry the entire burden of paying for placing this data base in computer retrievable form. Since the public will be the principal beneficiary of such data base, public monies should be used to fund it, or at least to fund a reasonable share of the cost.

At its Annual Meeting in August, 1980, our Section, because of its serious concern about the deteriorating status of PTO services, overwhelmingly approved the following resolutions:

> The Section favors in principle the provision by the Patent and Trademark Office of high quality search facilities, both for the public and for Examiners, and accordingly urges that the necessary space, funding, and manpower be provided at the Patent and Trademark Office to assure search file integrity and to permit thorough patent and trademark searches, both by the public, to allow informed business decisions to be based on reliable search results, and by Examiners, to improve the reliability of patents and of trademark registrations.
>
> The Section favors in principle funding for the Patent and Trademark Office adequate for staffing and material at a level to permit high quality examination of patent applications with an average pendency time of 18 months and to provide adequate and timely services to the public.

> The Section favors the creation and maintenance of the best possible classification system for technical information, and accordingly urges that the Patent and Trademark Office seek appropriate funding to enable it to classify, re-classify and computer-retrieve all of the available technical information in its search files, including specifically that information which is not at present computer-retrievable.

Our Section reiterated its concern in the following resolution adopted at its 1981 Annual Meeting:

> The Section, favoring in principle an efficient and reliable Patent and Trademark Office, noting the deplorable growing delays in the trademark operations and noting that at present budget levels the average pendency of a patent application will likely increase to substantially over two years by the end of fiscal year 1982 and noting further that the level of reclassification and the level of file corrections in the Public Search Rooms will be substantially decreased by that time from an already unsatisfactory level, strongly urges the Administration and Congress to effect a prompt reversal of this operational decline of the Patent and Trademark Office.

Our Section fully realizes that the PTO needs adequate funding if it is to become a first-class Office, one befitting a country which has been in the forefront of technology and innovation almost since the simultaneous founding of our country and the formation of the patent system in 1790.

Our Section also fully realizes that PTO fees have been unchanged since 1965 and that such fees should be increased. In fact, the Section approved the following resolution at its Annual Meeting in 1979:

> The Section favors in principle adequate funding for the Patent and Trademark Office to permit high quality examination and reasonably prompt disposition of patent applications and to provide adequate services to the public, and submits that patent-related fees should be set at a level appropriate to cover a reasonable portion of costs while not being at such a level as to discourage inventors.

For each of the last three years, the PTO budget has been approximately $118,000,000. With that level of funding, the PTO has continually been falling behind in many areas. Now the Administration is seeking to cut the PTO budget to about $68,000,000 for each of the next three years (a reduction to about 58% of the FY '82 budget), and asking the inventors and trademark owners to pay enough in fees to cover the balance of the cost of operation. Thereafter such fees will pay substantially all of the PTO costs and the public will pay essentially nothing.

Our Section believes that the present Administration proposal will have a serious adverse impact on individual inventors and small businesses because of the high fees which will be necessary to upgrade and operate the PTO. We believe that the patent and trademark systems will be better stimulated if in addition to a reasonable increase in fees paid by inventors and trademark owners there be a fair and reasonable increase in the amount paid by the public, the principal beneficiary of the services rendered by an efficient PTO.

Respectfully submitted,

Joseph A. DeGrandi,
Chairman

Mr. KASTENMEIER. Thank you, Mr. Swenson.

I think I can say that certainly 5602 in its present form will not be enacted by this Congress, and some of the recommendations, I think, of the witnesses collectively and individually will be reflected in whatever it is our subcommittee is able to produce—greater statutory authority, perhaps, represented in one form or another, and a reduction in the 100 percent cost notion.

At this point I would like to yield to the gentleman from Virginia for any questions.

Mr. BUTLER. Thank you, Mr. Chairman.

I have only one question. We were handed the ABA bill. This is the trademark fee schedule that you're endorsing, is that correct?

Mr. SWENSON. That is correct.

Mr. BUTLER. Thank you.

Mr. Chairman, I have no further questions, and I appreciate the witness' contribution.

Mr. KASTENMEIER. I'm glad that the gentleman pointed that out. The ABA bill, which I have not examined in detail, but the members will have a chance to examine it for mark up, is endorsed by your organization?

Mr. SWENSON. I understand there is a provision with respect to section 15 and fees—I'm sorry, title 15.

Mr. KASTENMEIER. I don't see it. But to the extent it is not, at least your own views are a matter of record.

Mr. SWENSON. I was alluded to the ABA resolution which sets forth trademark fees. These do meet with our approval.

Mr. KASTENMEIER. Thank you, Mr. Swenson, for your testimony today. We appreciate the long wait and your help on this issue.

The Chair will state in conclusion that we are very pleased to see the former Commissioner, Don Banner, in the audience, and we greet him.

We do not have any further witnesses. We will proceed to mark up—not today, obviously, as we do not have a quorum at this instant—but hopefully on Tuesday next at a time at an hour and place to be designated. We will canvass the committee members to see what is possible in that connection. Because we do have a timeframe and we must produce the bill by May 15. Therefore, to get it to the full committee and to the House, we have an exercise in expedition.

Mr. BUTLER. I think it would be helpful, Mr. Chairman, if we could have a staff memorandum on the issues before the markup.

Mr. KASTENMEIER. That's an excellent idea and I would trust Mr. Lehman and Mr. Wolfe can contribute to that end.

Accordingly, the committee will then stand adjourned at this time.

[Whereupon, at 1 p.m., the subcommittee was adjourned.]

ADDITIONAL MATERIAL

97TH CONGRESS
2D SESSION

H. R. 6260

To authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 4, 1982

Mr. KASTENMEIER (for himself, Mr. BROOKS, Mrs. SCHROEDER, Mr. FRANK, Mr. RAILSBACK, Mr. SAWYER, and Mr. BUTLER) introduced the following bill; which was referred to the Committee on the Judiciary

A BILL

To authorize appropriations to the Patent and Trademark Office in the Department of Commerce, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is authorized to be appropriated for the payment of salaries and necessary expenses of the Patent and Trademark Office to become available for fiscal year 1983, $76,000,000, and in fiscal years 1984 and 1985 such sums as may be necessary as well as such additional or supplemental amounts as may be necessary, for increases in salary, pay, retirement, or other employee benefits authorized by law. Funds available under this section shall be used to reduce by

50 per centum the payment of fees under section 41 (a) and (b) of title 35, United States Code, by independent inventors and nonprofit organizations as defined in regulations established by the Commissioner of Patents and Trademarks, and by small business concerns as defined in section 3 of the Small Business Act and by regulations established by the Small Business Administration. When so specified and to the extent provided in an appropriation Act, any amount appropriated pursuant to this section and, in addition, such fees as shall be collected pursuant to title 35, United States Code, and the Trademark Act of 1946, as amended (15 U.S.C. 1051 et seq.), may remain available without fiscal year limitation.

SEC. 2. Notwithstanding any other provision of law, there is authorized to be appropriated for the payment of salaries and expenses of the Patent and Trademark Office, $121,461,000 for the fiscal year ending September 30, 1982, and such additional or supplemental amounts as may be necessary for increases in salary, pay, retirement, or other employee benefits authorized by law.

SEC. 3. (a) Section 41(a) of title 35, United States Code, is amended to read as follows:

"(a) The Commissioner shall charge the following fees:

"1. On filing each application for an original patent, except in design or plant cases, $300; in addition, on filing or

on presentation at any other time, $30 for each claim in independent form which is in excess of three, $10 for each claim (whether independent or dependent) which is in excess of twenty, and $100 for each application containing a multiple dependent claim. For the purpose of computing fees, a multiple dependent claim as referred to in section 112 of this title or any claim depending therefrom shall be considered as separate dependent claims in accordance with the number of claims xo which reference is made. Errors in payment of the additional fees may be rectified in accordance with regulations of the Commissioner.

"2. For issuing each original or reissue patent, except in design or plant cases, $500.

"3. In design and plant cases:

"a. On filing each design application, $125.

"b. On filing each plant application, $200.

"c. On issuing each design patent, $175.

"d. On issuing each plant patent, $250.

"4. On filing each application for the reissue of a patent, $300; in addition, on filing or on presentation at any other time, $30 for each claim in independent form which is in excess of the number of independent claims of the original patent, and $10 for each claim (whether independent or dependent) which is in excess of twenty and also in excess of the number of claims of the original patent. Errors in pay-

ment of the additional fees may be rectified in accordance with regulations of the Commissioner.

"5. On filing each disclaimer, $50.

"6. On filing an appeal from the examiner to the Board of Appeals, $115; in addition, on filing a brief in support of the appeal, $115, and on requesting an oral hearing before the Board of Appeals, $100.

"7. On filing each petition for the revival of an unintentionally abandoned application for a patent or for the unintentionally delayed payment of the fee for issuing each patent, $500, unless the petition is filed under sections 133 or 151 of this title, in which case the fee shall be $50.

"8. For petitions for one-month extensions of time to take actions required by the Commissioner in an application:

"a. On filing a first petition, $50.

"b. On filing a second petition, $100.

"c. On filing a third or subsequent petition, $200.".

(b) Section 41(b) of title 35, United States Code, is amended to read as follows:

"(b) The Commissioner shall charge the following fees for maintaining a patent in force:

"1. Three years and six months after grant, $400.

"2. Seven years and six months after grant, $800.

"3. Eleven years and six months after grant, $1,200.

Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an applicable maintenance fee. No fee will be established for maintaining a design or plant patent in force.".

(c) Section 41(c) of title 35, United States Code, is amended to read as follows:

"(c)(1) The Commissioner may accept the payment of any maintenance fee required by subsection (b) of this section after the six-month grace period if the delay is shown to the satisfaction of the Commissioner to have been unavoidable. The Commissioner may require the payment of a surcharge as a condition of accepting payment of any maintenance fee after the six-month grace period. If the Commissioner accepts payment of a maintenance fee after the six-month grace period, the patent shall be considered as not having expired at the end of the grace period.

"(2) No patent, the term of which has been maintained as a result of the acceptance of a payment of a maintenance

fee under this subsection, shall abridge or affect the right of any person or his successors in business who made, purchased or used after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection anything protected by the patent, to continue the use of, or to sell to others to be used or sold, the specific thing so made, purchased, or used. The court before which such matter is in question may provide for the continued manufacture, use or sale of the thing made, purchased, or used as specified, or for the manufacture, use or sale of which substantial preparation was made after the six-month grace period but before the acceptance of a maintenance fee under this subsection, and it may also provide for the continued practice of any process, practiced, or for the practice of which substantial preparation was made, after the six-month grace period but prior to the acceptance of a maintenance fee under this subsection, to the extent and under such terms as the court deems equitable for the protection of investments made or business commenced after the six-month grace period but before the acceptance of a maintenance fee under the subsection.".

(d) Section 41(d) of title 35, United States Code, is amended to read as follows:

"(d) The Commissioner will establish fees for all other processing, services, or materials related to patents not specified above to recover the estimated average cost to the Office

of such processing, services, or materials. The yearly fee for providing a library specified in section 13 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50.".

(e) Section 41(f) of title 35, United States Code, is amended to read as follows:

"(f) The fees established in subsections (a) and (b) of this section may be adjusted by the Commissioner on October 1, 1985, and every third year thereafter, to reflect any fluctuations occurring during the previous three years in the Consumer Price Index, as determined by the Secretary of Labor. Changes of less than 1 per centum may be ignored.".

(f) Subsection (a) of section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), is amended by deleting "50" and inserting in its place "100".

(g) Section 42(c) of title 35, United States Code, is amended by adding the following sentence at the end thereof: "Fees available to the Commissioner under section 31 of the Trademark Act of 1946, as amended (15 U.S.C. 1113), shall be used exclusively for the processing of trademark registrations and for other services and materials related to trademarks.".

SEC. 4. Section 3(a) of title 35, United States Code is amended (1) by deleting the phrase "not more than fifteen";

and (2) by inserting the phrase "appointed under section 7 of this title" immediately after the phrase "examiners-in-chief".

SEC. 5. Section 111 of title 35, United States Code, is amended to read as follows:

"SEC. 111. Application for patent shall be made, or authorized to be made, by the inventor, except as otherwise provided in this title, in writing to the Commissioner. Such application shall include (1) a specification as prescribed by section 112 of this title; (2) a drawing as prescribed by section 113 of this title; and (3) an oath by the applicant as prescribed by section 115 of this title. The application must be accompanied by the fee required by law. The fee and oath may be submitted after the specification and any required drawing are submitted, within such period and under such conditions, including the payment of a surcharge, as may be prescribed by the Commissioner. Upon failure to submit the fee and oath within such prescribed period, the application shall be regarded as abandoned, unless it is shown to the satisfaction of the Commissioner that the delay in submitting the fee and oath was unavoidable. The filing date of an application shall be the date on which the specification and any required drawing are received in the Patent and Trademark Office.".

SEC. 6. (a) Section 116 of title 35, United States Code, is amended (1) by deleting the phrase "Joint inventors" from

the title and inserting in its place "Inventors"; and (2) in the third paragraph, by deleting the phrase "a person is joined in an application for patent as joint inventor through error, or a joint inventor is not included in an application through error" and inserting in its place the phrase "through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application".

(b) Section 256 of title 35, United States Code, is amended to read as follows:

"§ 256. Correction of named inventor

"Whenever through error a person is named in an issued patent as the inventor, or through error an inventor is not named in an issued patent and such error arose without any deceptive intention on his part, the Commissioner may, on application of all the parties and assignees, with proof of the facts and such other requirements as may be imposed, issue a certificate correcting such error.

"The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the Commissioner shall issue a certificate accordingly.".

SEC. 7. Section 6 of title 35, United States Code, is amended by deleting paragraph (d) thereof.

SEC. 8. (a) Section 8(a) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(a)), is amended (1) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

(b) Section 8(b) of the Trademark Act of 1946, as amended (15 U.S.C. 1058(b)), is amended (1) by deleting the word "still"; and (2) by inserting the phrase "in commerce" immediately after the word "use".

SEC. 9. (a) Section 13 of the Trademark Act of 1946, as amended (15 U.S.C. 1063), is amended (1) by deleting the phrase "a verified" and inserting in its place the word "an"; (2) by adding the phrase "when requested prior to the expiration of an extension" immediately after the word "cause"; and (3) by deleting the fourth sentence.

(b) Section 14 of the Trademark Act of 1946, as amended (15 U.S.C. 1064), is amended by deleting the word "verified".

SEC. 10. Section 15 of the Trademark Act of 1946, as amended (15 U.S.C. 1065), is amended by deleting the phrase "the publication" and inserting in its place the word "registration".

SEC. 11. The first sentence of section 16 of the Trademark Act of 1946, as amended (15 U.S.C. 1066), is amended

to read as follows: "Upon petition showing extraordinary circumstances, the Commissioner may declare that an interference exists when application is made for the registration of a mark which so resembles a mark previously registered by another, or for the registration of which another has previously made application, as to be likely when applied to the goods or when used in connection with the services of the applicant to cause confusion or mistake or to deceive.".

SEC. 12. Section 21 of title 35, United States Code, is amended—

(1) by deleting the phrase "Day for taking action falling on Saturday, Sunday, or holiday" from the title and inserting in its place the phrase "Filing date and day for taking action";

(2) by inserting the following as subsection (a):

"(a) The Commissioner may by rule prescribe that any paper or fee required to be filed in the Patent and Trademark Office will be considered filed in the Office on the date on which it was deposited with the United States Postal Service or would have been deposited with the United States Postal Service but for postal service interruptions or emergencies designated by the Commissioner.";

(3) by designating the existing paragraph as subsection (b); and

(4) by inserting the word "federal" in subsection (b), as designated above, immediately after the word "a".

SEC. 13. Section 6(a) of title 35, United States Code, is amended (1) by deleting the word "and", third occurrence, and inserting in its place a comma; (2) by inserting the phrase ", or exchanges of items or services" immediately after the word "programs"; and (3) by inserting the phrase "or the administration of the Patent and Trademark Office" immediately after the word "law", second occurrence.

SEC. 14. (a) Section 115 of title 35, United States Code, is amended by (1) deleting the phrase "shall be" and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(b) Section 261 of title 35, United States Code, is amended, in the third paragraph, by inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

(c) Section 11 of the Trademark Act of 1946, as amended (15 U.S.C. 1061), is amended by (1) deleting the phrase "shall be", first occurrence, and inserting in its place the word "is"; and (2) inserting the following immediately after the phrase "United States", third occurrence: ", or apostille of an official designated by a foreign country which, by treaty or convention, accords like effect to apostilles of designated officials in the United States".

SEC. 15. Section 13 of title 35, United States Code, is amended by deleting "(a) 9" and inserting in its place "(d)".

SEC. 16. Section 173 of title 35, United States Code, is amended to read as follows: "Patents for designs shall be granted for the term of fourteen years."

SEC. 17. (a) Sections 1, 2, 4, 7, and 13 through 15 of this Act shall take effect on the date of enactment of this Act. Sections 3 and 16 of this Act shall take effect on October 1, 1982. The maintenance fees provided for in section 3(b) of this Act shall not apply to patents applied for prior to the date of enactment of this Act. Each patent applied for on or after the date of enactment of this Act shall be subject to the maintenance fees established pursuant to section 3(b) of this Act or to maintenance fees hereafter established by law, as to the amounts paid and the number and timing of the payments.

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(b)(1) Title 35, United States Code, is amended by inserting after section 293 the following new section of chapter 29:

"§ 294. Voluntary arbitration

"(a) A contract involving a patent or any right under a patent may contain a provision requiring arbitration of any dispute relating to patent validity or infringement arising under the contract. In the absence of such a provision, the parties to an existing patent validity or infringement dispute may agree in writing to settle such dispute by arbitration. Any such provision or agreement shall be valid, irrevocable, and enforceable, except for any grounds that exist at law or in equity for revocation of a contract.

"(b) Arbitration of such disputes, awards by arbitrators and confirmation of awards shall be governed by title 9, United States Code, to the extent such title is not inconsistent with this section. In any such arbitration proceeding, the defenses provided for under section 282 of this title shall be considered by the arbitrator if raised by any party to the proceeding.

"(c) An award by an arbitrator shall be final and binding between the parties to the arbitration but shall have no force or effect on any other person. The parties to an arbitration may agree that in the event a patent which is the subject matter of an award is subsequently determined to be invalid

or unenforceable in a judgment rendered by a court to competent jurisdiction from which no appeal can or has been taken, such award may be modified by any court of competent jurisdiction upon application by any party to the arbitration. Any such modification shall govern the rights and obligations between such parties from the date of such modification.

"(d) When an award is made by an arbitrator, the patentee, his assignee or licensee shall give notice thereof in writing to the Commissioner. There shall be a separate notice prepared for each patent involved in such proceeding. Such notice shall set forth the names and addresses of the parties, the name of the inventor, and the name of the patent owner, shall designate the number of the patent, and shall contain a copy of the award. If an award is modified by a court, the party requesting such modification shall give notice of such modification to the Commissioner. The Commissioner shall, upon receipt of either notice, enter the same in the record of the prosecution of such patent. If the required notice is not filed with the Commissioner, any party to the proceeding may provide such notice to the Commissioner.

"(e) The award shall be unenforceable until the notice required by subsection (d) is received by the Commissioner.".

(2) The analysis for chapter 29 of title 35 of the United States Code is amended by adding at the end the following:

"294. Voluntary arbitration.".

(c) Sections 5, 6, 8 through 12, and 17(b) of this Act shall take effect six months after enactment.

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PLEASE REFER TO FILE:

April 26, 1982

Mr. Bruce A. Lehman, Counsel
House Subcommittee on Courts, Civil
Libirties and the Administration of Justice
Room 2137
Rayburn House Office Building
Washington, D. C. 20515

Re: Statement of D. C. Roylance Regarding S 2211

Dear Mr. Lehman:

I enclose one copy of my statement regarding S 2211, and am sending one copy to each member of the subcommittee.

I respectfully request that this statement be made part of the record.

Very truly yours,

D. C. Roylance

STATEMENT OF D. C. ROYLANCE REGARDING S 2211, THE ADMINISTRATION BILL TO AUTHORIZE APPROPRIATIONS TO THE PATENT AND TRADEMARK OFFICE IN THE DEPARTMENT OF COMMERCE AND FOR OTHER PURPOSES

I am a partner in the law firm of Roylance, Abrams, Berdo & Farley, Suite 315, 1225 Connecticut Avenue, N. W., Washington, D. C. 20036, and a resident of Rockville, Maryland. I have been employed with regard to inventions, research and development and patents substantially all of my adult life, having been an associate editor of the magazine INVENTION, 1939-1940, a patent searcher 1940-1943 and 1946-1948, a trainee in patent law 1948-1952, and a lawyer in private practice since 1952.

Though I agree with much of what has been said in other statements regarding S 2211, it appears to me that a major point is being overlooked, and I therefore offer this statement which is based on my own experience and represents my own opinions.

Introductory Summary

A patent applicant is already required to pay far more than Patent and Trademark Office fees, and more than his fair share of the cost-burden required for a patent to issue.

In addition to payment of fees, the patent applicant is required by law to provide an application in the nature of a textbook. That textbook is financed by the applicant, but it provides the public with a great benefit. The fact that the applicant must provide a textbook makes the 4,320,000 United States patents into the greatest and most unique technical library in the world today.

To the general public, that library is largely free.

Further increases in Patent and Trademark Office fees required of patent applicants will reduce the number of patents filed by United States inventors. The value of issued United States patents as a technical library will then diminish proportionately.

Decreasing the number of patents issued, and thus diminishing the value of issued patents as a source of technical information, will slow the advance of United States technology.

Where The Main Cost Burden Lies

Obtaining a patent from the Patent and Trademark Office is not a simple purchase, like buying a can of coffee at the grocery store. The patent applicant is required by law, and by the proper practice of the Patent and Trademark Office, to bring much more than money in order to negotiate what others commenting on S 2211 seem to view as a simple buy-and-sell transaction. The applicant must bring a description of the invention so complete and detailed, and so clearly written, that one of ordinary skill in the art can, from that description, practice the invention without having to do substantial research and development. Thus, for practical purposes, 35 U. S. C. §112 requires a full and very detailed teaching of the technology involved. That requirement for a full and detailed teaching has, over the years, been honed to a very sharp edge, and properly so, by the Patent and Trademark Office and the federal courts. To illustrate the role of the Patent and

Trademark Office, consider the following quotation from an Official Action issued by the Patent and Trademark Office last September:

> "This application does not meet the requirements of 35 USC 112, first paragraph. The best mode contemplated by the inventor of carrying out his invention must be set forth in the description. The Office practice is to accept operative examples sufficient to meet this requirement of the Statute in the absence of information to the contrary. There are no working examples in the present case and as the claimed subject matter is so broad with respect to the innumerable (chemical term deleted) employed[though applicant characterizes same as a narrow group of (chemical term deleted)] and with respect to the substrates treated one skilled in the art would not be able to practice the invention without an undue amount of experimentation."

Note that the effect of the quoted paragraph is to require the applicant to provide examples. The following conclusions of law from Grain Products, Inc. v. Lincoln Grain Inc., DC SD Indiana, Indianapolis Div. 1976, 191 USPQ 177, 192 typify how, once a patent has been obtained from the Patent and Trademark Office, the federal courts may still apply 35 U. S. C. §112 to strike the patent down:

> "7. The Stickley patent is invalid under 35 U. S. C. §112 because independent experimentation is necessary in order to practice the invention.
>
> 8. The Stickley patent is invalid under 35 U. S. C. §112 because of the excessive margin of error in the bulk density test procedure."

Obviously, the court concluded that Stickley had not written a good enough textbook to hold up his end of the bargain.

The patent laws of all countries with rigorous patent systems require that the applicant for patent disclose the invention. But the United States law is unique in the extent of the disclosure

required. As a result, patents issued in other countries are, quite often, very poor textbooks while, by and large, United States patents are very good textbooks. From the standpoint of the general public, which benefits from the teachings in the patents, the results flowing from 35 U. S. C. §112 are unbelievably good. But that statute places a high cost burden on the applicant.

I am aware of no statistical analysis of the costs imposed on patent applicants by our highly refined and highly beneficial practice under 35 U. S. C. §112. But the cost factors involved are fairly obvious. Very few patent applicants can themselves write a description of the invention and its art which would be adequate to satisfy the statute, so the applicant must hire someone who is experienced not just in technical writing but also in the requirements of 35 U. S. C. §112. Cost for that writing will vary as to the complexity of the invention, but to say that the average cost is at least $600 would be very conservative. And that cost is often but the tip of the iceberg. If, for example, the invention is in a field of chemistry, let us say one involving reaction of chemical A with chemical B, the applicant must determine all of the compounds which work as chemical A and all of the compounds which will work as chemical B. Then the applicant must determine a range for the proportions -- the amount of chemical A which will work and the amount of chemical B which will work. If conditions such as temperature and pressure are involved, the applicant must determine operable ranges for those conditions. All of this is effort the patent applicant would not be likely to

undertake if he were not filing a patent application; he would simply arrive at the best values and use them. Costs for developing the technical information necessary to satisfy 35 U. S. C. §112 vary widely, perhaps from as little as a few hundred dollars for some inventions to many thousands of dollars for others. For purposes of this statement, let us be extremely conservative and estimate the average cost for developing the information required by the statute at $1000.

The next section of the statute -- 35 U. S. C. §113 -- requires that the application include drawings "when the subject matter admits of illustration", and the drawings must be in ink on Bristol board. While some applications require no drawings, others require many sheets. Being very conservative, let us set the average at two sheets. Current costs are $60 per sheet, giving a total for drawing costs of $120.

We have thus arrived at a conservative average investment of $1720 which each applicant must make before coming to the Patent and Trademark Office.

Since averages can be misleading, I invite attention to two patents -- Schwoegler 4,134,775 and McAlear et al 4,103,064 -- with respect to which I was counsel and know the facts. Dr. Schwoegler's investment before paying any Patent and Trademark Office fees was in the neighborhood of $4000. Costs incurred by Dr. McAlear and Mr. Wehrung, before any Patent and Trademark fees, were in the neighborhood of $15,000. In both cases, the costs cited are mainly involved in arriving at the technical information

required for the patent application.

The Public, Not the Applicant, Mainly Benefits From These Costs

Practice under 35 U. S. C. §112 was developed with one objective in mind -- to obtain from each applicant a clear, full and detailed teaching of the invention sought to be patented. Fortunately for all, that practice has been successful, so successful that today the over 4,320,000 United States patents represent the greatest technical library in the world. A patent applicant, especially today, would undoubtedly prefer not to make a personal investment of $1720 to support a great public technical library. But our patent statute requires that investment of him.

Why the United States Patents Represent the Greatest Technical Library In the World

One wishing to do research in, say, suspension polymerization of styrene, does well first to read the textbooks and learn how styrene polymerizes and what the effects of polymerizing in suspension are. But one should then go to the Patent and Trademark Office Public Search Room and read the United States patents dealing with suspension polymerization of monomers like styrene. Textbooks are professorial, handbooks give cold data. But the United States patents, thanks to 35 U. S. C. §112, tell what actually happened when a person of skill did something. When one finds that, in the last 10 years, five different inventors have obtained pat-

ents concerned with producing beads of uniform size when carrying out suspension polymerization of styrene, one can conclude with certainty that control of bead size is a problem to which close attention should be given when developing a method for suspension polymerization of styrene. Because of 35 U. S. C. §112, the text of the specifications of United States patents teach one what the technical problems are today, what approaches to solving those problems worked, what conditions of temperature, pressure, etc., are likely good.

I mention two examples to show that what is said above is fact, not theory. In the 1960's, I directed a research project aimed at developing a new process for producing foamable polystyrene beads, the raw material from which foamed drinking cups are molded. There were then several existing manufacturers, each with its own patented process, and one of the manufacturers was reported to have invested over $10 million in research in that field. The project I directed started with a thorough reading of the issued United States patents. In fact, that study was essential, since those responsible for the research had never before carried out suspension polymerization of any monomer, let alone styrene. The project was carried through semi-works stage (polymerizing in 300-gallon reactors) for a total cost of less than $200,000. One of the primary reasons for that success was the great amount of technical information we gained by reading the issued patents.

I have recently completed work as a consultant on a

research and development project for a major oil company, dealing with treatment of certain petroleum crudes. The problem to be solved was one on which many major oil companies had worked rather unsuccessfully for years. Again, those in charge of the research had never before been exposed to the problem to be solved. In fact, the two persons mainly responsible had never even seen a drop of petroleum crude. The project started out with a thorough state of the art search in the United States patents and a thorough reading of the patents. A semi-works installation is now working successfully in the field, and I view that success as having been made possible largely because of the technical information gained from the issued United States patents.

Research to solve technical problems is easier, quicker and less expensive because 35 U. S. C. §112 has required that patent applicants present the application in the form of a textbook, making the United States patents into the greatest of technical libraries.

Cost Of the Library Should Be Borne In
Part By the Public, Not Totally By the Patent Applicant

In each of the cases mentioned above, it was the public, not the earlier patentees, who benefitted because the patents were available to be read. In the petroleum crude project, we benefitted much from a patent in the early 1900's and now long expired. Certainly that patentee received no benefit from the fact that his patent helped our research program. Only the public today benefits.

Every United States patent application filed today may, because of the requirements of 35 U. S. C. §112, become a textbook which, a few years from now, accelerates and cheapens someone's research program. Cost of that texbook is already borne largely by the patent applicant. It is the public which will benefit from the textbook aspect of the issued patent, not the patentee. It is both illogical and inequitable to promote the idea that the patent applicant should bear 100% of the cost of the patent.

Undue Increases In Fees Will Decrease the Number of United States Patents

Fees and taxes required for foreign patents have increased steadily, and the number of applications filed abroad by United States applicants is decreasing. I represent one corporation which, fifteen years ago, filed patent applications routinely in as many as 10 foreign countries. Today that client files only in Great Britain and Australia, sometimes reluctantly in France. Stricken from the list of countries to be considered are Japan, Italy, Sweden, Holland, W. Germany. What has happened abroad because of increased costs will also happen in the United States.

Even today, I hear more frequently from clients the question: Is the cost of the proposed patent application really justified? And that increasingly frequent question comes when the patent applicant is not carrying 100% of the patenting cost. Substantial increases in patenting costs will result in a substantial further decrease in the number of patent applications filed by United States inventors. Work at the Patent and Trademark Office

will be easier, and the budget required will decrease. So also will the number of issued United States patents decrease, and the value of the greatest technical library in the world will diminish. As a final result, it will be more difficult, more expensive for our technology to advance, and technological advances will take longer.

It Would Be Error To Require Patent Applicants
To Bear the Entire Patent and Trademark Office Budget

The Patent and Trademark Office is not a store to which an inventor goes to buy a patent. Our patent laws have established a virile and successful system which provides the successful inventor with a good and enforceable patent and from which the public benefits in many ways, including being provided with the greatest technical library in the world. If there were no fees involved at all, the inventors' contribution toward that library would represent more than their fair dollar contribution.

If patent applicants are forced to carry all of the costs of the Patent and Trademark Office, the general public will then have the greatest technical library in the world, completely free. But that will not be a "win". In time, the shelves of the library are likely to be bare.



United States Patent [19]

McAlear et al.

[11] 4,103,064

[45] Jul. 25, 1978

[54] MICRODEVICE SUBSTRATE AND METHOD FOR MAKING MICROPATTERN DEVICES

[75] Inventors: James H. McAlear, Gaithersburg; John M. Wehrung, Potomac, both of Md.

[73] Assignee: Dios, Inc., Potomac, Md.

[21] Appl. No.: 647,871

[22] Filed: Jan. 9, 1976

[51] Int. Cl.[2] B05D 5/00; B32B 9/02

[52] U.S. Cl. ..... 428/335; 156/659; 428/459; 428/460; 428/463; 428/474; 428/500; 428/522; 428/524; 427/53; 427/54; 427/55; 427/56; 427/58; 427/91; 427/96; 427/99; 427/123; 427/124; 427/259; 427/264; 427/265; 427/270; 427/272; 427/273; 427/282; 427/287; 427/407 R; 427/407 A; 427/414; 96/36.2; 96/35.1; 428/336; 428/458

[58] Field of Search ..... 156/13, 17, 18, 2, 11, 156/659, 661; 96/36.2, 35.1; 428/411, 336, 333, 474, 500, 522, 524, 458, 459, 460, 463; 148/187; 357/8; 427/96, 82, 43, 44, 35, 36, 38, 53, 54, 55, 56, 88, 85, 91, 93, 99, 259, 264, 265, 266, 270, 272, 273, 282, 287, 407 R, 407 A, 414, 123, 124

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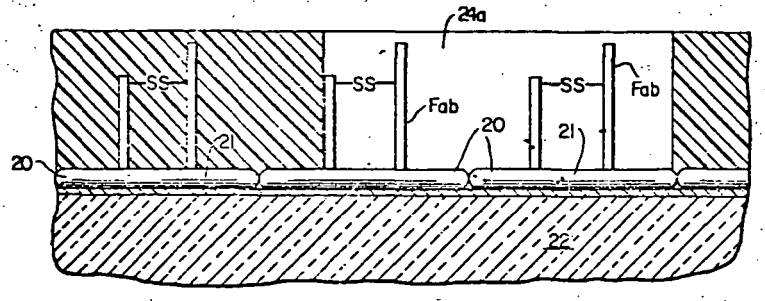
Primary Examiner—Cameron K. Weiffenbach

Attorney, Agent, or Firm—Roylance, Abrams, Berdo & Farley

[57] ABSTRACT

Articles exhibiting a micropattern carried by a surface of a support, typically microdevices comprising a micropattern of a functional material on or in a substrate of a dissimilar material, are produced by a method employing a microsubstrate comprising a substrate base, a protein layer which comprises at least a compressed monolayer of a denatured non-fibrous protein on the base, and a masking film overlying the protein layer, the material of the masking film being such as to be modified by radiant energy so as to be removable from the protein layer where irradiated. The method is flexible in the sense that it is possible to proceed via either a positive or a negative of the desired micropattern and to build a more extensive, or more complex, micropattern from an initial relatively simple micropattern.

52 Claims, 11 Drawing Figures



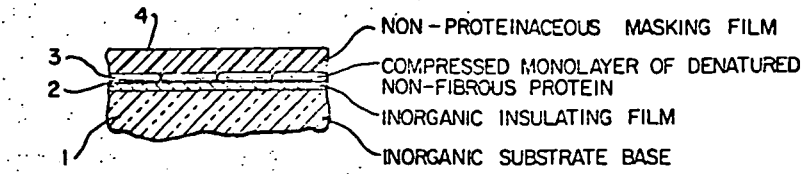


FIG. 1

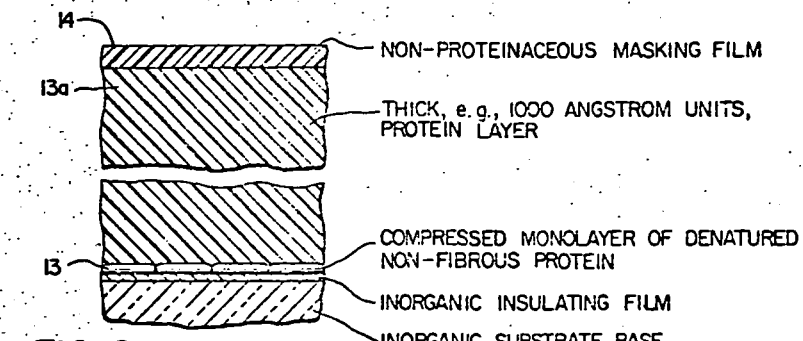


FIG. 2

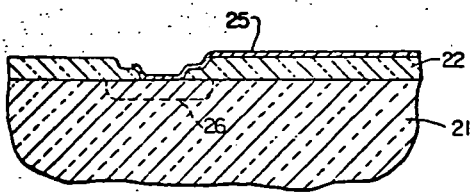


FIG. 3

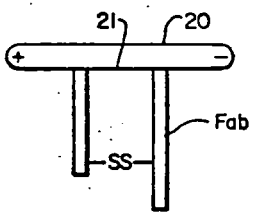


FIG. 6

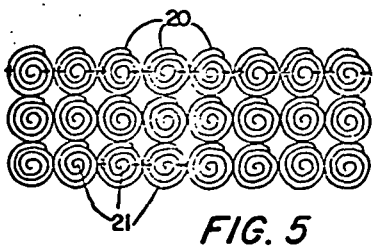
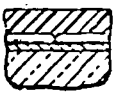


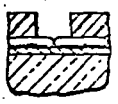
FIG. 5

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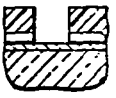


STEP 1.
PROVIDE SUSTRATE AS IN FIG. 1.

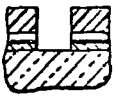
STEP 2.
IRRADIATE WITH AN ELECTRON BEAM A SPECIFIC AREA OF THE RESIST FILM ACCORDING TO DESIRED MICROPATTERN.



STEP 3.
REMOVE IRRADIATED RESIST FILM, THUS EXPOSING PROTEIN MONOLAYER IN IRRADIATED AREAS.



STEP 4.
REMOVE EXPOSED PROTEIN MONOLAYER, EXPOSING SILICON DIOXIDE IN THE IRRADIATED AREA AND LEAVING PROTEIN MONOLAYER AND RESIST FILM AS A NEGATIVE MASK IN THE AREA NOT IRRADIATED.



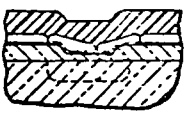
STEP 5.
REMOVE EXPOSED SILICON DIOXIDE, THUS EXPOSING SILICON IN IRRADIATED AREA.



STEP 6.
IRRADIATE OVERALL AND REMOVE REMAINING COMPOSITE RESIST, LEAVING SILICON DIOXIDE AS A NEGATIVE MASK.

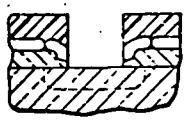


STEP 7.
INTRODUCE DOPANT INTO SILICON OF EXPOSED AREA, USING DIFFUSION FURNACE, ADDITIONAL SILICON DIOXIDE BEING BUILT UP BY THERMAL OXIDATION, INCLUDING A FILM OF SILICON DIOXIDE OVER DOPED AREA.

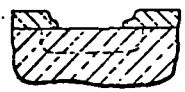


STEP 8.
APPLY NEW COMPOSITE RESIST OVER ENTIRE SUBSTRATE AS IN FIG. 1

FIG. 4



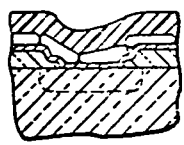
STEP 9.
IRRADIATE PREDETERMINED AREA WITHIN DOPED AREA AND REMOVE COMPOSITE RESIST AND NEW SILICON DIOXIDE FROM IRRADIATED AREA.



STEP 10.
IRRADIATE OVERALL AND REMOVE REMAINING COMPOSITE RESIST.

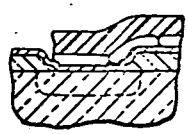


STEP 11.
DEPOSITE CONDUCTIVE METAL OVER ENTIRE SUBSTRATE.

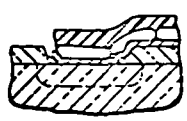


STEP 12.
APPLY NEW COMPOSITE RESIST.

STEP 13.
IRRADIATE IN AREA WHERE METAL IS NOT DESIRED.



STEP 14.
REMOVE IRRADIATED COMPOSITE RESIST, THUS EXPOSING UNDESIRED METAL, THE REMAINING COMPOSITE RESIST CONSTITUTING A POSITIVE MASK.



STEP 15.
REMOVE UNDESIRED METAL BY CHEMICAL ETCHING.

STEP 16.
IRRADIATE OVERALL AND THEN REMOVE REMAINING COMPOSITE RESIST TO OBTAIN ARTICLE OF FIG. 3

FIG. 4A

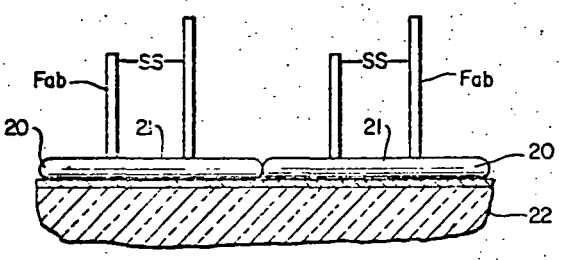


FIG. 7

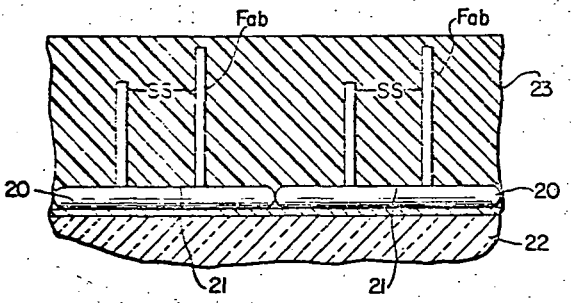


FIG. 8

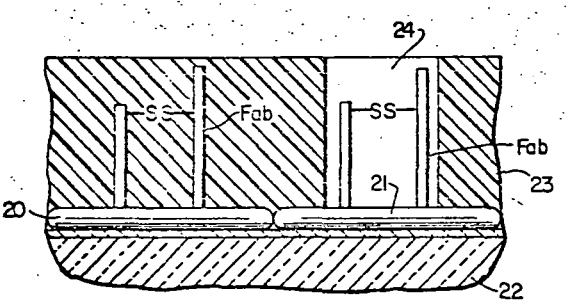


FIG. 9

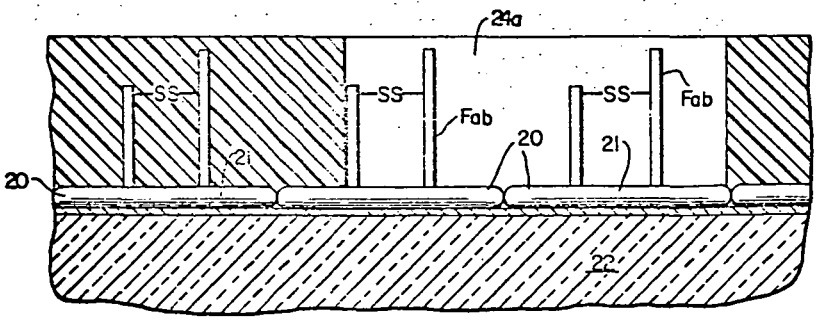


FIG. 9A

MICRODEVICE SUBSTRATE AND METHOD FOR MAKING MICROPATTERN DEVICES

BACKGROUND OF THE INVENTION

Rapidly expanding usage of electronic microcircuits has resulted in a rapid advance in the art of producing articles in the nature of a micropattern of a functional material supported on or in a substrate base of a dissimilar material. Recently developed procedures employ, e.g., as a substrate for the microdevice, a base of silicon covered by silicon dioxide, and an electron resist covering the silicon dioxide, the resist being selectively irradiated by an electron beam in accordance with the micropatterning step to be performed, the irradiated resist then being removed to expose selected areas of the silicon dioxide, the exposed areas then being treated, as by etching, if necessary, the functional material then being applied, and the resist then being removed in the area which has not been irradiated, bringing the substrate to a condition suitable for the next micropatterning step. Typical requirements include diffusion of dopants into the silicon base in one or more selected areas, and provision of a conductive metal on defined areas of the silicon dioxide, and such requirements are met by different procedures each requiring use of an electron resist on which a portion of the micropattern is written by electron beam irradiation. It is common to use as the electron resist a synthetic polymer which is partially depolymerized by electron beam irradiation, the partially depolymerized material being removable by dissolution in, e.g., the corresponding monomer.

Though such prior-art procedures have achieved marked success, they are limited to those objectives which can be accomplished by treatments controlled by the presence or absence of the resist on the base. Further, such procedures require relatively extensive electron beam irradiation to "write" the pattern desired, and writing time has become recognized as a primary limiting factor. Finally, while such methods are now commonly used to produce micropatterns of very small size, with, e.g., conductive path widths as small as 1000 A, further reduction in the dimensions of the micropattern is highly desirable.

OBJECTS OF THE INVENTION

It is a general object of the invention to provide an improved method for producing microdevices in the nature of micropatterns supported on a substrate base, which will have not only the advantages of prior-art methods but also the advantage of increased flexibility with regard to the nature and size of the micropattern produced.

Another object is to provide an improved microdevice substrate for use in accordance with the method.

A further object is to devise a method of the type described which makes it possible to markedly reduce the writing time required to produce micropatterns.

Yet another object is to provide such a method whereby an element of a microcircuit, for example, in the nature of a conductive line can be produced without tracing the entire line with an electron beam.

A still further object is to provide for the production of micropatterns, employing an electron resist, without requiring the step of writing the complete micropattern.

SUMMARY OF THE INVENTION

Method embodiments of the invention employ a microdevice substrate, which can be characterized as having a composite resist, and which comprises a substrate base, typically silicon covered with silicon dioxide, a protein layer covering the base, and a thin film of an electron resist material covering the protein layer, the protein layer comprising at least a first layer which is secured to the base and which is a compressed monolayer of a denatured globular protein, and the electron resist material being removable from the protein layer once the electron resist material has been irradiated with an electron beam. In carrying out the method, an area of the electron resist film, predetermined by the micropattern desired, is irradiated with an electron beam and the irradiaed area then removed to expose the protein layer for further treatment. In a simple embodiment of the method, the area of the protein layer thus exposed is a positive of the desired micropattern and the further treatment comprises removal of the protein in the exposed area, and the next micropatterning step is carried out on the exposed area, with the remaining electron resist material and protein serving as a negative mask and being subsequently removed. In another embodiment, an area of the protein monolayer is exposed as a negative of the desired micropattern, and a second protein is linked to the protein of the monolayer, the entire surface of the substrate is then irradiated, the electron resist film and monolayer then removed from the base in all but the negative area, the next micropatterning step then carried out on the area of the base thus exposed with the second protein linked to the monolayer serving as a negative mask, and the protein and remaining electron resist film then removed from the negative area. In other embodiments, the protein of the monolayer is one the molecules of which each have a specific reactive site, the molecules of the protein of the monolayer are arranged in a predetermined spatial pattern, the resist or masking film is removed in areas which the predetermined with reference to the pattern of the protein molecules, and pattern building material, typically an enzyme or a metal-containing protein, is reactively attached to the exposed areas of the monolayer.

In order that the manner in which these and other objects are achieved according to the invention can be understood in detail, particularly advantageous embodiments of the invention will be described with reference to the accompanying drawings, which form part of the original disclosure hereof, and wherein:

FIGS. 1 and 2 are semi-diagrammatic transverse cross-sectional views of microdevice substrates according to the invention;

FIG. 3 is a semi-diagrammatic transverse cross-sectional view of a finished micropattern produced according to the invention;

FIGS. 4 and 4A combine to provide a flow diagram illustrating one embodiment of the method;

FIG. 5 is a diagrammatic illustration of a stereospecific protein monolayer employed according to the invention;

FIG. 6 is a diagrammatic side elevational view of the manner in which a pattern-building molecule is attached to the monolayer of FIG. 5;

FIG. 7 is a diagrammatic view showing the manner in which the product of FIGS. 5 and 6 is attached to a substrate base;

FIG. 8 is a semi-diagramatic transverse cross-sectional view of a microsubstrate embodying the product of FIGS. 5-7; and

FIGS. 9 and 9A are views similar to FIG. 8 but illustrating manners in which portions of the masking film of the microsubstrate can be selectively removed.

DETAILED DESCRIPTION OF SIMPLE MICRODEVICE SUBSTRATE

Simple microdevice substrates according to the invention comprise a substrate base, a protein layer comprising at least a compressed monolayer of a denatured globular protein overlying the surface of the substrate base and secured thereto, and a thin film of masking material covering the protein layer. The protein layer can be made up entirely of the protein monolayer, with the structure then consisting of the substrate base material 1, FIG. 1, a thin inorganic insulating film 2 on the surface of the base, the protein monolayer 3, and the masking film 4. Alternatively, the protein layer can be made up of a compressed monolayer 13, FIG. 2, of denatured globular protein and a second layer 13a of protein which can be adhered to the monolayer in such quantity as to provide a layer on the order of, e.g., 1000 Angstrom units in thickness. In this embodiment, the masking film 14 is applied to the surface of protein layer 13a. Protein layer 13a can be of a single protein in undenatured form, or can be made up of a plurality of protein layers, or can be a single additional protein monolayer. While, for simplicity of illustration, the masking films 4 and 14 have been shown as discrete films overlying the protein layer, films 4 and 14 advantageously include material which impregnates the protein layer and is present in all of the intramolecular and intermolecular interstices of the protein layer.

The substrate base 1 can be of any solid material which is dissimilar with respect to the functional material or materials of which the micropattern is to be formed and has adequate strength and other physical properties to support the micropattern under the conditions of use. In the case of electronic microcircuits, the substrate base can be silicon, typically in the form of a wafer with a diameter of 1-2 in., the silicon being covered with an insulating layer 2 of silicon dioxide.

Monolayer 3 is a layer of denatured protein which is one molecule thick, the protein being a globular protein having a maximum molecular dimension not greater than 500 Angstrom units and a ratio of greatest molecular dimension to smallest molecular dimension of at least 2:1. The molecules of the denatured protein of the monolayer are further characterized by having a hydrophilic side and a hydrophobic side facing in generally opposite directions and separated by a distance which is small relative to the maximum dimension of the molecule. Such monolayers are prepared conventionally by flowing a molecular solution of the protein onto the surface of water in a Langmuir trough and laterally compressing the film under the influence of a glass bar moved laterally across the water surface until a surface tension of 0.1-0.3 dyne/cm. is obtained as measured by, e.g., a Wilhelmy balance. The usual procedure is described by Kleinschmidt, A.K. and Zahn, R.K., *Zschr. Naturforschg.* 14b, 159, commencing at page 770. Typically, the protein can be dissolved in an aqueous ammonium acetate solution at dilutions on the order of 10^{-4} gram of the protein per ml. While the usual practice is to lift the protein monolayer from the water-air interface with a grid, it is advantageous to lift the monolayer directly with the substrate base, so that the compressed monolayer is recovered and applied to the base in the same step, the monolayer then being dehydrated with ethanol. While many globular proteins having the aforementioned characteristics can be employed, specific examples of suitable proteins include cytochrome c, chymotrypsin, bovine serum albumin, and trypsin.

Masking or resist film 4 can be of any masking material which responds to radiant energy in such fashion as to be significantly more easily removable after irradiation, so that irradiation of a predetermined area of the masking film renders the film selectively removable in the irradiated area. Particularly advantageous are those materials which have a marked response to sub-atomic particle radiation, including electron beam, proton beam and neutron beam radiation. The masking material can also be one which has a specific response to electromagnetic radiation, including X-ray, microwave, infra red, ultra violet and visible radiation. The masking material can also be one which is removable by an ion beam, typically by a focussed ion beam. The term "radiant energy", as used herein includes the energy of (a) sub-atomic particle radiation, (b) electromagnetic radiation and (c) ion beam radiation. It is particularly advantageous to employ as film 4 an in situ polymerized film of a synthetic polymeric material which is partially depolymerized by electron beam irradiation. Of the synthetic polymeric materials, those derived from the acrylic esters, especially methyl acrylate and methyl methacrylate, are particularly useful, those polymers being soluble in the respective monomers so that selective removal of the masking film from irradiated areas is easily achieved by dissolution in the monomer. Advantageously, film 4 is established by flowing methyl methacrylate, containing both a free-radical initiator type polymerization catalyst and a cross-linking agent, onto the protein monolayer and accomplishing polymerization to the solid state in situ by time or time and moderate heat. The in situ polymerized masking film has a maximum thickness (measured from the surface of the protein monolayer) of from about 10 Angstrom units to about 1000 Angstrom units, best results being achieved when the thickness does not exceed 30 Angstrom units. Polymerized in situ, masking film 4 not only completely covers the protein monolayer but also fills the molecular interstices of the monolayer.

The following example is illustrative of preparation of microdevice substrates according to FIG. 1:

EXAMPLE 1

A solution of cytochrome c is prepared by introducing the protein into a 1-molar aqueous solution of ammonium acetate to provide 10^{-4} gram of protein per ml. in molecular solution. The protein solution is flowed onto the surface of a 0.1 molar solution of ammonium acetate in a Langmuir trough at the rate of about 0.2 ml. per minute, using a pipette, until 2.5 ml. of the protein solution has been flowed on, the film then being allowed to spread freely on the surface for 10 minutes under covered, clean, quiescent conditions. The resulting protein monolayer is then compressed to 0.1 dynes/cm., using a square glass rod. At this point, it must be recognized that the protein of the monolayer is denatured as a result of the surface tension at the air-water interface and that each molecule of the protein of the monolayer is oriented with its hydrophilic side toward the water and its hydrophobic side toward the air. A silicon wafer covered by a film of silicon dixode and of smaller plan

extent than the compressed protein monolayer is now lowered, silicon dioxide surface down, slowly into engagement with the monolayer. The monolayer adheres to the silicon dioxide surface and, when the wafer is withdrawn, the monolayer covers and is adhered to the silicon dioxide film on the wafer, with the predominently hydrophilic side of each protein molecule directed away from the wafer. The wafer is then immersed in an ethanol solution and ethanol added in sequential steps of a graded series, to dehydrate the protein monolayer.

Liquid methyl methacrylate is catalyzed by addition of benzoyl peroxide and divinyl benzene, as a cross-linking agent, in amounts equal to 1% and 5%, respectively, of the weight of the monomer. The methyl methacrylate is then flowed over the protein monolayer on the silicon afer and the substrate then allowed to stand, protein layer up, at room temperature for 10 hours, yielding a finished substrate having the configuration shown in FIG. 1, with the cross-linked polymethacrylate constituting film 4. In this substrate, the monolayer 3 of cytochrome c will have a thickness of about 12–14 Angstrom units, and the polymethyl methacrylate film 4 can have a thickness, in addition to that of the monolayer, on the order of 10–1000 Angstrom units or thicker.

In native form, globulins such as cytochome c can be viewed as made up of helically arranged amino acid molecules, usually referred to as residues, interrupted by changes of direction at the junctures between amino acid molecules, by cross-linking at disulfide sites, and by presence of metal ions linked internally in the folded structure, the globulin macromolecule being a relatively compact structure. The cytochome c of monolayer 3, however, has been denatured by the surface tension at the air-water interface, during formation of the monolayer, and no longer possesses the compact macromolecular form. Denaturing can be considered as a partial uncoiling of the helices of the macromolecule to such an extent that the denatured macromolecules is in the form of a relatively flat structure with hydrophilic sites exposed at one side and hydrophobic sites exposed at the other. With the silicon wafer lowered into engagement with the monolayer, the hydrophobic sites of the protein are exposed to the silicon dioxide surface of the wafer and the protein monolayer is secured to the silicon dioxide by surface adhesion.

Denaturation of the cytochrome c of the monolayer has the effect of making the protein molecule less compact, so that the denatured macromolecule is characterized by intramolecular interstices of considerable size and number. When the liquid methyl methacrylate is applied to establish film 4, the liquid enters and fills the intramolecular interstices so that the polymethyl methacrylate of the cured electron resist film 4 is integral with like polymeric material within the denatured protein monolayer.

Microdevice substrates according to FIG. 2 can be made in a fashion similar to that of Example 1, save that a solutin of the protein for layer 13a is flowed onto the exposed surface of the monolayer 13, glutaraldehyde is then added to the protein solution as a cross-linking agent, and the device allowed to stand for a few minutes, yielding layer 13a as a solid layer of glutaraldehyde-protein complex secured to monolayer 13 by cross-linking between amino groups of the two proteins. The electron resist film 14 is then applied as explained in Example 1.

DETAILED DESCRIPTION OF MICRODEVICE OF FIG. 3 AND ITS PRODUCTION ACCORDING TO METHOD EMBODIMENT OF FIGS. 4 AND 4A

In this embodiment of the invention, the finished article comprises a micropattern 25, FIG. 3, of conductive metal supported by the substrate base, the surface of those positions of the substrate base not overlain by micropattern 25 being exposed. For simplicity of explanation, micropattern 25 is considered to be a metal element having a width of approximately 100 Angstom units and extending as a straight line from the doped, semiconductor area 26 of silicon wafer 21 across the silicon dioxide film 22, the straight line constituting a conductive lead to the semiconductor area. As illustrated by the flow diagram of FIGS. 4 and 4A, the method is commenced by preparing a substrate base unit according to Example 1, consisting of a silicon wafer carrying a silicon dioxide film, a compressed monolayer of denatured cytochrome c overlying the silicon dioxide film, and an electron resist film of polymethyl methacrylate overlying the cytochrome c monolayer. As the second step, the substrate base is irradiated with a focussed electron beam, as by using a computer controlled scanning electron microscope, over the area 26 to be doped to form the active semiconductor area. Such irradiation can be at a dosege level of from 10^{-7} to 10^{-5} coulomb per square centimeter at 10.000 EV. The substrate base is then washed with methyl methacrylate monomer, as the third step, to dissolve all of the polymethyl layer which has been irradiated, thus exposing the protein monolayer in the area 26. For the fourth step, the exposed protein monolayer is then removed, either by dissolving the protein with an aqueous solution having a pH equal to the isoelectric point of the cytochrome c or by digesting the protein with an aqueous solution of a proteolytic enzyme, to expose the silicon dioxide film in the area of the wafer which is to be doped. In the fifth step, the exposed silicon dioxide is removed, as by etching with hydroflouric acid. The sixth step of the method is carried out by irradiating the substrate overall, as with X-ray irradiation of electron beam irradiation, then removing the remaining polymethyl methacrylate as in step 3, and then removing the remaining protein monolayer, as in step 4, so that the substrate now presents the exposed predetermined area of the silicon wafer, with the remainder of the wafer covered by silicon dioxide as a negative mask. In step 7, the dopant desired for the active semiconductor area 26 is introduced in conventional fashion with a diffusion furnace and, if plural dopants are involved, the doping step is conventionally repeated. Using a diffusion furnace, additional silicon dioxide film 22 is built up, so that the overall silicon dioxide film 22 is thickened and a thin film of silicon dioxide also now extends over the doped area 26.

The eighth step of the method requires reestablishment of the composite resist according to Example 1, including the compressed denatured cytochrome c monolayer and the overlying film of cross-linked polymethyl methacrylate as the electron resist. In step 9, a predetermined area smaller than the doped area and located therewithin is irradiated with a focussed electron beam, and the irradiated composite resist removed as in steps 3 and 4, the area of silicon dioxide thus exposed then being removed as in step 5. The entire substrate is then irradiated for step 10, as with X-ray radia-

tion or electron beam radiation, and the composite resist then removed overall as in step 6, so that the surface of the substrate now appears as a predetermined exposed area of the silicon wafer with the remainder covered by silicon dioxide as a negative mask. Step 11 consists of vapor depositing aluminum, by conventional techniques, over the entire substrate. The method is then continued in step 12 by applying a new composite resist, again including the compressed denatured cytochrome c monolayer and polymethyl methacrylate resist film, in accordance with Example 1. Step 13 then consists of irradiating the entire substrate except for the area to be occupied by aluminum in the final product, this irradiation being carried out by use of a focussed electron beam irradiation in known fashion. In step 14 the areas of the composite resist thus irradiated are removed, as in steps 3 and 4, leaving composite resist as a positive mask overlying the area to be occupied by aluminum in the finished article. The undesired metal is then removed by chemical etching, as step 15, and the remaining composite resist removed as in steps 3 and 4 to yield the product seen in FIG. 3.

Though the case of a straight line has been described for simplicity, it will be understood that micropatterns of usual complexity can be produced in the same fashion. And, while a simple metal deposition in the positive area has been described, it will be understood that using conventional procedures, other applications of a functional material or materials can replace simple metal deposition. Such other applications include e.g., deposition of metal oxide films or alloy films as resistive circuit elements, the introduction of dopants, and the application of dielectric materials.

The article illustrated in FIG. 1 can be considered as a microsubstrate comprising a base substrate supporting a composite electron resist, the composite resist being made up of the polymeric masking film 4 and the protein monolayer 3, and it is significant that the two components of the composite are removable by different procedures each specific to a different one of the two components. The method described with reference to FIGS. 4 and 4A demonstrates that such a microsubstrate can be used to produce a micropattern in a manner generally similar to currently employed single electron resist procedures. An advantage of the article and method embodiments thus far described is an increase in electron beam writing speed, arising from the fact that the electron resist film 4, being part of a composite resist, is substantially thinner than the usual polymeric resists, as well as an improvement in edge definition. In this regard, it is to be noted that the polymethyl methacrylate of electron resist layer 4, FIG. 1, also extends within the interstices of the protein of monolayer. With an electron beam is focussed onto the substrate, the electron dosage required to render the corresponding area of film 4 easily removable depends upon the thickness of that layer. But the polymethyl methacrylate present in the interstices of the protein monolayer is disperse, as the interstices are disperse, and a much smaller electron dosage is expended within the monolayer, yet the irradiated polymethyl methacrylate in the interstices of the protein is readily removable by dissolution. Removal of the protein itself in the irradiated area does not depend upon irradiation, and a smaller dosage is therefore permissible than if, for example, the total thickness of films 3 and 4 were made up of solid polymethyl methacrylate. Further, presence of the polymethyl methacrylate in the interstices of the protein monolayer, and the fact that the aqueous liquid used to dissolve the protein after removal of the polymethyl methacrylate does not dissolve polymethyl methacrylate, tend strongly to minimize undercutting, and loss of edge definition, during dissolution of the exposed protein.

The microdevice substrate of FIG. 2 is employed when it is desirable that the invention can be compatible with conventional techniques and procedures. Using the additional protein layer 13a, the composite resist comprising the protein monolayer 13, the additional protein layer, and the masking film 14 can have a total thickness which approximates that of the thinner prior-art resists. Yet the embodiment of FIG. 2 provides distinct improvements in writing speed and edge definition in the manner earlier described with reference to FIGS. 1 and 3-4A.

EMBODIMENTS BASED ON STEREOCHEMICALLY SPECIFIC SUBSTRATES

Another advantage of the use according to the invention of substrates including a compressed protein monolayer lies in the fact that the substrate can be made stereochemically specific, with molecular components of the substrate arranged in a spatial configuration which is predetermined precisely and upon which the desired micropattern can be based.

Employing a compressed monolayer of denatured cytochrome c as the protein monolayer, the fact that the cytochrome c molecules are spiral-like in plan, relatively thin or flattened in edge elevation, and have diametrically opposite positive and negative sites makes it possible to align the cytochrome c molucules into the plan array shown diagramatically in FIG. 5, with the molecules 20 aligned in rows. This can be accomplished by subjecting the monolayer, while it is being formed, to the action of a strong, high voltage, low amperage, direct current electric field. Essentially identical and of the same size, the denatured cytochrome c molecules 20 each have an antigenic site, indicated for simplicity at 21 in the central area of the molecule. In the array established by the influence of the electric field, the location of each antigenic site 21 is known with some precision, so that it is practical to attach another component of the substrate at points determined by the location of the antigenic sites.

Typically, the component to be so attached can be the antigen-binding fraction of gamma globulin, recovered by electrophoresis or column chromatography from an ionic aqueous solution of gamma globulin which has been treated with the enzyme papain to cleave the gamma globulin molecules into the F_{ab} (antigen-binding) and F_c (cyrstalline) fragments. To accomplish attachment of one F_{ab} fragment of gamma globulin to each antigenic site 21 presented by the cytochrome c monolayer, an aqueous medium containing the F_{ab} fraction recovered from the papain treatment is simply flowed into the aqueous liquid upon which the cytochrome c monolayer has been formed. In this connection, it will be understood that the antigenic sites 21 appear on the hydrophilic sides of the cytochrome c molecules and are therefore immediately available for reaction with the F_{ab} fragments in the aqueous liquid, and the reaction proceeds immediately upon introduction of the F_{ab} fragments, with attachment of the F_{ab} fragments occurring as indicated diagramatically in FIG. 6. At this stage, the cytochrome c monolayer, with

an F_{ab} fragment of gamma globulin attached at each antigenic site 21, is secured to a silicon wafer or other substrate base 22 by lowering the base 22 downwardly onto the monolayer and lifting the monolayer from the liquid, the hydrophobic side of the monolayer adhering to the base. Inverted, the resulting assembly is as shown in FIG. 7.

The microdevice substrate is then completed by applying a non-proteinaceous resist film 23, FIG. 8, of a thickness to completely cover the F_{ab} fractions. Film 23 is of a resist material with a marked response to electron irradiation. Typically, the film is of cross-linked polymethyl methacrylate, produced as hereinbefore described.

Since the cytochrome *c* molecules 20 are arranged in a predetermined grid-like array, and the antigenic sites 21 occupy positions of known location on the molecules, the F_{ab} fragments are disposed in a grid-like array predetermined by the cytochrome *c* monolayer. Accordingly, reactive ends of the F_{ab} fragments can be selectively exposed by subjecting the resist film 23 to irradiation by a focussed electron beam only in the immediate locations of one, or a predetermined group, of the F_{ab} fragments and then removing the irradiated resist material, as by dissolving in methyl methacrylate monomer when the film is of polymethyl methacrylate. This step yields the structure shown in FIG. 9, if the irradiated areas 24 are registered precisely with individual F_{ab} fragments, or the structure shown in FIG. 9A, when the irradiated areas 24*a* are registered with a predetermined group of the F_{ab} fragments.

The now exposed ends of the F_{ab} fragments constitute antigenic sites, making it possible to attach to the substrate at each of those sites any additional component capable of reacting with an antigenic site. Suitable additional components include the proteins and peptides, either unaltered or with other elements, compounds or complexes added thereto by prereaction.

A typical example of a component that can be added directly at the antigenic sites presented at the exposed ends of the F_{ab} fragments is ferritin, and the addition can be accomplished from an aqueous solution containing m-xylylene diisocyanate or toluene 2,4-diisocyanate as a cross-linking agent, following the procedures of Singer, S. J. and Schick, A. F. (1961), *J. biophys. biochem Cytol., Vol.* 9, page 519. Particularly useful components to be added at the exposed antigenic sites of the F_{ab} fragments are enzymes, especially peroxidase and phosphatase, which provide a convenient route to deposition of metal on the substrate in the micropattern specifically defined by the exposed antigenic sites. Thus, for example, phosphatase can be reacted with an organic phosphate, such as creatinine phosphate or adenosine triphosphate, to yield creatinine plus the phosphate radical or adenosine diphosphate plus the phosphate radical, the liberated phosphate then being reacted with, e.g., lead nitrate to yield insoluble lead phosphate. The lead phosphate can then be reduced by heat to yield metallic lead which, as the protein is destroyed thermally, deposits on the substrate at the site occupied by the phosphatase. Since the spaces between the exposed antigenic sites of the F_{ab} fragments are of the order determined by the molecular dimensions of the cytochrome *c*, a group of the exposed antigenic sites will predetermine a continuous precipitate of lead in the procedure just described, assuming that a corresponding amount of the organic phosphate is employed. Thus, if a plurality of adjacent rows of the exposed antigenic sites are treated as just described, the resulting lead deposit can constitute a straight conductor portion of finite width and length determined by the rows so treated.

In order to selectively expose the reactive sites of the stereospecific monolayer, the repetitive molecular pattern can be detected by monitoring the back-scattered image of the molecules, using an electron beam in the scanning electron microscope mode. The beam spot size can be selected from a range from smaller than the protein molecule of the monolayer, e.g., one fourth the maximum dimension of the molecule, to a diameter large enough to expose a significant number of the molecules. The beam intensity, diameter and position can then be predetermined to optimally expose the desired number and locations of sites for the pattern being written.

Instead of employing the sequence of steps just described in order to arrive at a micropattern defined by, e.g., phosphatase, such a pattern can be obtained by attaching an enzyme labelled macromolecule to the antigenic sites presented by the protein monolayer after the monolayer has been subjected to the electric field. Thus, a compressed monolayer of denatured cytochrome *c* can be established on the surface of a body of aqueous liquid as described in Example 1, and the molecules of cytochrome *c* brought into a grid-like plan array by subjecting the monolayer, during formation, to the action of a strong, high voltage, low amperage, direct current electric field. A dilute, e.g., 1% by weight, solution of anticytochrome *c* phosphatase labelled antibody is then introduced into the liquid below the monolayer, so that one molecule of the antibody is attached to each antigenic site presented by the cytochrome *c* monolayer. The monolayer is then lifted with a silicon wafer as described in Example 1 and the exposed surface of the monolayer then covered with a cross-linked polymethyl methacrylate masking film by in situ polymerization as described in Example 1. The resulting product is a microsubstrate presenting phosphatase molecules in the grid-like plan array determined by the cytochrome *c* monolayer, the phosphatase being covered by polymethyl methacrylate. The microsubstrate can thus be characterized as comprising a supported layer of protein in which the macromolecules have a known, stereospecific, spatial disposition, and also macromolecules of a pattern-building protein, the phosphatase labelled antibody, arranged in the pattern determined by the supported layer. Further patterning steps can now be carried out with the microsubstrate, again relating those steps to the grid-like plan array of the cytochrome *c* monolayer by monitoring the back-scattered image with the scanning electron microscope.

For example, the phosphatase can be deactivated in a selected negative area or areas by subjecting the area or areas of the microsubstrate to irradiation with a focussed electron beam at a heavy dosage level, e.g., 10^{-5} coulombs/cm. sq. at 10KV. In addition to deactivation of the enzyme, such heavy dosage electron beam writing also partially depolymerizes the polymethyl methacrylate in the selected negative area or areas, rendering the same selectively removable by dissolution in the monomer. Lead can then be introduced at the phosphatase sites, as by reacting the phosphatase with creatinine phosphate to yield phosphate ions then reacting the liberated phosphate with lead nitrate, and thermally reducing the resulting lead phosphate to yield metallic lead.

What is claimed is:

1. A microsubstrate for the production of micropatterns, comprising

a substrate base;

a protein layer overlying said substrate base and comprising a compressed monolayer of denatured non-fibrous protein adhered to said base,

said denatured protein having a maximum molecular dimension not greater than 500 Angstrom units and a ratio of greatest molecular dimension to smallest molecular dimension of at least 2:1;

the molecules of said denatured protein having a hydrophilic side and a hydrophobic side facing in generally opposite directions and separated by a dimension which is small relative to the maximum dimension of the molecule; and

a film of masking material overlying and adhered to said protein layer.

2. A microsubstrate according to claim 1, wherein the protein of said monolayer is cytochrome c.

3. A microsubstrate according to claim 1, wherein the protein of said monolayer is chymotrypsin.

4. A microsubstrate according to claim 1, wherein the protein of said monolayer is bovine serum albumin.

5. A microsubstrate according to claim 1, wherein the protein of said monolayer is trypsin.

6. A microsubstrate according to claim 1, wherein said substrate base is of silicon and said surface thereof is of silicon dioxide.

7. A microsubstrate according to claim 1, wherein said protein layer comprises an additional layer of protein overlying said monolayer.

8. A microsubstrate according to claim 7, wherein said film of masking material comprises a portion which overlies said additional layer of protein and a portion which occupies the intramolecular and intermolecular interstices of said protein layer.

9. A microsubstrate according to claim 7, wherein said additional layer of protein is significantly thicker than said monolayer.

10. A microsubstrate according to claim 1, wherein said film of masking material is of polymeric material having the property of being significantly depolymerized by irradiation.

11. A microsubstrate according to claim 10, wherein said masking film is an in situ polymerized film and includes both a portion overlying said protein layer and a portion occupying the molecular interstices of said protein layer.

12. A microsubstrate according to claim 11, wherein said protein layer consists of said monolayer.

13. A microsubstrate according to claim 11, wherein said film of masking material is adhered directly to said monolayer.

14. A microsubstrate according to claim 11, wherein the portion of said film of masking material which overlies said monolayer has a maximum thickness of from about 10 to about 1000 Angstrom units.

15. A microsubstrate according to claim 11, wherein the portion of said masking film overlying said protein layer has a thickness of from about 10 to about 1000 Angstrom units.

16. A microsubstrate according to claim 15, wherein said thickness does not significantly exceed 30 Angstrom units.

17. A microsubstrate according to claim 1, wherein the protein molecules of said monolayer each have a specific reactive site and are arranged in a predetermined stereospecific pattern.

18. A microsubstrate according to claim 17, wherein said protein layer further comprises molecules of an additional material, other than the protein of said monolayer, each attached to said reactive site of a different one of the molecules of said monolayer.

19. A microsubstrate according to claim 18, wherein said additional material is a material selected from the group consisting of complexes of protein with an elemental metal and complexes of protein with an inorganic compound of a metal.

20. A microsubstrate according to claim 18, wherein said additional material is an enzyme.

21. A microsubstrate according to claim 18, wherein said stereospecific pattern is a grid.

22. A microsubstrate according to claim 18, wherein said additional material is selected from the group consisting of proteins and peptides.

23. A microsubstrate according to claim 22, wherein said additional material is a metal-containing protein.

24. A microsubstrate according to claim 23, wherein said metal-containing protein is ferritin.

25. In the fabrication of articles exhibiting a micropattern of a particular material carried by a surface of a support, the method comprising

establishing on the support a first layer comprising a compressed monolayer of denatured non-fibrous protein in which the protein molecules each have a specific reactive site, with the protein molecules of the monolayer being spatially arranged in a predetermined pattern and said specific sites therefore occupying predetermined locations with reference to the pattern of said protein molecules;

establishing over said first layer a film of masking material;

selectively removing said masking film in areas predetermined with reference to the pattern of said protein molecules; and

reactively attaching a pattern-building material to the resulting exposed portions of said first layer to establish on the support the desired micropattern in configuration and location dependent upon the spatial arrangement of the protein molecules of said monolayer.

26. The method according to claim 25, wherein said pattern-building material comprises an enzyme.

27. The method according to claim 25, wherein said pattern-building material comprises a material selected from the group consisting of complexes of protein with an elemental metal and complexes of protein with an inorganic compound of a metal.

28. The method according to claim 25, wherein said pattern-building material comprises at least one metal-containing protein.

29. The method according to claim 28, wherein said metal-containing protein is ferritin.

30. The method for producing the conductive micropattern of an electronic microcircuit, comprising

establishing at the interface between two fluids a compressed monolayer of denatured non-fibrous protein,

the protein of said monolayer having a maximum molecular dimension not greater tha 500 Angstrom units and a ratio of greatest molecular dimension to smallest molecular dimension of at least 2:1;

the molecules of the protein having a hydrophilic site spaced from a hydrophobic site by a distance

which is significant relative to the maximum dimension of the molecule;

applying said mololayer to a support formed of an electrical insulating material;

establishing on said monolayer a film of in situ polymerized polymeric masking material having the property of being significantly depolymerized by irradiation,

said polymeric material covering said monolayer and also occupying the molecular interstices of said monolayer;

directing radiant energy on said film in areas predetermined by the micropattern desired and thereby significantly depolymerizing the polymeric material in said areas;

removing the polymeric material so depolymerized and thereby exposing said monolayer only in said areas;

and further treating said areas to deposit conductive metal therein.

31. In the fabrication of articles exhibiting a micropattern carried by a surface of a support, the method comprising

establishing on the surface of the support a compressed monolayer of denatured nonfibrous protein,

said denatured protein having a maximum molecular dimension not greater than 500 Angstrom units and a ratio of greatest molecular dimension to smallest molecular dimension of at least 2:1, the molecules of said denatured protein having a hydrophilic side and a hydrophobic side facing in generally opposite directions and separated by a dimension which is small relative to the maximum dimension of the molecule;

establishing a film of masking material which overlies said compressed monolayer and is characterized by being so modified by radiant energy as to be removable;

directing radiant energy on said film in an area predetermined by the micropattern desired; and

removing said film from only said predetermined area to expose said monolayer for further treatment.

32. The method according to claim 31 wherein

the protein of said monolayer is characterized in that each molecule of the protein has a specific reactive site,

the method further comprising

treating said monolayer, before contact with the support, to arrange the protein molecules of the monolayer in a predetermined pattern to thus predetermine the arrangement of said reactive sites; and

treating said monolayer with an additional material to cause said additional material to react with said protein and thereby attach molecules of said additional material each to a different molecule of the protein monolayer;

said film of masking material being established to cover not only said monolayer but also said molecules of said additional material attached to said monolayer;

said step of directing radiant energy being carried out by directing the radiant energy on said film only in a plurality of predetermined localized areas each occupied by at least one of said attached molecules of additional material,

whereby said step of removing said film results in exposure of only the ones of said attached molecules of additional material which occupy said predetermined localized areas.

33. The method according to claim 32, wherein

said step of establishing said protein layer on the support comprises

forming said monolayer at the air-liquid interface of a body of liquid,

subjecting said monolayer to the action of an electric field to arrange the molecules of the monolayer in said predetermined pattern,

introducing said additional material into said body of liquid and thereby causing said molecules of said additional material to attach at said reactive sites on the surface of said monolayer which faces the body of liquid, and

engaging the support with the surface of said monolayer which faces away from the body of liquid to attach the monolayer to the support.

34. The method according to claim 32, further comprising

flowing onto the areas from which said film has been removed a liquid solution of a component capable of reacting with said attached molecules of additional material.

35. The method according to claim 34, wherein said attached molecules of additional meterial are of an antigen-binding protein.

36. The method according to claim 35, wherein said component capable of reacting with said attached molecules of additional material is selected from the group consisting of proteins and peptides.

37. The method according to claim 36, wherein said component capable of reacting with said attached molecules of additional material is a metal-containing protein.

38. The method according to claim 37, wherein said metal-containing protein is ferritin.

39. The method according to claim 31, wherein the article to be fabricated is one in which the micropattern is of a particular material different from the material of the support.

40. The method according to claim 39, further comprising

removing said protein layer from only said exposed predetermined area; and

applying said particular material to the area of the support thus exposed.

41. The method according to claim 40, further comprising

directing radiant energy on the remaining portion of said film; and

removing said film and said monolayer from said remaining portion.

42. The method according to claim 40, wherein said protein is denatured globular protein; and said masking film is an in situ polymerized film of polymeric material which has the property of being significantly depolymerized by irradiation.

43. The method according to claim 42, wherein said masking film includes polymeric material occupying the molecular interstices of said monolayer.

44. The method according to claim 39, wherein said monolayer is one established on a body of liquid at the air-liquid interface.

45. The method according to claim 44, wherein the support is of an inorganic electrical insulating material;

said monolayer is established at the air-liquid interface of a body of aqueous liquid; and

said monolayer is established on the support by lowering the support into physical contact with the compressed monolayer while the monolayer is at the air-liquid interface.

46. The method according to claim 44, wherein the protein of said monolayer is cytochrome c.

47. The method according to claim 44, wherein the protein of said monolayer is chymotrypsin.

48. The method according to claim 44, wherein the protein of said monolayer is bovine serum albumin.

49. The method according to claim 44, wherein the protein of said monolayer is trypsin.

50. The method according to claim 44, wherein said masking film is an in situ polymerized film of polymeric material and includes both a portion overlying said monolayer and a portion occupying the molecular interstices of said monolayer.

51. The method according to claim 50, wherein the portion of said masking film overlying said monolayer has a maximum thickness of from about 10 to about 1000 Angstrom units.

52. The method according to claim 51, wherein said thickness does not significantly exceed 30 Angstrom units.

* * * * *

United States Patent [19]

Schwoegler

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[54] **COMPOSITIONS OF SULFUR AND FLY ASH AND SHAPED ARTICLES PRODUCED THEREFROM**

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[52] U.S. Cl. **106/286.8; 106/69; 106/287.32; 106/70; 106/71; 106/DIG. 1**

[58] Field of Search ..... **106/69, 70, 71, 287 R, 106/287 SC, DIG. 1, 119**

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[57] **ABSTRACT**

Shaped articles are produced from compositions of sulfur and a particulate inorganic material, at least 10% by weight of the particulate inorganic material being fly ash. The initial compositions are uniform dry blends, and the finished products are formed by converting the sulfur of the composition to molten form and then cooling while, as in casting, the molten material is confined in the desired shape. Use of fly ash provides articles having a hardness more than twice that of sulfur alone and a compressive strength approaching three times that of a typical aged poured concrete.

9 Claims, No Drawings

COMPOSITIONS OF SULFUR AND FLY ASH AND SHAPED ARTICLES PRODUCED THEREFROM

BACKGROUND OF THE INVENTION

It has long been proposed to produce shaped articles by casting of molten elemental sulfur with an inorganic material as a particulate filler. The production of such articles is disclosed, for example, in U.S. Pat. Nos. 4,266,053, issued Oct. 17, 1882, to Joseph J. Sachs, and 1,693,714, issued Dec. 4, 1928, to William H. Kobbe. Such articles have been successfully used in various applications, particularly to secure wrought iron pieces in masonry. In general, however, prior art practices have yielded articles of relatively poor hardness and strength, and shaped sulfur articles have achieved only a relatively limited commercial acceptance.

OBJECTS OF THE INVENTION

A general object is to provide three-dimensional articles of sulfur having improved hardness and strength characteristics.

Another object is to provide shaped sulfur articles which can be used as structural elements, such as bricks, building blocks, moldings, cornices and the like, as well as for joining structural elements and securing piling and other in-ground and underground structures.

A further object is to provide shaped sulfur articles having hardness and strength characteristics superior to those of concrete.

Yet another object is to provide novel compositions which are convertible into such shaped articles.

SUMMARY OF THE INVENTION

Articles according to the invention are in the form of a 3-dimensional matrix of solidified elemental sulfur having uniformly distributed therethrough a particulate inorganic material which amounts to 20–80% of the weight of the article, at least 10% by weight of the inorganic material being fly ash, and the inorganic material having a particle size such that the average maximum particle dimension is 0.0005–10.0 mm. It is advantageous to employ fly ash as the sole inorganic particulate material, with the fly ash amounting to 20–60%, and for best results to 40–60%, of the total weight of the article, peak hardness values being obtained when the weight of the fly ash is approximately equal to that of the sulfur. The invention also includes dry blends and fused compositions from which such articles can be formed. Finished articles according to the invention may be independent articles, such as bricks and cornices, or cast-in-place articles, such as the joint between a wrought iron piece and a masonry structure.

DETAILED DESCRIPTION OF THE INVENTION

Articles according to the invention can be produced by mixing sulfur and the inorganic particulate material at, e.g., room temperature, introducing the mixture into a mold, applying heat to the mold to render the sulfur completely molten, and then cooling the mold until the sulfur has solidified. Assuming that the initial mixing operation is carried out to produce a uniform dry blend, the resulting product is characterized by a uniform distribution of the particulate material through the sulfur, the tendency toward non-uniformity which has resulted from prior art attempts to blend the particulate material into molten sulfur being avoided.

Dry blends of powdered sulfur and particulate solid additive inorganic materials, with at least 10% of the additive material weight being fly ash and with the total additive material amounting to 20–80% of the total weight of the dry blends are novel and useful compositions but have the disadvantage that, when packages of the dry blends are shipped and stored as commercial products, settling and stratification occurs so that the dry blend becomes non-uniform and must be remixed before use. It is therefore particularly advantageous to subject the dry blends to heat to fuse the sulfur and to form the resulting plastic composition into small integral bodies each consisting of the inorganic particulate additive material distributed uniformly through a solid sulfur matrix. Thus, for example, the dry blend can be extruded into rods of, e.g., 2.5 mm. diameter, the rods being cooled and then broken into small pieces. Other pelletizing procedures can be employed. Such a product can be bagged and sold commercially with assurance that the product received by the ultimate user will be uniform.

Best strength and hardness characteristics of the solidified article are attained when all of the inorganic particulate material employed is fly ash. However, so long as at least 10% by weight of the inorganic particulate material is fly ash, other particulate inorganic materials can be employed. Suitable other particular materials are diatomaceous earth, limestone, taconite, vermiculite (both ore and expanded), perlite (both ore and expanded), mica, magnesia, dolomite, volcanic ash, bottom ash, slag, expanded slag, magnesite, silicates, bauxite, corundum, garnet, phsophates, zeolites, asbestos, feldspar, sandstone, crushed concrete, crushed glass, clay, and the like.

Any fly ash produced by burning solid fossil fuel such as bituminous coal, anthracite coal or lignite can be employed. So-called modified fly ash, resulting when limestone or dolomite is injected into the combustion zone for reaction with the sulfur gases present in the combustion gas, can also be used. The fly ash should be in its native form, i.e., unfragmented, and as such comprises generally spherical particles substantially all of which are in the range of 0.0005–0.25 mm. in size. When one or more particulate inorganic additive materials other than fly ash is employed, that material should be of such fineness that the average maximum particle dimension thereof is in the range of 0.0005–10.0 mm., with the particle size being so selected, relative to the size of the finished article, that the maximum particle size is small in comparison to the smallest dimension of the finished article.

Composition embodiments of the invention require presence of a total of 20–80%, based on total weight of the composition, of additive material, at least 10% by weight of which must be fly ash. In the most advantageous compositions, all of the inorganic particulate additive material is fly ash and, in that event, the fly ash constitutes 20–60% of the total composition weight, with 40–60% fly ash being superior, and about 50% being best.

EXAMPLE I

The effect of varying the proportion of fly ash in articles consisting of a matrix of solidified elemental sulfur with fly ash distributed therethrough as the sole inorganic particulate material was determined by subjecting twelve articles of different fly ash content to a scratch hardness test.

Test Apparatus and Procedure

The apparatus employed included a scratch blade 0.32 cm. wide, the tip being rounded to provide a curved tip edge, and the curved edge being sharpened to a knife edge condition. The blade was rigidly secured to a flat rigid plastic panel so as to project a short distance at right angles from the plane of the panel. A guide board was employed to constrain the combination of the panel and blade to a horizontal path across the test sample without accepting any of the weight of the panel and blade. The tests were carried out by adding weights to the panel until the blade made a cut 0.4 mm. deep in the sample, the weight in grams necessary to achieve that result being recorded as the hardness index.

Test Specimen Preparation

All specimens were prepared from elemental sulfur and a typical (not fragmented) fly ash recovered by precipitation from flue gas resulting from burning bituminous coal, the fly ash retaining its spherical particle form and having a tamped bulk density of about 1.13. The sulfur and fly ash were combined and subjected to mild stirring at room temperature to provide a uniform dry blend which was then placed in a metal mold equipped with a heating mantle. Heat was applied until the sulfur was completely molten, the mold then cooled to room temperature and the resulting article removed for testing.

Scratch Hardness Test Results

The identity for each of the twelve test specimens, and the hardness index, are tabulated below:

Test Specimen	Sulfur/Fly Ash Weight Ratio	Hardness Index (grams)
1	3:5:5	Note 1
2	4:5	122
3	5:5	200
4	6:5	457
5	7:5	752
6	8:5	790
7	10:5	700
8	12:5	695
9	18.7:5	690
10	32.5	440
11	72:5	305
12	100% sulfur	295

Note 1. This specimen was still in the form of a powder after melting of the sulfur and cooling.

Maximum hardness was thus achieved when equal amounts of sulfur and fly ash were used, and further increasing the proportion of sulfur resulted in a decrease in hardness, though the 20% fly ash content of Specimen 10 still provided a substantial increase in hardness.

EXAMPLE 2

The procedure of Example 1 was repeated, using a diatomaceous earth ground to a particle size approximating that of the fly ash used in Example 1. The hardness test results are tabulated below:

Test Specimen	Sulfur/Diatomaceous Earth Weight Ratio	Hardness Index (grams)
13	6:5	Note 1
14	8:5	Note 2
15	12:5	228
16	14:5	327
17	16:5	716
18	18:5	457

-continued

Test Specimen	Sulfur/Diatomaceous Earth Weight Ratio	Hardness Index (grams)
19	20:5	295
20	100% sulfur	295

Note 1. This sample was still in the form of a powder after melting of the sulfur and cooling.
Note 2. This sample was semi-granular.

Though, as in the case of fly ash in Example 1, the hardness peaked with an increasing proportion of sulfur, the peak did not occur until the sulfur content was increased to about 76% by weight (16:5), a value markedly above the 50% by weight required for maximum hardness with fly ash.

EXAMPLE 3

The effect of including fly ash on the compressive strength of hardened sulfur articles was determined, using a standard Tinius-Olsen hydrostatic test apparatus. The test specimens based on elemental sulfur were prepared according to Example 1, and all test specimens were standard 1 in. × 1 in. × 1½ in. (height) pieces. The results are tabulated below:

Test Specimen	Inorganic Particulate Ingredient	Ingredient Weight (grams)	Sulfur Weight (grams)	Compressive Strength (lbs./sq. in.)
21	Fly ash	539.5	539.5	9560
22	Slag[1]	566.0	566.0	3400
23	Sharp sand	700.0	700.0	3020
24	Fly ash + slag[2]	350.0[3]	700.0	6450
25	Concrete block segment	—	—	4790
26	Segment of aged poured concrete	—	—	3340

[1]Common fly ash, not fragmented
[2]Finely divided expanded slag, all through a 1 sq. mm. screen
[3]Each ingredient

It will be noted that Specimen 21, consisting of 50% sulfur and 50% fly ash by weight, exhibited a test strength almost twice that of the concrete block segment and approaching three times that of the aged poured concrete specimen. While the strength of Specimen 22, using only expanded slag as the particulate material, was only approximately equal to that for the aged poured concrete segment (Specimen 26), replacing 50% of the weight of slag with fly ash (Specimen 24) resulted in a strength approaching twice that of the aged poured concrete segment. The test results thus demonstrate that markedly greater strength is attained using only fly ash as the particulate material and employing equal amounts of fly ash and sulfur, and that including a significant proportion of fly ash will markedly increase the strength when inorganic materials other than fly ash are used. In this latter regard, it is to be noted that the strength improvement obtained by replacing 50% of the slag of Specimen 22 with fly ash is approximately in direct proportion to the amount of fly ash included, i.e., the 6450 psi value for Specimen 24 is approximately half the difference between the values for Specimens 22 and 21.

EXAMPLE 4

The results of the hardness and strength determinations of Examples 1–3 demonstrate the advantages of fly ash, both as the sole particulate ingredient of a sulfur article and as a particulate material for upgrading the strength of sulfur articles including any of a wide vari-

ety of inorganic particulate materials other than fly ash. In view of those results, the invention embraces the following typical formulations:

Formulation	Sulfur (Parts by Wt.)	Inorganic Particulate Material (Parts by Wt.) Fly Ash	Other Than Fly Ash Identity	Other Than Fly Ash Parts by Wt.
A	65.0	35.0	—	—
B	65.0	17.5	Expanded slag	17.5
C	65.0	3.5	Expanded slag	31.5
D	65.0	17.5	Diatomaceous earth	17.5
E	65.0	3.5	Diatomaceous earth	31.5
F	65.0	17.5	Sharp sand	17.5
G	65.0	17.5	Crushed concrete	17.5
H	65.0	17.5	Crushed glass	17.5
I	65.0	17.5	Limestone	17.5
J	65.0	17.5	Bottom ash	17.5
K	65.0	17.5	Vermiculite	17.5
L	65.0	3.5	Vermiculite	31.5
M	50.0	25.0	Diatomaceous earth	25.0
N	50.0	25.0	Crushed concrete	25.0
O	50.0	25.0	Crushed glass	25.0
P	50.0	25.0	Bauxite	25.0
Q	50.0	25.0	Clay	25.0
R	50.0	25.0	Taconite	25.0
S	50.0	30.0	Sharp sand	20.0
T	30.0	60.0	Sharp sand	10.0
U	30.0	35.0	Expanded slag	35.0
V	20.0	40.0	Diatomaceous earth	40.0
W	20.0	60.0	Diatomaceous earth	20.0
X	20.0	40.0	Expanded slag	40.0
Y	20.0	60.0	Expanded slag	20.0
Z	20.0	80.0	—	—

It is thus apparent that the ability of common fly ash to increase the hardness and strength of shaped bodies of cooled molten elemental sulfur makes it possible to include in such bodies substantial proportions of inexpensive inorganic particulate materials, many of which presently represent a disposal problem.

EXAMPLE 5

A conventional laboratory scale screw operated plastics extruder is equipped with an extrusion die having a single orifice 2.5 mm. in diameter, the die and barrel of the extruder being equipped with heating mantles. The extruder is arranged to extrude directly into a cold water bath and a rotary knife is provided at the die orifice to cut the extruded rod into pieces 3.5 mm. long. A uniform dry blend of equal parts by weight of powdered sulfur and bituminous fly ash is supplied to the extruder hopper and the extruder operated at an average barrel temperature of 160° C. and a die temperature of 120° C. The extruded product is recovered from the water bath in the form of hardened pellets each consisting of a solidified sulfur matrix with the fly ash particles distributed uniformly therethrough. The product can be packaged in bags for shipment and handling and is suitable for sale to the house repair trade for use in repairing masonry, mounting the uprights of iron railings in brickwork, and for like purposes.

What is claimed is:

1. An article useful as a structural member, a joint between other members, and for purposes requiring hardness and strength, said article consisting essentially of

a three-dimensional matrix of solidified sulfur; and

solid particulate inorganic material distributed through said matrix,

said particulate inorganic material amounting to 20–80% of the weight of the article,

at least a portion of said particulate inorganic material being non-fragmented fly ash, said fly ash amounting to 20-60% of the weight of the article,

the particle size of said particulate inorganic material being in the range of 0.0005-10.0 mm. and the maximum particle size being small in comparison to the minimum dimension of the article;

the article having a hardness significantly greater than that of solidified sulfur along, and a compressive strength superior to that of aged poured concrete.

2. An article according to claim 1, wherein

all of said particulate inorganic material is fly ash; and

the fly ash amounts to 20-60% of the weight of the article.

3. An article according to claim 2, wherein

the fly ash amounts to approximately 50% of the weight of the article; and

the article has a hardness at least twice that of a like article produced from sulfur alone.

4. A composition consisting essentially of a uniform dry blend of sulfur; and

at least one solid particulate inorganic material,

said particulate inorganic material amounting to 20–80% of the total composition weight, at least a portion of said particulate inorganic material being nonfragmented fly ash, said fly ash amounting to 20–60% of the weight of the article,

the particles of said particulate inorganic material being in the range of 0.0005–10.0 mm.;

the composition being convertable into shaped articles useful as structural members, joints between other members, and for other purposes, by melting the sulfur and cooling the molten sulfur while said particulate inorganic material is distributed therethrough, such articles having a hardness significantly greater than that of solidified sulfur and a compressive strength superior to aged poured concrete.

5. A composition according to claim 4, wherein

all of said particulate inorganic material is fly ash,

the fly ash amounting to 20–60% of the weight of the composition.

6. A composition according to claim 5, wherein

the fly ash amounts to approximately 50% of the weight of the composition.

7. A composition of matter in the form of small, discrete solid bodies, each body consisting essentially of

a matrix of solidified sulfur; and

solid inorganic particulate material distributed throughout said matrix and constituting 30–80% of the weight of the body,

at least a portion of said solid inorganic particulate material being fly ash, said fly ash amounting to 20–60% of the weight of the article,

the particle size of said solid inorganic particulate material being in the range of 0.0005–10.0 mm. and the maximum particle size being small in comparison to the size of the body.

8. A composition according to claim 7, wherein

all of said solid inorganic particulate material is fly ash and the fly ash amounts to 20-60% of the weight of the body.

9. A composition according to claim 8, wherein

the fly ash amounts to approximately 50% of the weight of the body.

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