Patents — non-Govt

Patent Background

for Engineers

MILWAUKEE, WISCONSIN

ALLIS-CHALMERS

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The Congress shall have 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.

Article 1, Section 8, Constitution of the United States of America

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During the period 1936 to 1950, the Allis-Chalmers ELECTRICAL REVIEW published a series of patent articles designed to be of interest to the practising engineer. So favorably were these articles received, that it was decided to reprint them in this booklet. The articles were revised to take into account subsequent changes in patent laws.

The articles are to be considered as a result of the free personal expression of thought of the individual authors. Some of the articles may involve points of a controversial nature and do not necessarily express the patent policy of Allis-Chalmers.

HAROLD S. SILVER
General Patent Attorney,
Allis-Chalmers Mfg. Co.

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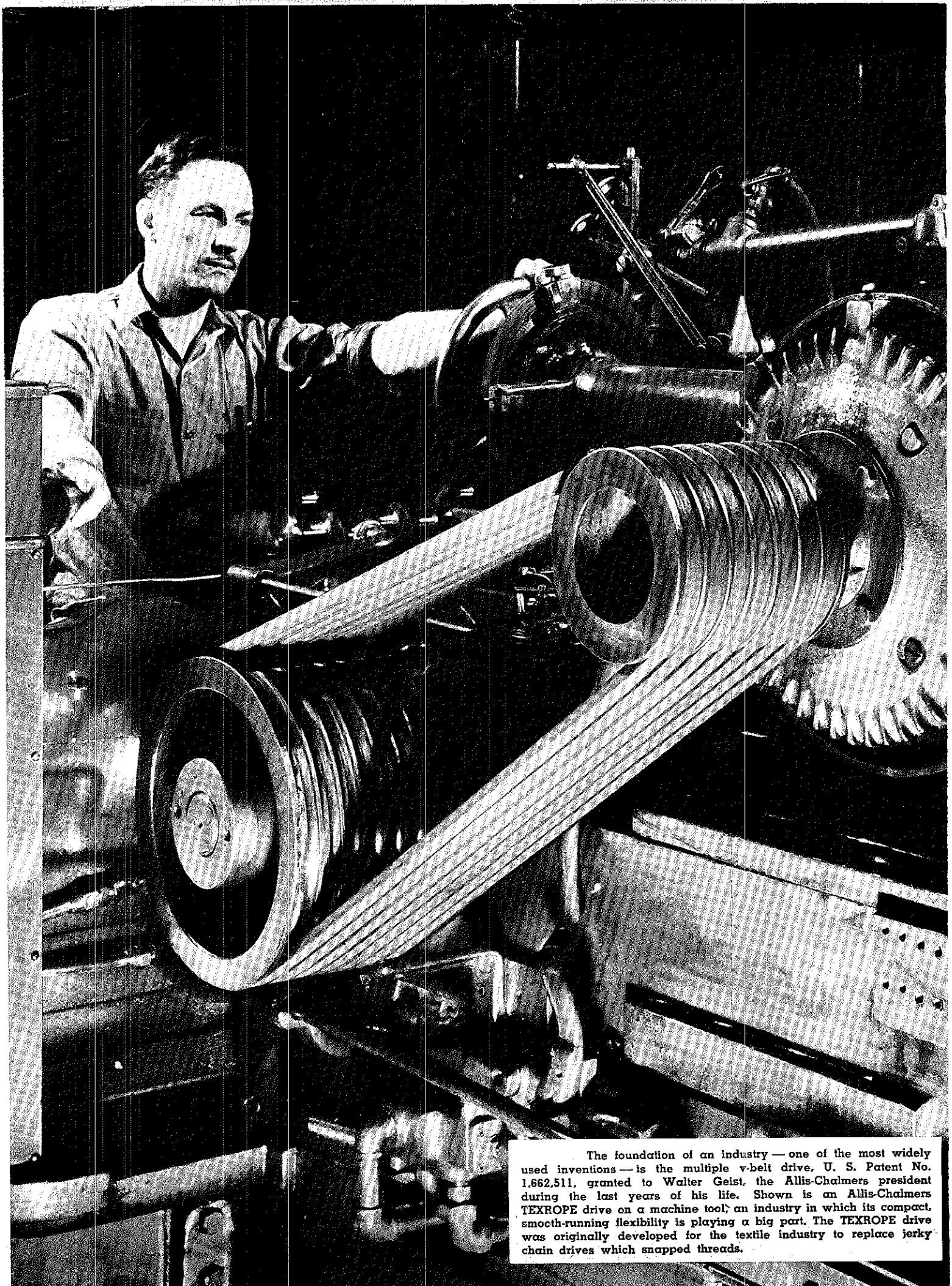


The foundation of an industry — one of the most widely used inventions — is the multiple v-belt drive, U. S. Patent No. 1,662,511, granted to Walter Geist, the Allis-Chalmers president during the last years of his life. Shown is an Allis-Chalmers TEXROPE drive on a machine tool, an industry in which its compact, smooth-running flexibility is playing a big part. The TEXROPE drive was originally developed for the textile industry to replace jerky chain drives which snapped threads.

TREND OF DEVELOPMENT IN AMERICAN PATENT LAW



J. A. Dienner, **Patent Attorney, Chicago, Ill.**

Shifting social and economic concepts are reflected in changed interpretations of patent law. And the age-old battle of human rights vs. property rights is waged in this field continually.

I do not expect to discuss the laws of foreign countries except as they bear upon the general development of patent law as a whole or the development of the patent law of the United States. Naturally, we are most interested in the development of the patent law in this country.

All countries laying claim to an advanced state of civilization have established systems of granting patents for inventions. In broad outline, they are the same, namely, they are granted by the state or government, they are based upon a new invention, and they grant the patentee the right for a limited time to exclude others from the use of the invention. Since we are particularly interested in the philosophy of the United States system, it seems probable that in analyzing the nature of the United States patent right we can learn much about the character of patents in other countries and the probable trend of the development of the law of patents as a whole.

Patents are peculiar

In the general domain of human activity and interests, a patent is a peculiar thing. It is like nothing else in the law, just as its subject matter is like nothing previously known in the useful arts. While all countries grant patents upon the same general conditions, it appears that there are different concepts as to the nature or character of the corresponding patent. To say that they are artificial monopolies created by law gives no inkling of their real character or their relation to men and to things.

System of granting patents

The system of granting and enforcing patents as a procedural matter varies in different countries. For example, the leading systems differ in essential features as follows:

United States

1. Examination for novelty
2. Grant of patent to first inventor only
3. Permissible two-year period of use before filing application for patent†
4. Patents are not taxed

Great Britain

1. Limited examination for novelty
2. Provisional (tentative) specification
3. Provision for opposition to patent grant
4. Patent dates from date of application
5. Patents are taxed annually to maintain them in force

France

1. Registration only (no examination for novelty)
2. No specific claims to define invention
3. Patent dates from date of application
4. Patents are taxed annually to maintain them in force
5. Patent infringement punishable by criminal as well as civil action

Germany

1. Examination for novelty
2. Provision for opposition to patent grant
3. Patent dates from date of application
4. A highly specialized form of claim
5. Patents are taxed annually to maintain them in force
6. Patent infringement punishable by criminal as well as civil action

While these procedural matters do not control the philosophy of the patent right, they do indicate the attitude of the respective countries toward different phases of the patent grant. In order to determine the nature of a patent right, it may be well to review the historical facts which brought about the granting of patents.

* Résumé of speech delivered February 16, 1937, before the Patent Law Association of Milwaukee. Printed by permission of the author in September, 1937, Allis-Chalmers ELECTRICAL REVIEW. (Abstracted by H. S. Silver and L. Teplow.)

† Reduced to one year August 5, 1940.

Need of patents

It is easy to see good reasons for the granting of patents, and not so difficult to understand how they came about.

At the dawn of man's development he began to use tools. They were his property. If he made an axe, it was his only so long as he retained actual possession of it. If he left it lying where someone else could get it, he had to do one of two things: either regain possession of it, that is, take it by force or otherwise, or make himself another axe.

In all forms of primitive society, possession or physical control of a thing was the only way of owning property. This means that the strong man could take from the weaker. The common conscience recognized this as wrong. So the common conscience organized an effective sentiment against such taking possession or ownership, and devised the ingenious theory of "*title*."

Now "*title*" may be defined, loosely, as the relation of a man to a thing by virtue of which he cannot be deprived of the thing except either by his voluntary act or by operation of law. If a man has title to a thing, he came by it lawfully.

Not only did the conscience of primitive man recognize the necessity for preserving proper ownership, but prescribed punishment for the wrongful taker, that is, the robber or thief.

But when the first axe was invented there was no law to keep any one else from making a Chinese copy of that axe for himself. In the early stages of man's industry no great need was felt for restraining the second man from copying the ideas of the first. But as industry became more highly organized and as John Doe went into the axe business and depended upon it for livelihood, if he invented an improvement in axes, he naturally wanted that improvement for himself. But how could he keep the improvement if he sold an axe which contained the improvement? For as soon as someone bought the improved axe, containing the novel idea, the purchaser could copy it. So could a third person, a fourth, or a fifth. Thus the inventor would, in the very use of his improvement, throw the idea open to the public. Then, when a rival began making the improved form of axe, the inventor would derive no advantage from his initiative, thought, and labor.

The concept of title didn't help, for the man who bought the improved axe owned the axe rightfully. Of course, if the inventor chose to keep the thing a secret, he could keep ownership of the idea—but that would be a Spartan concealment.

It gradually became recognized that a man should have a property right in his invention just as much as he had to his own axe, or his dog, or his home, or anything else he worked for and got by his own efforts.

Provision for legal patent rights

But the law changes very slowly. It is like the Bourbons, who learn nothing and forget nothing. It has taken ages for this simple right of property in inventions to be recognized.

This conviction of the property right in inventions grew acute with the advent of that stage of economic development known as the division of labor and the factory system — the Industrial Revolution.

Not altogether by accident, but with pronounced causal connection, there occurred just at this juncture a great event — the American Revolution. If you should be interested in the relation between the Industrial Revolution and the American Revolution, I might pause to tell you.

The American Revolution and the Constitution to which it gave rise emphasized or idealized the rights of the individual. The Constitution, and the laws which followed it, clothed the inventor with more than mere property rights. The invention must have absolute novelty, and hence the act of invention is emphasized. It is not enough that a new and useful invention has been brought into being. Some one must be the inventor, and he must have the quality of invention in him. This makes the invention a personal matter, and the inventor is treated as a special individual of an exalted character, instead of a normal individual doing the work that is expected of him.

We can all recognize the necessity for patents as a means for protecting an inventor in a way in which he is incapable of protecting himself.

"Title" was a convenient thing to relieve a man of the necessity for physical violence to recover his wrongfully taken physical property, but conceivably, a man could physically recover stolen property. But physical violence would never be capable of recovering a stolen idea. *Title to an idea* is not an easy concept.

The concept of a patent as a monopoly granted to one who introduced a new manufacture into the Kingdom is quite old, and was recognized as an established institution by the Statute of Monopolies in the reign of King James I. Prior to this legislation, patent rights had been cast into the same legal form as *predatory* monopolies. After predatory monopolies were extinguished, patents for inventions continued in the same form. Casting the grant for a patent for an invention in the form of a predatory monopoly has been one of mankind's misfortunes.

With the invention of the steam engine came the Industrial Revolution, the factory system, and the division of labor (all so well established that their names sound strange).

The Industrial Revolution brought about the American Revolution and the French Revolution. This was a movement by mankind broadly asserting the right of the individual to live, to hold property, and to have a voice in his own political government.

The political philosophy of the American people, as expressed in the Constitution and the statutory law enacted thereafter, appears to assert all rights, even the right to ideas, to be natural rights, existing by virtue of the divine endowment of man. The Constitutional provision contemplates the enactment of legislation by Congress to grant exclusive rights to authors and inventors in order "to promote the progress of Science and useful Arts." It appears that the rights of the authors and inventors to their respective writings and discoveries are to be made

subservient to the good of the public. That appears a bit strange in a philosophy as individualistic as that of the time of the Constitution.

If the right of the individual to own his ideas is a natural right, that is, one inherent in the existence of the individual, why should he have that right secured to him for only seventeen years? Why, if he is the owner of an idea, and if the Patent Law recognizes his property right, isn't his title good forever? Who has a superior title if he has not? He had it first, and he took it from nobody else. If anybody is entitled to a property right in an idea, he, the inventor, is; but the United States Government says he shall have it for only seventeen years, then he loses it. If I discovered a new island, and claimed it in the name of the United States Government, and occupied it, I think the Government would not insist on throwing the property open to everybody, including foreign citizens. Or, if I lost a gold ring, even if it were not found for seventeen years, that would not change my right to recover it; my title would be just as good as ever.

The nature of the patent right

1. Some decisions say that a patent is a contract between the Government and the inventor. In return for the disclosure of his invention which he makes to the public, he is allowed the exclusive use of it for seventeen years.

This fails to satisfy reason. If the patent is a contract between the inventor and the public, how can the public, or any one member thereof, back out of the contract by saying the contract should not have been made? Even if I enter into a bad bargain the courts will not change the bargain. If fraud or complete lack of consideration be shown, the court will declare that no actual contract was made, but short of that a man's contract is "his own funeral." Yet a patent, unlike ordinary contracts, may be terminated or invalidated for reasons other than fraud or complete lack of consideration.

2. Some decisions view the patent as a grant of a right to recover an indefinite amount from the public, such grant being in the nature of a reward to the inventor for his act of invention. On the theory that the public is the real beneficiary, this theory is quite defensible, but it puts the inventor in a light which does not agree with his true character. He is trying to hang on to his invention and make money by marketing it, whereas that theory makes him interested in levying tribute upon the public. The patent is granted, not for the good of the individual, but for the good of the public. The theory of reward appears to lead away from the intent of the Constitutional provision. It emphasizes the monopolistic and offensive character of the grant, whereas the better philosophy views the patent grant essentially as a constructive contribution for the benefit of the public "to promote the progress of Science and useful Arts."

3. Some decisions and writers say a patent is property created by the grant of the Government, like a governmental bond or fiat money. If we examine this theory we may observe that a patent has few of the attributes of property. The United States patent is not taxed; no working is required; it cannot be revoked.

If the Government grant creates the property, is it not odd that the judiciary can destroy the property? A patent is granted under an authority in the Constitution which is as direct and solemn as the authority for the judiciary which declares the invalidity of the patent.

4. Some writers consider that a patent is but a governmental recognition of the natural and inherent right of the individual to have full power of ownership of his mental creations as fully as his other forms of property. His ideas are his own property. The government says it merely "secures" to the inventor that which was his, although insecure before.

But the difficulty with that view is the necessary argument that a man has possession of an idea because he can refuse to disclose it to others. His alleged ability to suppress it is said to be proof of complete ownership. That means the only way a man can be sure to own an idea is not to use it. And what is he going to do about ownership if some later inventor comes forward with the same idea? How can he then demonstrate his alleged property right?

5. Another comment on the patent right is that it is purely negative or nugatory. The patent grant gives no right to use the invention but only to obstruct use by others. In other words, the patentee's right is a nuisance right or a "dog in the manger" right. The inventor discloses in the patent an invention by the use of which wealth may be added to industry, and he is then empowered by the Government to prevent others from using the invention.

The invention is constructive, but the patent right is obstructive. Does it not seem that the theory is wrong? Should not the system of granting patents be based upon enabling the holder instead of disabling the non-holder of the grant? The ideal system would be to grant the positive right to make, use, and sell a useful addition to the world's knowledge, instead of a nugatory or negative right to prohibit.

A patent is often defined as being merely the right to prevent others from making, using, and selling the protected device. Perhaps a better way to look at it is to say that the Government entrusts the inventor with the opportunity and duty to exploit his contribution for the benefit of the public and gives him seventeen years in which to bring his invention into public use. His duty is that of the head of a department in an enterprise, charged with the successful conduct of that part of the enterprise, and he has a positive duty to perform rather than a mere negative right.

Patent grant involves human and property values

The unsatisfactory explanation of the patent grant as a form of property and the peculiar character of the treatment of an infringer leads to the conclusion that a patent right consists essentially of two dissimilar values. One is a property value, and the other is a human right value.

If we go back to the Constitution as a whole and to the Declaration of Independence which preceded

it, the values involved in the grant become much more understandable.

The genius or concept of the Constitution lies in the recognition of the rights of the individual. This includes two phases: first, his relation to property and, second, his relation to people. The Constitution, particularly in the Bill of Rights, guaranteed the right to hold property, and it guaranteed the human rights, presumably, of life, liberty, and the pursuit of happiness. The patent grant in the United States partakes of those two values, namely, the property right value and the human right value. We may also observe that these two values appear in the grant of patents under other systems, that is, in other countries, but with the emphasis placed differently.

A man's invention is something which is peculiarly personal to him. It is the fruit of his life's experience. The United States system takes very definite cognizance of that human value in requiring that the inventor, and he alone, execute the application for patent. Hence, one great value of the United States Patent System is its spiritual value in encouraging the common man to raise himself in the esteem of his fellows and to gain a competence. This value of the patent as a stimulus and encouragement is beginning to be recognized in other countries. These other nations are beginning to sense the spiritual or human-rights value in the invention and patent.

At the International Conference in London (1934) for the protection of industrial property, there was introduced the provision (Article 4 Ter.) to the effect that —

> "The inventor shall have the right to have his name appear, as inventor, on the patent."

At this same conference, a number of proposals to extend the free period during which taxes were not to be levied were made. This indicated plainly the shifting of the emphasis from the property value of the patent to the human-rights value which is occurring in the mind of the world, and particularly in those countries where heretofore the property value has been dominant.

The status of the average inventor now (1937) is in the aggregate different from his status when the American system was instituted in 1836. At present the average inventor is in the employment of a corporation, and he participates but little in the benefits accruing from the patent grant.

If the inventor be not employed by a corporation, and his invention is not assigned to a corporation, he is not in position to manufacture the invention, because manufacturing for the American market requires expensive machinery of production, and this the individual is rarely able to command.

Hence, under present conditions, the patent right has been converted in the hands of the assignee into a purely property right value, and the human-rights value of the patent system is being considered as secondary in the United States. Thus we see that the United States patent system and foreign patent systems are approaching each other more nearly in that in foreign countries the human-rights value is being recognized to a greater degree; whereas because of changes in economic conditions and the greater development of the arts, the human value is being lost and the property value emphasized under the American system.

Changing economic concepts

Do the signs of the times indicate any fundamental imminent change in the United States system?

No one can say positively, but a brief review of the economic situation of the world and of the United States in particular is interesting in this connection. In three periods of the world's history, we can recognize important differences in the economic situation of the people.

Up until the time of the Industrial Revolution there had always been a scarcity of necessities. After the Industrial Revolution a reasonable supply of necessities was available, and since the World War there appears to be an overproduction of necessities. These changes in conditions have wrought changes in the emphasis upon human rights as compared to property rights.

From the earliest records of man down to the Industrial Revolution, man's progress has been marked chiefly by developments in

1. Instruments of destruction.
2. Integration and disintegration of political power characterized by the minority coercing the majority, politically and economically.

Then came the Industrial Revolution followed by the American Revolution and the French Revolution, which emphasized the right of the individual to hold property and to be secure in the reasonable enjoyment of life.

From the time of the Industrial Revolution to the World War, civilization is characterized by

1. Development of instruments of production with a resultant reasonable supply of necessities.
2. The concept of political rule by the majority.
3. The concept of *laissez faire* (free competition).

Then came the World War followed by the Russian Revolution and the World Panic. This movement emphasized the right of the individual to a minimum participation in necessities; in other words, the right to enough to keep from starving.

The present period which is really just begun is characterized by

1. Development of instruments of far reaching intercommunication and transportation: radio, automobile, television, movies.
2. The concept of economical control of the minority by the majority — a planned economy, i. e., competition controlled or eliminated.

The overproduction of necessities

The overproduction of necessities (when compared to effective consumer demand) has given the most astonishing twist to the philosophy of government in the United States, particularly as affecting the concept of the basic rights of the individual. Property rights during world scarcity are sacred, because

they may mean the difference between life or death. A full supply of grain or potatoes may mean life or death of the entire community in a region where transportation and inter-communication is lacking. An example of the high regard for property values necessitated by conditions is illustrated in the food cache of the wilderness or in the Far North. If this is lost or dissipated, it may mean death through starvation.

Another illustration which we have heretofore encountered is the question of saving for old age. Loss of such savings literally meant starvation under previous conditions. But now WPA provides a job if you can work, and Old Age Security feeds you when you are too old to work.

Property rights are now declining in importance basically because of overproduction. According to the old British law, they would hang a man for stealing a sheep. Imagine how far you would get with such a law if the countryside were overrun with sheep. You can't even put a man in jail overnight for stealing a pig when the Government decides to kill 6,000,000 pigs to get rid of them. After all, the scarcity of property has a great effect upon its value.

Human rights are in the ascendency. The economic control of the minority by the majority has now arisen, and we can see the following remarkable situation in the day's news:

1. The right of the individual to his job is being increasingly recognized. The flurry of "sit-down" strikes in 1936 and 1937 (since declared illegal) carried the implication that the worker's right to his job was superior to the employer's property right in the machinery connected with the job.

2. "No one in the United States is going to starve." The WPA or some other agency must give you the right to work.

3. The "majority" now provides unemployment insurance.

4. The "majority" provides Old Age Security

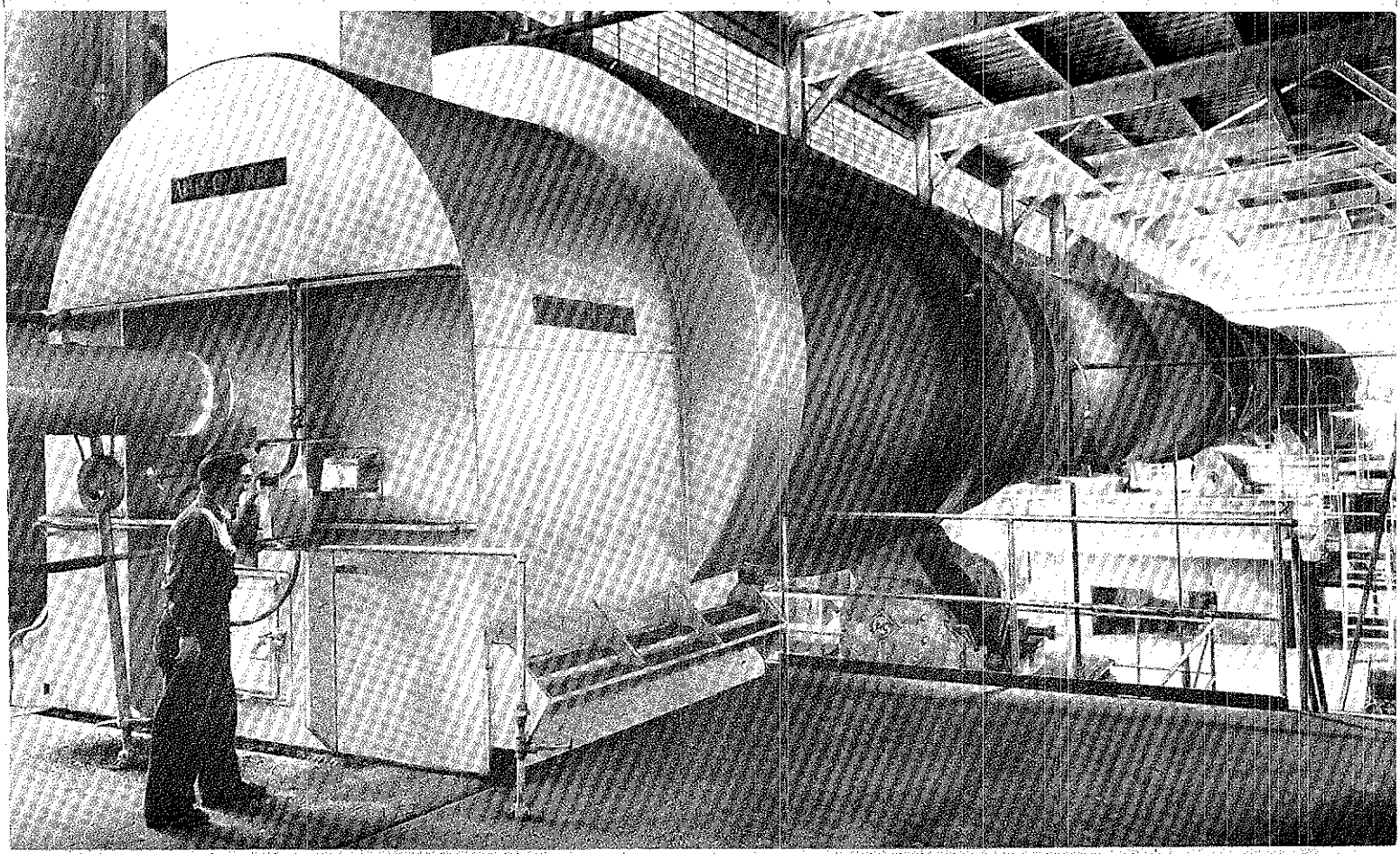
5. Another astonishing change in the policy of the United States is the Neutrality Laws. The "majority" have said that they will not protect the property of individuals in war time.

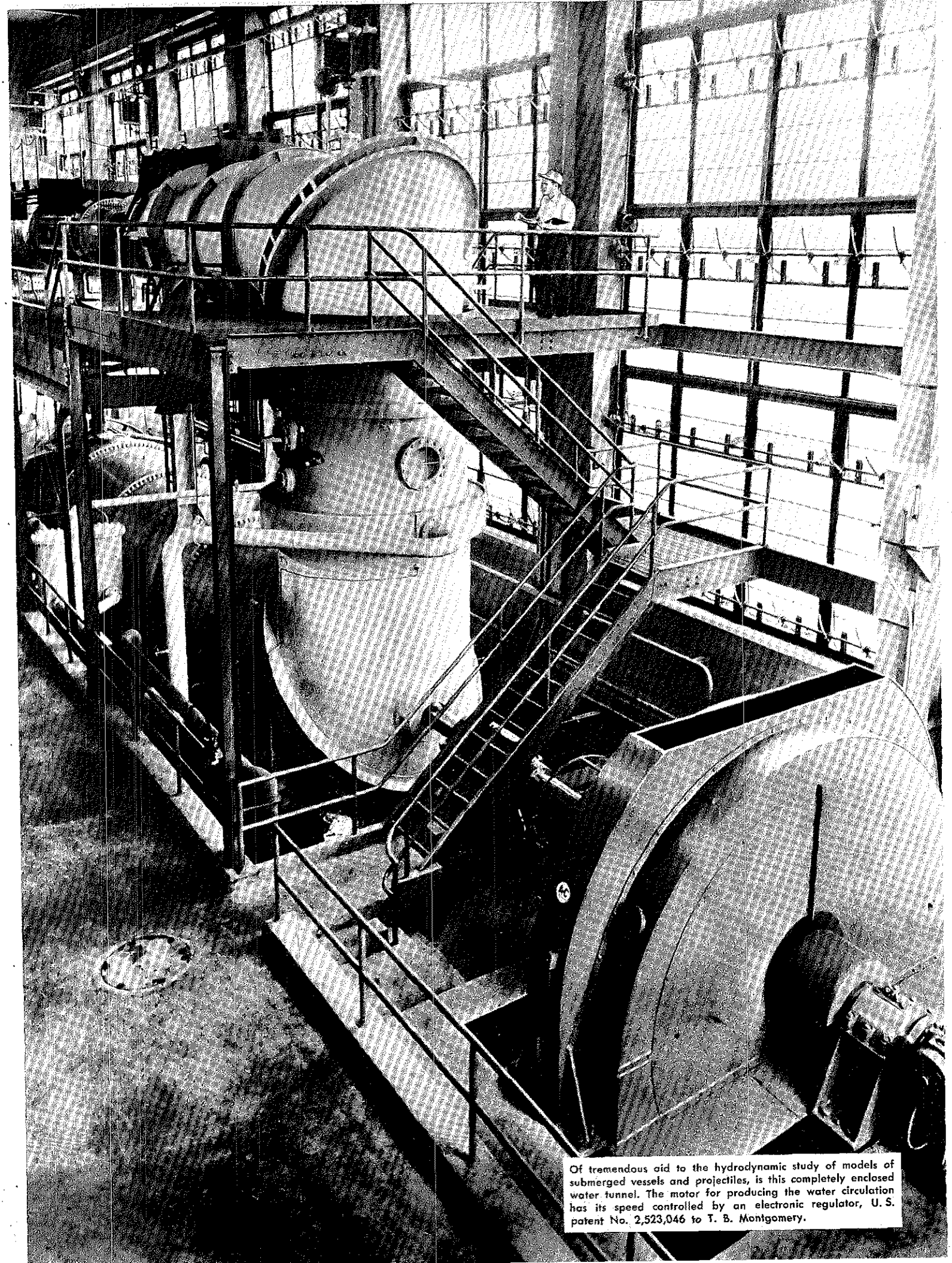
Effect on American patent system

Remembering that the concept of the patent right is a special and peculiar case of the combined right of the person and the thing (human rights plus property rights) in no other country is the emphasis so strong on the human right as in the United States. All other countries put more emphasis on the property right. But we can expect according to the present trend an extension of the human right and a modification of the property right.

While the thoughts I have expressed are my own opinions, I think that there is a large body of facts, some of which have been mentioned above, which support the conclusions reached. Although some of us do not like the direction in which things are going, it is only the intelligent thing to recognize the trend, and perhaps influence it, rather than close our eyes to it because we may disapprove of it.

How to keep this 375' long cement kiln rotating in one piece is in itself a major engineering problem. To meet this requirement and to make good cement clinker, this kiln has an air cooled discharge end ring construction, U.S. Patent No. 2,266,396 to C. S. Lincoln and A. J. Jorgensen, helical material conveying ribs, U.S. Patent No. 2,230,601 to B. H. Puerner and E. C. Greisen, and heat transferring chains, U.S. Patent No. 2,059,176 to R. C. Newhouse.





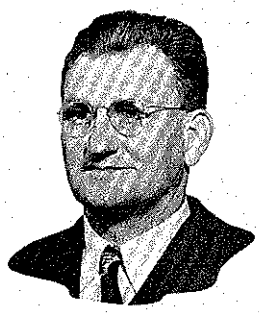
Of tremendous aid to the hydrodynamic study of models of submerged vessels and projectiles, is this completely enclosed water tunnel. The motor for producing the water circulation has its speed controlled by an electronic regulator, U. S. patent No. 2,523,046 to T. B. Montgomery.

Patents

AND RIGHTS TO INVENTIONS



H. S. SILVER
General Patent Attorney
Allis-Chalmers Mfg. Co.



W. C. SEALEY
Transformer Section
Allis-Chalmers Mfg. Co.

THE comic strip standard selling price for a patent is $1,000,000. Assuming the average cost of obtaining a patent to be $500, this would represent a 2,000 to 1 return on the original investment. Few patents have been worth a million dollars, and a great percentage of the approximately 2,400,000 patents issued by the United States Patent Office have failed to provide a monetary return sufficient to defray the cost of obtaining the patent.

An invention often is made during the solution of a problem and starts with an idea for doing something new or doing something old in a new way, often without the inventor realizing that invention is involved. If and when the inventor realizes that he may have made an invention, the possibility of obtaining patent or other protection interests him.

Economics is a first consideration in determining the desirability of patent protection. Again assuming the cost of obtaining a patent to be $500, will the right to exclude others from using the invention be worth $500? The correct answer to this question involves consideration of the extent of the use of the invention during the possible protection period; that is, whether a great many or only a few uses would be made. A further consideration involves the necessity and cost of development of the invention so that it may be commercially successful and the ancillary question of necessity of development of a market. Another consideration involves the question of other ways of doing the same job—that is, whether there are other solutions for the problem; and if so, does this invention solve the problem in a cheaper, quicker, or better manner?

Exclusive rights to inventions

If the answers to the above questions lead to the decision that exclusive rights to the invention are worth more than the patent cost, steps should be taken to maintain these exclusive rights. Although the value of preventing others from using the invention may not seem to be worth the patent cost, patent protection may still be desirable. The inventor may desire to establish his right to use his invention independently of any patent that another might obtain on a similar invention.

One method of maintaining exclusive rights to an invention is to keep the invention secret, the prevention of others from making or using the invention resulting from their lack of "know-how." However, this method is seldom effective for more than a very short period of time, and if and when someone else discovers the secret, the exclusive rights vanish.

The better and more usual method of providing exclusive rights is to obtain patent protection. First step in obtaining patent protection is to record the conception of the invention, preferably by writing a description of the device and its operation, illustrated by sketches if helpful, and by disclosing the invention to others. The description and the sketches should be signed, dated and witnessed, with the date of witnessing. And the next desirable step is to diligently complete the invention. Completing the invention, in the technical patent sense, is effected by reducing the invention to practice, and actual reduction to practice is effected by embodying the invention in a full size device and operating it successfully under conditions similar to those to which it would normally be subjected. The filing of a patent application including patentable subject matter is considered a constructive reduction to practice.

Patent application procedure

At any time after conception of the invention, the inventor will probably desire to consult his patent attorney. Few inventors have the technical knowledge necessary for the skillful preparation of a patent application, and unless the application is skillfully prepared the resulting patent may well lose some or all of its potential commercial value.

Before a patent application is filed, the patent attorney may make a search of the art to determine whether similar devices have been disclosed in previously granted patents or other publications, in order to determine whether the probable claims obtainable are worth the cost of the patent. The prior art also serves as a guide in drawing the patent claims.

After the patent application is filed, it is usually left in the hands of the attorney who prosecutes the application in the Patent Office until a patent is issued, or other final action given. If a patent issues, the inventor is granted exclusive rights for a period of 17 years beginning with the date the patent issues. A United States patent gives the inventor exclusive rights only for manufacture, use, and sale in the United States. If exclusive rights in other countries are desired, it is necessary to file patent applications in those countries also.

A valid patent can be obtained only if the patent application is filed within one year (two years for patent applications filed prior to August 5, 1940) from the date on which the invention was on sale, was put into public use or described in a patent or printed publication.

A valid patent can be obtained only by the "first" inventor. When two or more individuals independently conceive and complete the same invention, it is necessary to determine which one was "first." The first to *complete* the invention is *presumed* to be the first inventor. However, the matter of diligence between conception of the invention and its reduction to practice or completion may affect this presumption.

If a man who first conceived an invention stopped work on it for a period of time before completion and resumed work only after a later conceiver had completed the same invention, the later man may be determined in an interference proceeding in the Patent Office to be the "first" inventor so far as the right to a patent is concerned. If the first man could prove diligence in working toward completion of his invention, from a time just prior to the time the second man entered the field until completion of his (the first man's) invention, the first man would be determined to be the "first" inventor, unless he had abandoned his invention.

The issuance of the patent to an inventor gives him no further right, other than he then has, to use his invention. His right to make, use and sell his invention may be limited by prior patents issued to others. The issuance of a patent is no guarantee as to the validity of the claims therein, but the burden of proof is on one who disputes their validity. In other words, the claims of an issued patent are presumed to be valid until proved invalid. The claims of a patent appear in numbered paragraphs describing the forbidden ground on which others may not tread.

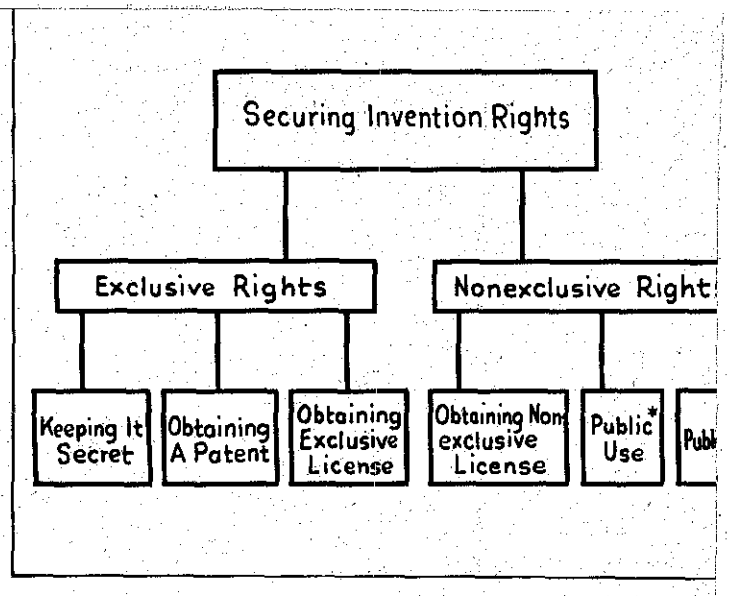
A patent owner may transfer rights to his patent by assignment or by granting the exclusive license with a right to sue for past infringement. After such assignment or exclusive license, his rights to make, use or sell apparatus embodying the invention are no greater than those of any other outsider. However, by granting a non-exclusive license, he gives up his right to prevent the licensee from manufacturing, using or selling the device covered by the patent. Such non-exclusive license may be limited to include only a particular class of devices or may be limited territorially. A patent owner may forfeit his right to recover from an infringer by knowingly permitting long-continued infringement of the patent by such infringer, without taking effective action toward stopping it.

Non-exclusive rights to inventions

Without filing a patent application an inventor may perpetuate the right which he then has to make, use and sell his invention by the doing of some act which will bar others from obtaining a valid patent for such invention. This may be accomplished in either of the following ways:

1. *Public Use*—If the invention is embodied in one or more installations in public use for one year before another files a patent application for such invention, no valid patent can be obtained, and hence such public use would preserve the non-exclusive right which the inventor has to make, use or sell his invention. Of course, such rights being non-exclusive, other persons may similarly make, use, and sell such invention.

2. *Publication*—If the work of embodying the invention in a public use is too great or costly, the same type of protection, as set forth in (1) above, can be obtained by publishing a disclosure of the invention. Such a publication more than one year prior to filing of a patent application would bar the grant of a valid patent for the invention. This published disclosure must be sufficiently clear and complete so that any one skilled in the art could make and use the invention. The publication must be a printed one and must be available to the public. In this connection, a publication by a manufacturer for distribution only within his own organization would not bar another inventor from obtaining a valid patent for the invention.



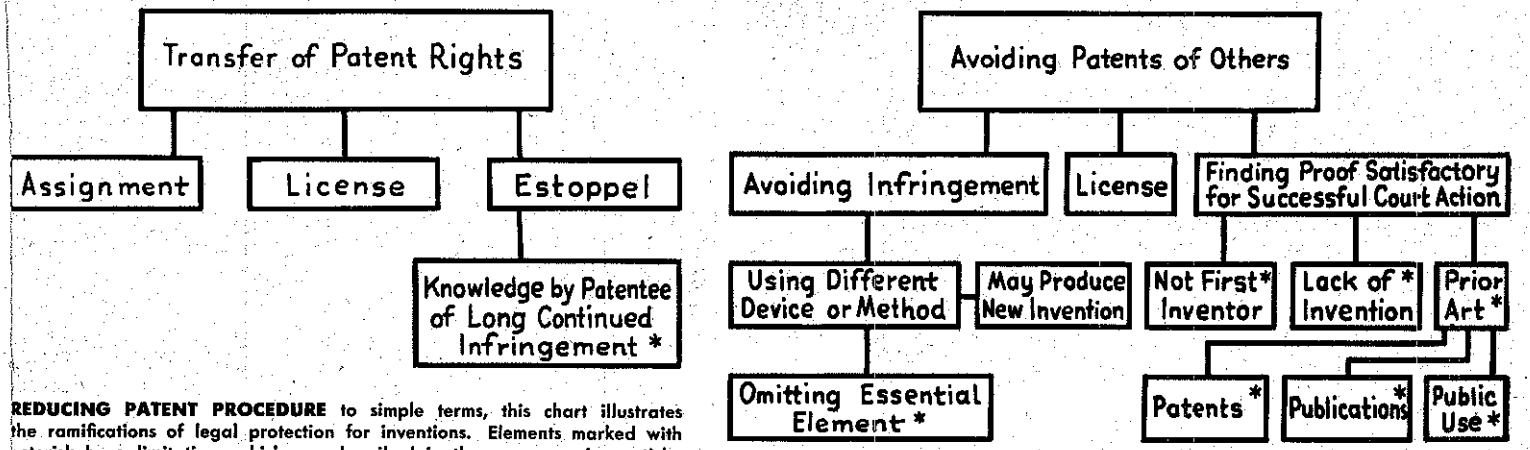
A situation sometimes arises in which one desires to use a structure which effects the same result as obtained by a patented invention, but to do so, without license, would invite a suit for infringement. In such cases, there are several courses open. One of the best ways out of this difficulty is to find a different way of doing the same thing; that is, a way which does not utilize the invention covered by the patent claims. Inventions are often made in this manner. The saying "Necessity is the mother of invention" applies. By the exercise of ingenuity, it is often possible to obtain the desired result in a different or better manner. On the other hand, often an older and patentably free device may be found to be equally good or to serve the purpose better.

Avoiding patent claims

In the process of finding different ways to produce a given result, the principle of inversion is sometimes useful, particularly where the resulting effects afford superior advantages. This consists of inverting and interchanging elements of the patented device so that, for example, the moving parts of the patented device become the stationary parts of the modified device and vice versa. It is sometimes possible through this procedure to make a new invention.

Another method of avoiding a patented invention is to design a device that does not include all of the essential elements of the invention covered by the patent claims. In many cases, patent claims have been limited in order to avoid the prior art, and, therefore, avoidance is not too difficult. It is necessary to exclude but one *essential* element of a claimed invention in order to avoid infringement of the claim. An element is not omitted if an equivalent element is substituted in its place. For example, if the patented invention covers the use of copper for the construction of a device and it could be equally well produced in steel, zinc, or any other metal, the invention could not ordinarily be avoided merely by constructing the device of one of the other metals. However, if the use of copper was specifically stated to be a part of the invention because it had peculiar properties which renders the device operative in a particular desired manner not provided by other metals, it might be possible to avoid the patent claims by use of some metal which the art had theretofore considered unsatisfactory.

In other words, the inventor is entitled to reasonable latitude, in construing his invention, in the matter of equivalents which could be substituted by any one skilled in the art for the elements of the claimed invention.



REDUCING PATENT PROCEDURE to simple terms, this chart illustrates the ramifications of legal protection for inventions. Elements marked with asterisk have limitations which are described in the accompanying article.

Patent claims can be avoided by discovering prior constructions put into public use, or regarding which a disclosure has been published, more than one year (two years if the application was filed before August 5, 1940) prior to the filing date of the application for the patent involved. The usual evidences of such prior art are printed publications, foreign or domestic patents, or the records of manufacturers or others showing public use of the patented device. Such prior publications, patents or public use would bar recovery for infringement even though the claims of the patent are readable on the device used. Sometimes, claims are drawn broadly enough to read on prior art which did not come to the attention of the patent examiner. The inadvertent issuing of the patent did not take away anyone's right to use the prior art, although such patent may well worry those ignorant of the prior art.

It sometimes happens that patents are issued claiming as inventions a summation of old elements, each merely adding in its own particular function and providing no different cooperation of this element in the combination over that which could be properly expected by placing them together. In such cases, where no such new or unexpected result is obtained, the claims may be held invalid because of lack of invention. This is often very difficult to prove because results seem obvious after someone has shown how to obtain them. A would-be infringer is often prejudiced in his consideration of the matter. It is very difficult to prove that a patented invention should have been obvious to others, when in fact it was not obvious to those skilled in the art for a considerable period during which the problem was present.

Since the patent can not be held valid unless it is issued to the "first" inventor, if one can prove that the patentee was not the "first" inventor he has a good defense to an infringement charge. In this connection, if it can be proved that the man named as inventor in a patent is not in fact the inventor, the patent can be held invalid by a court. For example, a man may have been wrongfully included as one of two joint inventors merely because he was in a position of authority over the true inventor, or a man may have contributed only suggestions or advice as to minor features not essential to completion of the real invention. In such a situation, the real inventor may well lose his right to the protection seemingly given by the patent.

If one claim of the patent is anticipated by the prior art, that claim may be held invalid by a court. However, other claims of the patent which are not held invalid may be saved by a proper disclaimer of the invalid claims. Where one believes that claims of a patent would be held invalid if a suit were instituted, it is not usual to notify the patentee of such belief, but to proceed to use the desired construction, relying on a defense of invalidity in any suit for infringement of such claims.

Securing patent license

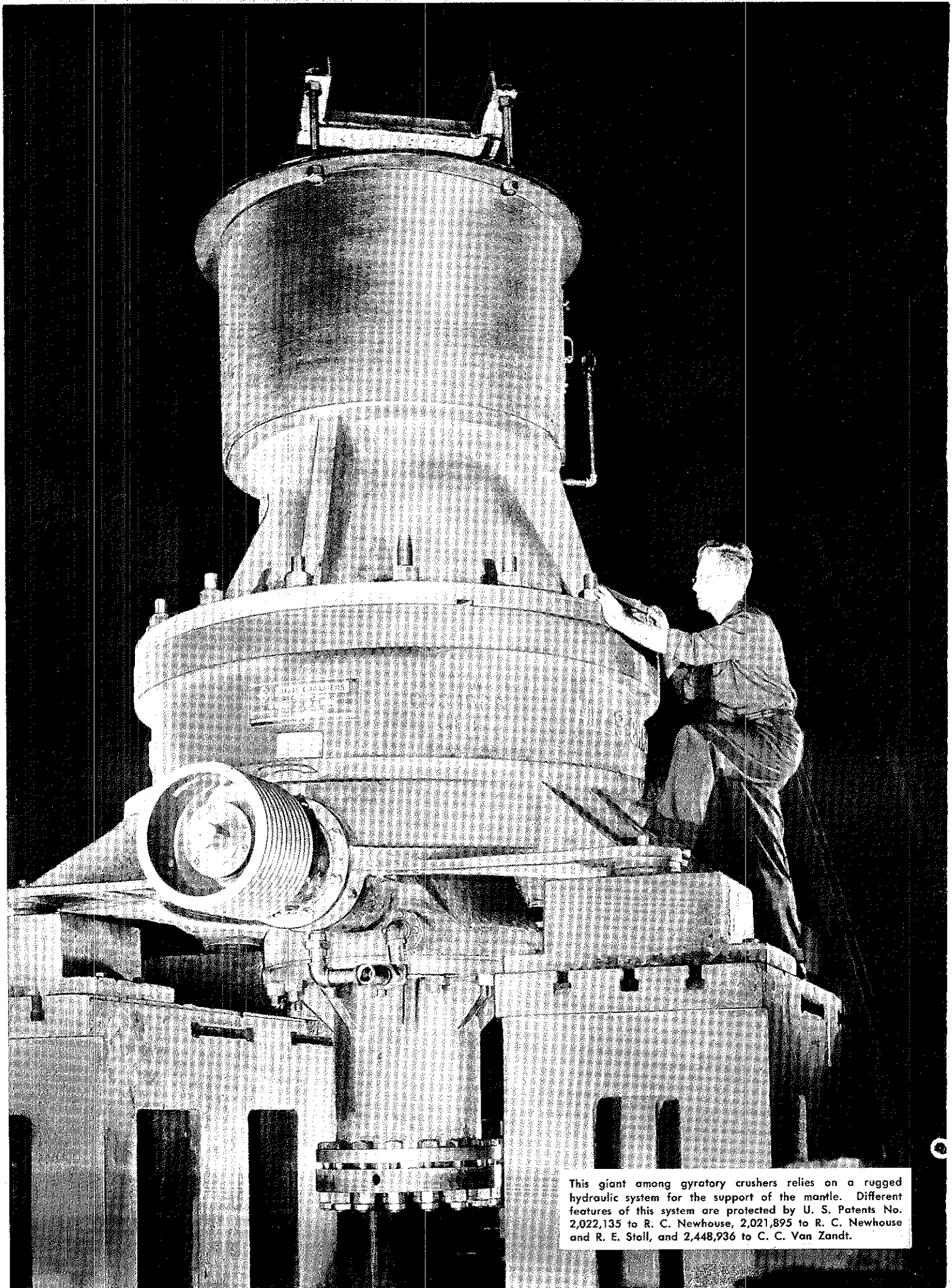
It must be remembered that although one believes that he can make a successful defense in a patent suit, still it costs money and time, and you may lose. The safest way to avoid trouble is to avoid using the *invention* of a patent, and if you can't avoid the invention, obtain a license.

A patent license may grant either the exclusive or a non-exclusive right to make, use and sell a device. The license may cover making and using, making and selling, or all three. The license may be given free or for a fixed sum royalty, or a royalty based on the number of units sold, or the selling price of the units, or for a consideration including rights to use other patents, or for any other legal consideration. When a patented device is sold by the patentee or his licensee, it carries with it an implied license for resale or for use for the purposes for which that device is ordinarily used, unless the sales agreement contains provisions to the contrary. For example, a special radio tube which would be used only in one particular type of circuit, if sold by the holder of the patent of that particular type of circuit, would carry with it an implied license for use of such circuit. If, however, the radio tube has other recognized uses, such sale would carry with it no implied license to make, use and sell any particular patented circuit.

Admission of validity

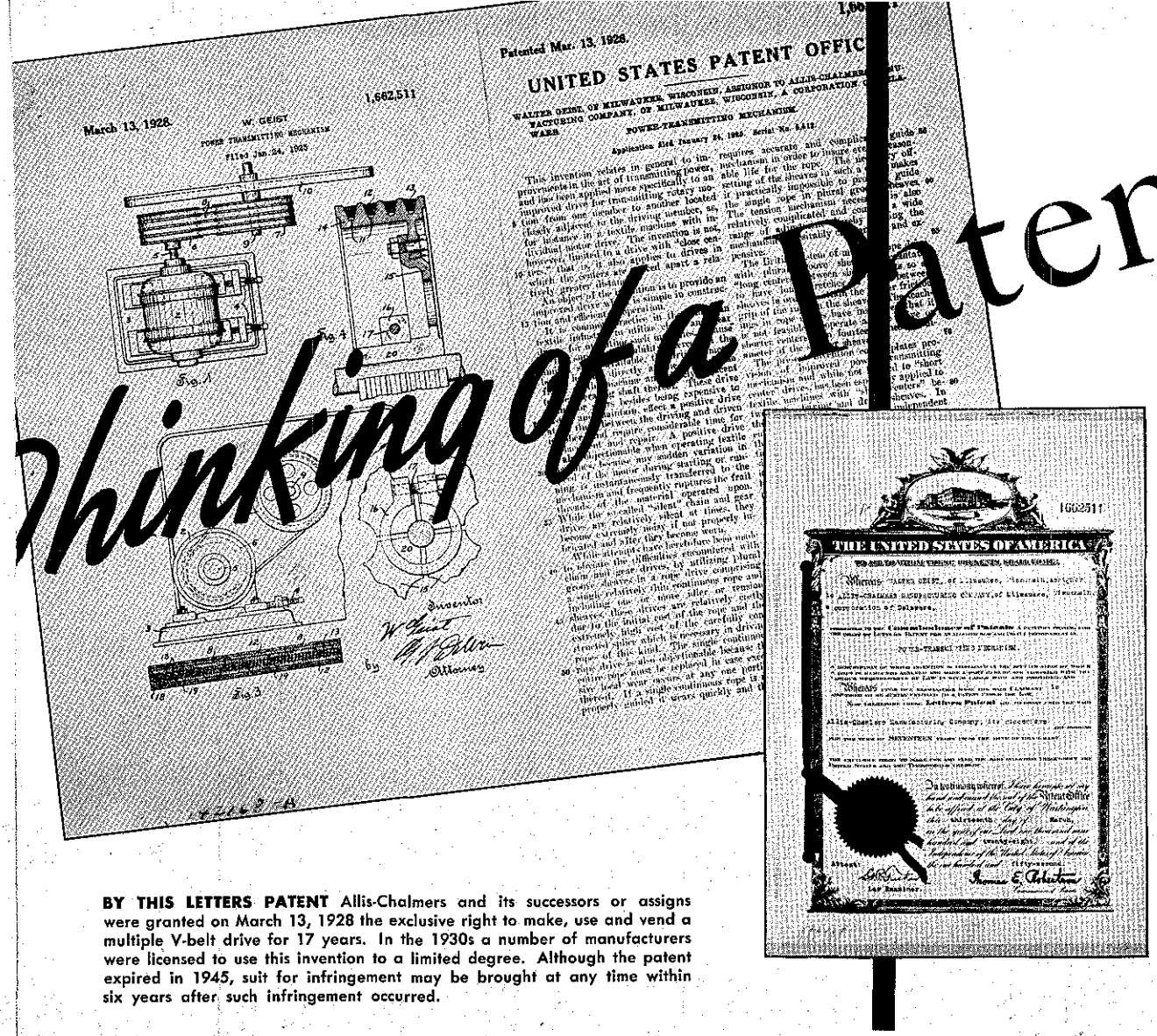
If a license is granted under a patent, the licensee is ordinarily presumed, in a suit for royalty under the license contract, to admit the validity of the patent claims under which royalty is payable.

This legal fiction is similar to that in landlord and tenant law, where in a suit for rent the lessee is estopped from proving that the landlord does not have good title to the rented property. Therefore, while the patent license is in force, the defense of invalidity is not open to the licensee in any suit for royalty under the contract, and the agreed royalty is to be paid independently of whether one has discovered evidence that may prove some of the claims invalid.



This giant among gyratory crushers relies on a rugged hydraulic system for the support of the mantle. Different features of this system are protected by U. S. Patents No. 2,022,135 to R. C. Newhouse, 2,021,895 to R. C. Newhouse and R. E. Stall, and 2,448,936 to C. C. Van Zandt.

Thinking of a Patent?



BY THIS LETTERS PATENT Allis-Chalmers and its successors or assigns were granted on March 13, 1928 the exclusive right to make, use and vend a multiple V-belt drive for 17 years. In the 1930s a number of manufacturers were licensed to use this invention to a limited degree. Although the patent expired in 1945, suit for infringement may be brought at any time within six years after such infringement occurred.



W. S. GATES
Patent Attorney — Allis-Chalmers Mfg. Co.

Infringement and licensing of inventions, as well as original patent grants, should be legal terms understood by every engineer.

SAY, you've got something good there, Jones. Just get a patent on that little shaft coupling and you're sure to make a fortune." Such well-intended advice to a man of ideas may be heard most any day, but it is too often based on some common misunderstandings concerning patents.

The first erroneous thought that often lies behind such enthusiastic advice is the idea that every new product or process, which differs in the slightest degree from what is generally available in the market, or used in industry, is patentable. The second is that the grant of a patent gives the patentee the right to proceed with the production of his product or the use of his process, without regard to the patents of others. The third is that once a patent has been obtained it throttles competition, prevents copying and brings a free flow of bounty to the inventor.

Our Constitution gives Congress the power "to promote the progress of science and the useful arts, by securing for limited times to authors and inventors an exclusive right to their respective writings and discoveries." A patentable invention under the Constitution is, of course, a "discovery" of an "inventor." Going back into the history behind the Constitutional provision for the patent system, we find, as did Queen Elizabeth of England in about 1601, that in order that the patent grant may not be obnoxious to the public, it must not take away rights which the public had before the patent was granted.

Law protects creative inventors

The body of law which has grown up under the provision of the Constitution, therefore, sanctions the granting of patents only to original, or creative inventors. The grant is given only to those who disclose to the public something with relation to

broad invention, and usually including a drawing and one or more claims which define the limits of the monopoly granted. The function of the statement of the invention including the specific description, and usually referred to as the specification, is to tell the story of the invention. It may properly bring in a general picture of the state of that particular art at the time the inventor entered the field. It may set forth the disadvantages of the prior art and therefore the problem confronting the inventor at the time of his invention. It then sets forth the manner in which the invention has solved the problem usually by description of one or more particular embodiments of his invention. It is a dictionary for the terms used in defining the monopoly granted. When published, it limits future inventions to those constituting a substantial advance over what is disclosed therein. The statement of invention describes the outer limits of any particular monopoly that can be validly granted by the patent.

The inventor is required by statute to "particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery." This he does in one or more paragraphs at the end of the description, which paragraphs are called claims, and each of which defines the extent of the monopoly granted by such claim. To one not versed in the function of the claims and the reasons therefor, these claims appear to be such a conglomeration of abstractions and legal verbiage as to be not only unintelligible but to be far from telling what the invention is. It must be remembered that the claims are not written for the purpose of describing or explaining the invention. The only function of the claims is to lay an exact boundary of the ground forbidden to others. If the inventor in his patent merely described his invention, the public in general would have to search out the step in advance that such inventor had made and on which the monopoly was granted. The statutes provide against this by requiring the inventor to state exactly that from which the public is to be excluded, a categorical inclusion of the essential invention elements to which one can refer and determine whether or not the construction he desires to use is exactly or equivalently the thing forbidden.

Obviously, the inventor desires his monopoly to cover as much ground as it can. When the inventor makes his invention, his ideas are concrete, and he has a specific embodiment in mind; and upon analysis he will find a broad generic class which, when stated as generalizations, both structurally and functionally, will include his concrete and specific embodiments and all proper equivalents. His specific means for accomplishing his desired result may, for example, include a current transformer connected in a load circuit and functioning to energize a trip coil of a circuit breaker upon overload to cut off the supply of power. Upon analysis he finds that this element of his invention may be responsive to voltage rise or fall, to reverse energy flow to power factor change and various line conditions of surge, ground or short circuit, and that the desired functioning may be to cut out the line, to cut in resistance, or to slow down or speed up the supply generator. As recited in broad language in the claim, this element therefore becomes a "means responsive to a predetermined circuit condition for controlling the circuit." Obviously, such language does not describe or explain the invention, but it does lay down an exact boundary of forbidden ground.

To summarize, patent monopoly (embraced in a claim or claims) is given to an inventor in exchange for a complete disclosure (embraced in the specification) of a substantial invention or discovery which promotes progress of science and the useful arts, and such monopoly permits him for the life of the patent to prevent others from utilizing the invention.

Specific examples of how this information of fundamentals may be used by engineers is suggested below.

Infringement considerations

When considering patents to see if a given construction infringes:

1. Consider each claim separately.
2. Does each essential element thereof or its equivalent appear in the given construction? If not, no infringement.
3. If the construction infringes, does it come within the broad scope of the invention disclosed in the specification and is it within the statement of the invention? If not, the claim would not be held valid by a court.
4. If the claimed construction is within the disclosure, is it a substantial advance over prior constructions? Is it invention over a construction described in the specifications of patents of prior inventors? (Remember that although some patents may be dated earlier, the inventors may not be prior.) If not, the claim would not be held valid.
5. If the construction comes under 2, 3, and 4, then in considering how infringement may be avoided, determine what essential element of the claimed construction can be omitted and the desired result obtained.

Application considerations

When considering an invention as material for a patent application:

1. Has a complete and clear written disclosure of the invention been made, signed and dated?
2. Has such disclosure been made to and understood by others, witnessed and dated?
3. Is it a substantial advance over prior construction including that disclosed in patent specifications of earlier inventors?
4. Has such disclosure been analyzed to determine broad generic language that will include all other embodiments of the invention?
5. Has the inventor made a statement of his invention in the broadest terms which will still avoid prior constructions of which he has knowledge?

The above consideration is concerned merely with the fundamentals; and, after such consideration, if you desire to know whether or not a given construction infringes a patent or whether it is patentable — consult your patent attorney.

KNOW YOUR PATENTS!



W. Zierold, **Patent Attorney, Allis-Chalmers Mfg. Co.**

The relative importance of the drawing, the specification and the claims in the evaluation of a patent.

When a man speaks of a patent as a "pioneer" patent, a "basic" patent, a "broad" patent, or modestly refers to it only as a "strong" patent, his statement will bear investigation. A correct estimate of the scope of a patent is often difficult because of the complexity of the questions involved. We have to keep in mind that the merits and demerits of a patent depend not only on engineering considerations but on legal considerations as well. For instance, a man may have made an invention of the highest rank from the standpoint of ingenuity and engineering accomplishment, and yet his patent may be worth little or nothing because it is legally inadequate or defective. On the other hand, an invention which rises only little over ordinary engineering skill may still be comparatively valuable if it is covered by a legally sound patent. Engineering and legal judgment alike are necessary to determine the merits and demerits of a patent.

To the inquisitive mind, a patent makes its strongest appeal by the disclosure of that intangible something which we call "invention." Like a work of art, an invention manifests itself by its presence, and when we are called upon to analyze an invention, we are facing about the same difficulties which an artist would have if he were to explain just what makes his creation a work of art.

Fortunately for the inventor, the patent law does not require him to explain the metaphysical character of his mental creation, but it does require him to make "a written description of his invention or discovery, and of the manner and process of making, constructing, compounding and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof." Between the lines of this written description which is required of the inventor, we must look for the spark of genius, for the display of originative faculty, which alone makes his disclosure an invention.

• Drawings

Patents for mechanical devices or anything that is capable of illustration speak to us not only by words but also by drawings. The language of the drawings is the inventor's most convenient means of expression; it is most readily and quickly understood by those to whom the patent is addressed. In starting an investigation of a patent, we first study the drawings. If we know enough about the art to which the patent relates, we may be able to approach the invention by a critical examination of the drawings alone. We may find a device or machine of a general character with which we are familiar, but which has certain particularities which strike us as new and original.

The invention will then most likely be found in the departure from that which we know is old and which has been disclosed by others before the inventor made his invention. It is also well to note the date of the filing of the application for a patent, which is plainly printed on the drawings. A clear drawing, skillfully prepared so as to bring home the point or points which the inventor wants to make, is a decided asset to a patent, since it affords a view of the invention which would be difficult, if not impossible, to depict by words alone.

We must be careful, however, not to mistake the physical embodiment of the invention which is illustrated in the drawings for the invention itself. The drawings reveal only certain ostensible factors of the invention from which the cardinal factors are still to be determined. In other words, the device shown in the drawings may be subject to modification and yet have the characteristic features which are the essence of the invention. A basic or broad patent will permit substantial modification of the concrete exemplification of the drawings without elimination of the invention, while a narrow or restricted patent, on the other hand, will require close adherence to the concrete exemplification of the drawings in order to let the invention survive in a modification.

• Specification

Turning next to the written language of the patent, we find that it does not start out with a description of the drawings but with a more or less lengthy discussion of the "objects" of the invention. Here the inventor states what he proposes to accomplish by his invention, and what he says and the manner in which he says it often become highly important in determining the scope of his patent. However, the statement of invention, as

which it has not formerly possessed any rights. Since the patent grant is in the nature of a contract by which, in return for the disclosure of something new and useful and previously not available to the public, the government grants a limited exclusive right, the grant cannot be valid if the subject matter previously has been made available to the public. It follows that advances which amount to no more than normally expected or routine improvements of products or processes through application of knowledge already available to the public are not patentable.

"But," Jones says, "that coupling of mine can be useful in hundreds of places. I didn't get my idea from anyone else. And furthermore, there is nothing like it on the market now, and they would sell like hotcakes. Surely, that gives me a right to a patent."

Nevertheless, Jones may not have a right to a patent, for it may be that another man a long time ago produced substantially the same thing, used it in public, and described it in some obscure publication. Perhaps the reason that the same or a similar product is not on the market today is that the earlier man did not have a ready market for his product, or could find no capital to back production. Maybe the product was too costly for public acceptance. Whatever the reason may be, if all the essential features of the invention were available to the public before Jones thought of it, he cannot get a valid patent even though the disclosure be buried away in some half-forgotten tome.

Only improvement is protected

"But," Jones says, when confronted with an ancient patent (or some other early publication), "this patent describes only the bare essentials of a flexible coupling. I've made an important improvement over what is shown in this patent. My coupling has flange parts secured to two shaft ends, and a resilient coupling member, like the one shown in the patent; but my resilient coupling member is different in form and engages the flange parts in a different way. Can't I get a patent on such an improved coupling?"

Yes, Jones may indeed be entitled to a patent covering at least his particular novel form of resilient coupling member and its novel relation to the flange parts, provided the advance he has made can be said to involve more than the ordinary skill of his calling. In this case, Jones will be granted a patent giving him the exclusive right to make, use, and vend couplings involving his particular form and arrangement of resilient coupling members and flange parts.

Jones' Letters Patent, however, can be used only to exclude others from making, using, or vending his particular form of improvement. His patent cannot prevent competitors from using any coupling structure previously made available to the public, even though never before actually manufactured or generally known. And it cannot prevent the manufacture, sale, or use of other improved couplings involving other forms and relationships of parts, unless such forms and relationships are mere equivalents of Jones' improvement.

Thus, a patent is an exclusive right only to what has previously been unknown and unavailable to the public and might not have become known or available but for the patentee's particular ingenuity, inventive effort and disclosure to the public.

"Exclusive" is key to grant

The word "exclusive" is the key word in the fundamental patent provision of the Constitution and in the patent grant. The patent grant does not give the inventor a right to sell or use his invention. The patent grant merely makes *exclusive* this right, which the inventor would have without the patent grant. That is, the patent grant gives the patentee the right to *exclude others* for a limited time from the practice of his patentable invention. By the same token, the patentee may himself be excluded from the practice of the patented inventions of others.

"Does this mean that I can be prevented from practicing my own invention?" Jones asks.

Let's assume that not Jones, but another person called Smith, has an earlier unexpired patent broadly covering all couplings involving two flange parts and a resilient coupling member, and that no useful coupling involving Jones' patented improvement can be devised which does not involve the use of Smith's earlier patented invention.

Smith learns of Jones' invention and, conscious of the exclusive nature of his patent grant, says to him: "Jones, you can't make couplings according to your invention. I have a patent which covers couplings like yours."

"Well!" says Jones, "I have a patent here that gives *me* the exclusive right to make, use, and vend my coupling."

"That's right," says Smith, "you have that right if you can do it without incidentally using *my* invention. But, as you see, *my* patent gives me the exclusive right to *my* invention; and I can't see how your coupling can be made without using my invention."

Thus the broader patent grant to Smith can be enforced to exclude Jones from the practice of the Jones invention during the life of the Smith patent grant, provided the Jones invention cannot be practiced without use of the patented Smith invention. Therefore, even though Jones is entitled to a patent, the patent law does not give him any right to proceed with the practice of his invention without regard to the patent rights of others. In fact, if Jones cannot make, use, and sell his own invention without infringing on the exclusive rights of others, he may actually be prevented from commercializing his invention, or reaping any reward whatever for his ingenuity, so long as such other exclusive rights exist.

Of course, while Smith has a broad patent and can dominate the field in his particular class of coupling, he may find that the Jones improvement, which he cannot use without license, would greatly reduce his costs of production, increase the sales appeal of his coupling, or in some other way promote an increased return from exploitation of the Smith patent coupling. If so, Smith may feel he can't get along without Jones' improvement and he may be willing to pay royalty for the right to use Jones' improvement or purchase the Jones patent. Jones may, in this way, be rewarded in an amount commensurate with the real value of his improvement, which is, in the last analysis, a share in the profits earned through use of his improvement which might not have been earned without it.

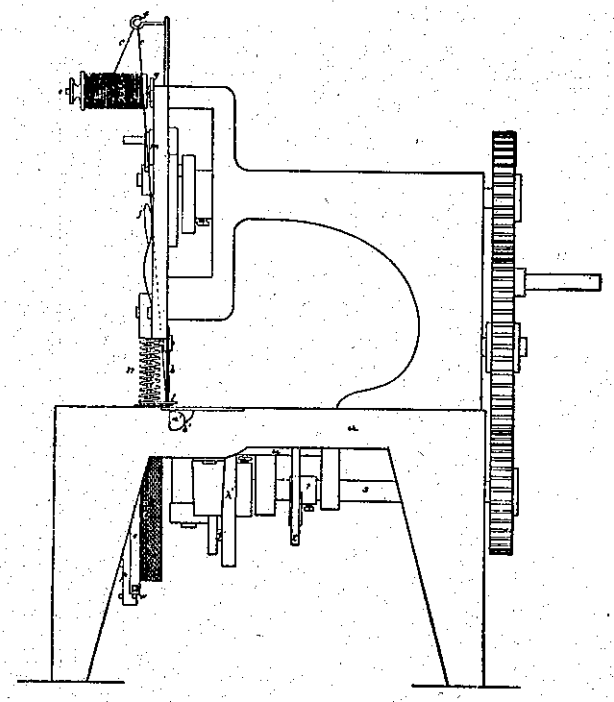


Fig. 1—I. M. Singer's sewing machine, patented in 1851. The manufacturer was held not guilty of false marking in continuing to mark the machines after the patent expired.

notice to the public, it would seem clear that the articles should be marked plainly.

This was evidently overlooked by a manufacturer of a patented looseleaf binder having a metal plate slipped into the thickness of a leather back, as shown in Fig. 2. The number of the patent was marked on the binder in characters so small as to be readable only with the aid of a magnifying glass, for the reason that larger characters would have defaced the binders. The law, however, is not concerned with defacing patented articles, and in 1931 a court found the marking on the binders to be deficient.

Mark article itself if possible

That the patented article itself must be marked whenever feasible also needed to be emphasized by a judicial condemnation of relevant examples. One such was a cherry stoner of the type shown in Fig. 3, which was sold with a tag attached to it bearing the patent marking, a practice condemned in court in 1913. Another was the patented wooden dish shown in Fig. 4. The dishes were packed in crates which bore the patent marking. In 1893 this marking was held improper because the dishes were susceptible to marking. No weight was given to the pretty transparent excuse, and an afterthought to boot, that individually marked dishes would be so expensive as to be uncompetitive.

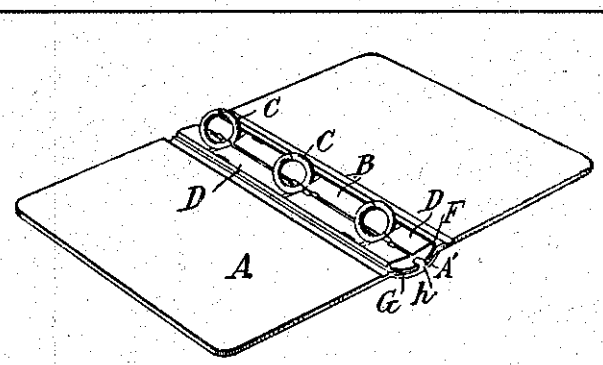


Fig. 2 — C. D. Trussell's binder, patented in 1912, was improperly marked with the number in microscopic characters.

Marking package sometimes permissible

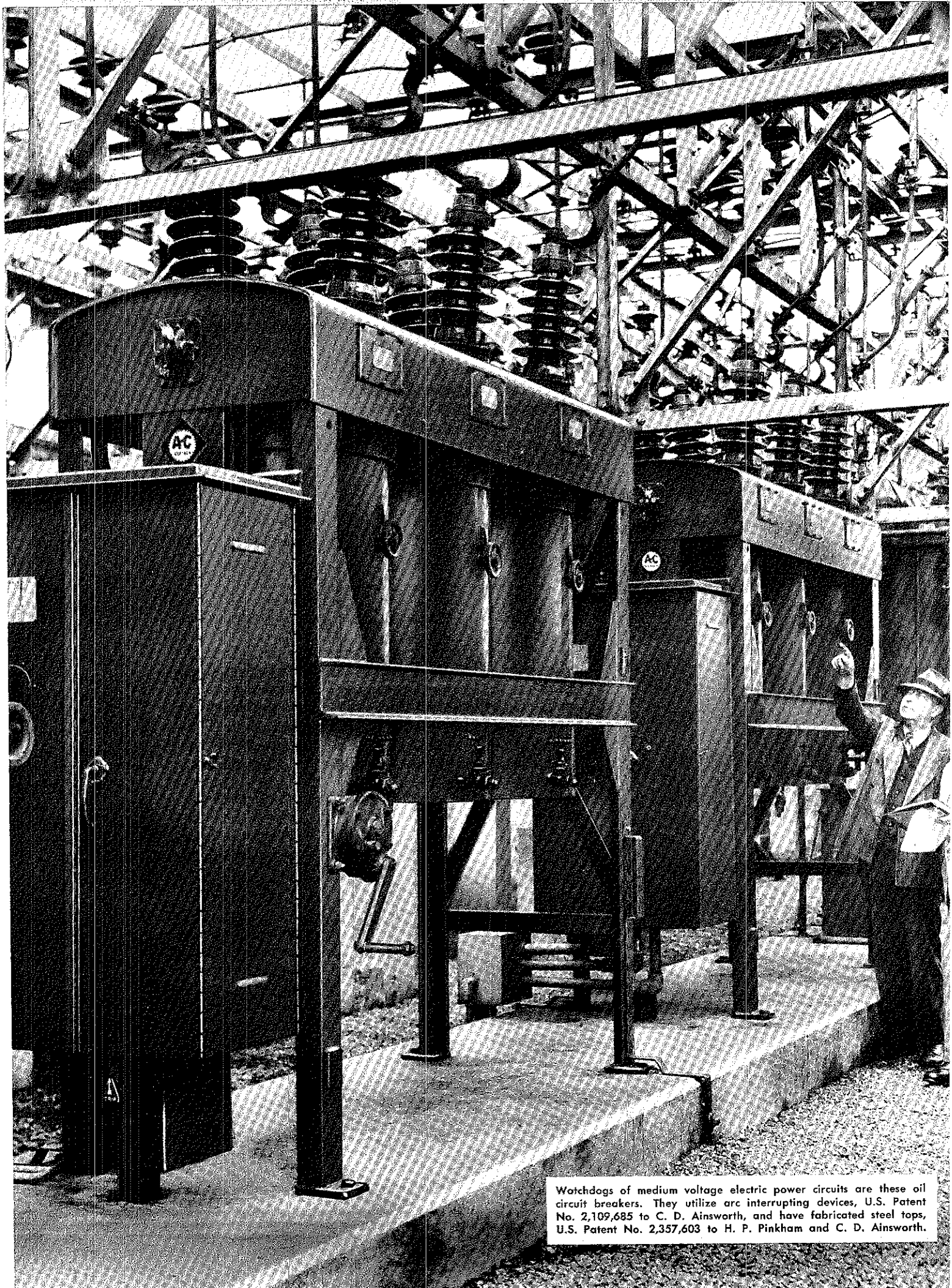
Whether or not it is feasible to mark the article itself instead of its packages is not always beyond question. The Supreme Court itself felt bound to recognize that, in doubtful cases, something must be left to the judgment of the patentee although it would be unwise to assume too much latitude in that respect. It is true that in 1892 this Court held small trunk catches of the type shown in Fig. 6 adequately marked by affixing a patent marking label to the package in which the catches were shipped and sold. But that was a long time ago, and the Court may well reverse itself some day, as it sometimes does, in view of the present state of perfection of marking devices.

In the meanwhile, it was held in 1932 that the popular razor shown in Fig. 5 was properly marked by marking its package. It is difficult to see why marking the razor itself should have been fraught with insurmountable obstacles, especially as the court remarked that nothing requires every element of a patented combination to be marked separately.

It should be clear from the statute that no patent marking is adequate if it is not applied to the patented article or to its container. As late as 1909, however, the owner of a design patent on the hat band shown in Fig. 7 had to find that out the hard way. The patented bands were applied to ladies' sailor hats in whatever eccentric manner was then dictated by fashion, and the patent marking was carried on the lining of the hat. This marking was held improper. While it would have been unreasonable to require that the hats be worn showing the word "patented" in large letters on the band, there were other proper ways of applying the marking.

Multiple patent marking

It often happens, especially in the case of complicated machinery, that a manufacturer owns several patents covering different features of a particular article. To comply with the spirit of the statute, the marking should include the number of every patent having a claim reading on the article. Besides, this is necessary to enable the patentee to recover all damages he suffers by infringement of any of the patents.



Watchdogs of medium voltage electric power circuits are these oil circuit breakers. They utilize arc interrupting devices, U.S. Patent No. 2,109,685 to C. D. Ainsworth, and have fabricated steel tops, U.S. Patent No. 2,357,603 to H. P. Pinkham and C. D. Ainsworth.

weeks, a feat seldom equaled today. In a suit the inventor tried to save his patent by passing off the early sales of springs as an experiment. It was evident, however, that those sales were not made primarily for the purpose of discovering the defects of the invention and for enabling the inventor to remedy them. The decision of the court, handed down in 1893, therefore held the patent invalid.

Experimental sale must be coupled with tests

Experiment was also the excuse for the untimely sale of the hydraulic turbine shown in Fig. 12. This turbine is of the double runner type discharging into a single draft tube. The inventor placed a partition in the draft tube for minimizing eddies resulting from the meeting of the two water streams. One turbine, sold and installed in 1879, was complete and fully developed; but it could not operate at its full efficiency because it had been connected to existing undersize water pipes.

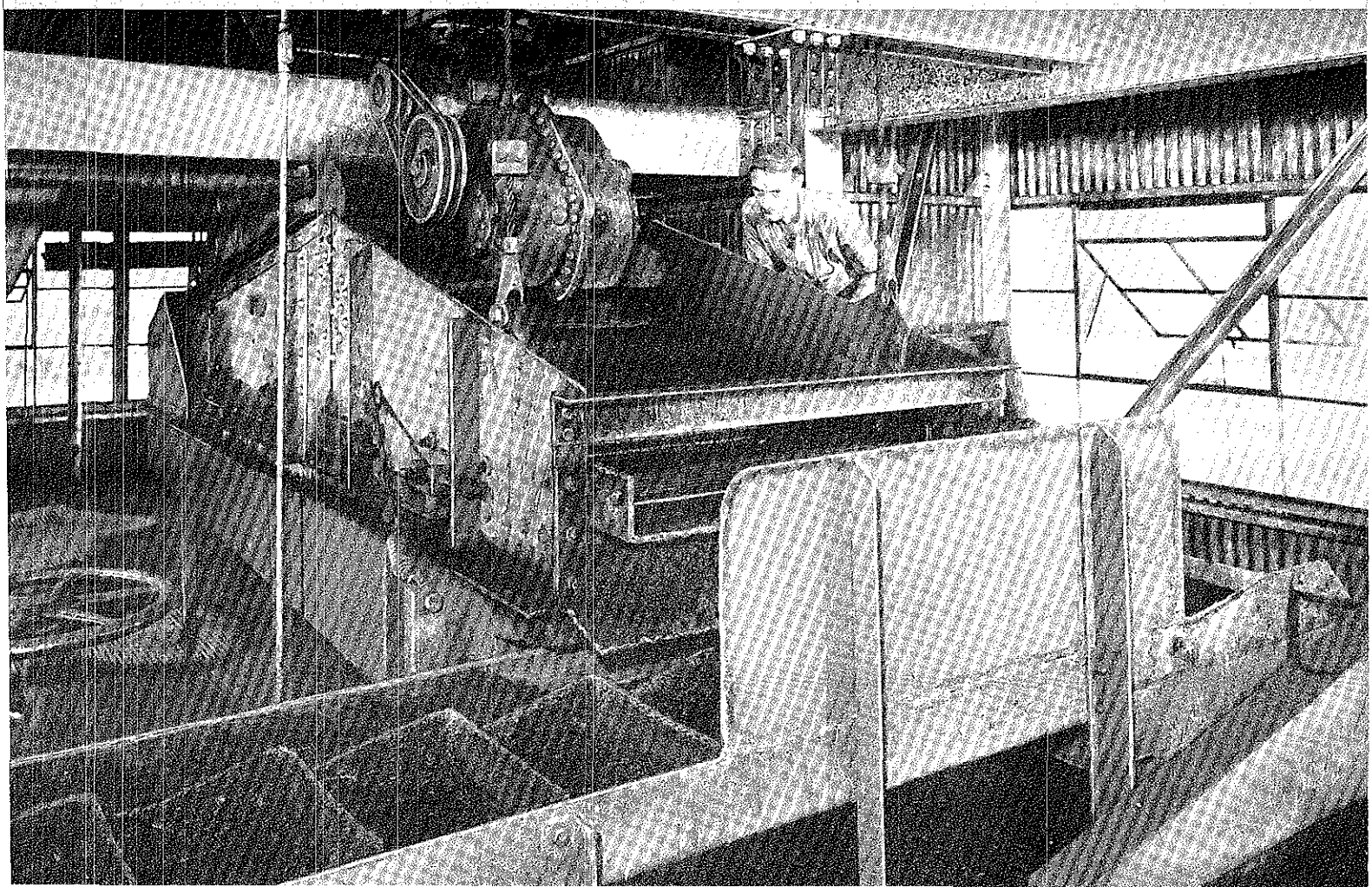
Although the turbine had been untried before that time, this first sale was not experimental because it was not conducted as an experiment. The sale of the machine was the inventor's first opportunity to test it, but he did nothing to determine the efficiency and to find out what improvements might be necessary. In fact, the machine was so installed that tests made on it would have been meaningless. For this reason, the claims of a patent applied for more than two years later in 1881, directed to the partition within the draft tube, were held invalid in 1901.

Experimental sale seldom proven

In several of the instances above considered, as well as in other litigations, the improvident patentee had no other recourse than to try and present a premature sale of his invention as having been for experimental purposes in order to save his patent. Occasionally this argument has been successful, and a single sale of an invention by the inventor has been held permissible where the inventor was unable otherwise to test his invention properly. For example, the inventor may be impecunious and unable to secure the capital required for building his device otherwise than by a sale, and he may not have the facilities for testing his invention under the conditions of its intended operation.

The proof of the inventor's intention of using the device sold for his experiments should be clear. He should retain control over his invention with the right to alter it as he sees fit to overcome the defects. Even so, the inventor runs the chance that some unthought-of circumstance will tend to disprove that the sale was for experimental purposes. It is certainly safer to consider any sale of a new invention to be a regular sale and to follow it with the filing of a patent application within the one year period now set by the statute.

This Low-Head vibrating screen facilitates distribution by dewatering coal which has been washed at the mouth of the mine. The coal passes on a reversible screen cloth, U.S. Patent No. 2,334,707 to W. C. Johnson. The screen is without pitch, progression of the wet coal being insured by the tilt of the eccentric weight vibrator, U.S. Patent No. 2,144,382 to C. S. Lincoln, M. P. Hahn, and R. R. Rockafield.



first inventor; or that the alleged invention is merely the result of mechanical skill applied to previously known mousetraps, and does not rise to the dignity of invention, despite the fact that the Patent Office permitted the patent to issue. These, and many other defenses, may be set up by an infringing competitor, to limit or destroy the protection afforded by the patent. It might be well, in order to emphasize the fact that patent protection may be destroyed, to emulate the policy of the French Patent Office in stating that patents are granted "without guarantee of the government." In the interest of fairness, it should be stated that United States patents are legally presumed to be valid until proved to be invalid. Even if the patent is valid, it may be found that a competitor may be able to make a mousetrap which is just as good by changing the construction in such a way as to avoid the claims of the patent. The above is sufficient to point out that a patent does not assure the inventor or assignee an easy road to wealth, sales or even certainty of protection.

Obstacles to manufacture

A third fallacy, recurring again and again, is the notion that a patent grants its owner the right to manufacture the patented article. This is very far from the facts. A patent for a mousetrap gives the owner the right to use the courts to prevent others from making, using or selling mousetraps embodying the features claimed in his patent. But others may hold patents covering certain features of the patented mousetrap, and they have a similar right to prevent any one else, including the inventor of the improved mousetrap, from utilizing these patented features during the life of these patents. For example, John Doe gets a patent on an improved mousetrap which includes, among other things, a special spring. Richard Roe holds a patent covering this special spring. John Doe cannot make, use or sell his patented mousetrap without infringing Richard Roe's spring patent. John Doe's patent does not give him the right to manufacture his patented mousetrap, unless he gets a license from Richard Roe. In fact, it would be highly desirable for John Doe (or his attorney) to make an infringement search—i. e., to consider the claims of all unexpired patents relating to mousetraps and parts thereof — to ascertain whether he is free to manufacture, use or sell his patented mousetrap.

Another fallacy frequently encountered is the idea that the marking "Pat. Pending" denotes patent protection. If such marking is applied in good faith, it indicates that the manufacturer or his licensor or assignor has filed an application for a patent to cover one or more features of the articles so marked. It denotes no present protection at all. It simply serves to notify the public that at some future date a patent *may* issue which may give the owner the right to prevent the public from further manufacture, use or sale of certain features of the article so marked. It is true that after a patent issues, the owner will have a right to proceed against those who are still using the patented device. And if these users are customers of a responsible manufacturer, the manufacturer may undertake to reimburse the patent owner for any damage he may suffer by reason of continued use of the patented article by the manufacturer's customers.

A final word about extent of patent protection. Just because a mousetrap is patented, the patent owner usually does not have a monopoly on all features of the patented mousetrap. His monopoly extends only to the features or combinations of features *claimed* in the patent, and their equivalents. It may be that the features claimed are unimportant and may be omitted, or may be replaced by other (non-equivalent) features. Therefore the extent of patent protection is not indicated at all by the usual patent marking, and the claims of the patents themselves must be consulted. These claims in turn may not be self-explanatory, and it may be necessary to consult the Patent Office file of the patent, and construe the claims in view of the art cited therein and arguments utilized to obtain allowance of the claims. The mere fact that a mousetrap is made under a patent is no indication how far the public is free to go in utilizing features of the patented construction. The patent claims, at least, must be consulted.

Exploding other fallacies

It is only fair to point out that fallacies concerning patents are not limited to the layman. Among the most assiduously cultivated fallacies current among patent attorneys as well as engineers, examiners, and executives is the notion that our patent system is directly responsible for our high standard of living and the high level of our industrial civilization with its accompanying mechanical marvels and peaks of prosperity. For example, an eminent patent attorney was quoted as follows in the Patent Office Journal a few years ago: "Our patent system has been *the* primary factor in making America foremost among the nations in agriculture, inventing and manufacturing. While there are other factors, the patent system is by far the most potent one." To those engaged in patent practice this is a flattering idea, sown in a field fertilized by the will to believe. Needless to say, it cannot stand the test of critical examination. Regarded with any degree of healthy skepticism, the idea is quite preposterous, even though it is entertained by many who ought to know better. Isn't it likely that a temperate climate and tremendous natural resources have something to do with our high standard of living? Isn't it a slight on the initiative and ability of our people, our well known traits of mechanical skill, Yankee ingenuity, high standard of literacy, etc., to regard our industrial advances as being due directly to this specific patent system? Perhaps a better way to indicate the fundamental error of this broadly accepted idea is to consider whether the adoption of our patent system in, let us say, Siam, would result in an American standard of living and a rate of industrial progress equivalent to ours. Moreover, if our patent system is responsible for our peaks of prosperity, must it not also take the responsibility for the depths of depression we periodically experience?

The writer realizes his rashness in questioning so commonly accepted an "axiom" in our patent system, but trusts that the system has sufficient inherent worth to sustain a critical, unbiased examination, and does not need to be buttressed by ridiculous claims.

Probably every inventor and patent practitioner has his own pet list of patent fallacies. The few listed above certainly do not constitute an exhaustive list but are probably the ones which cause the most difficulty.

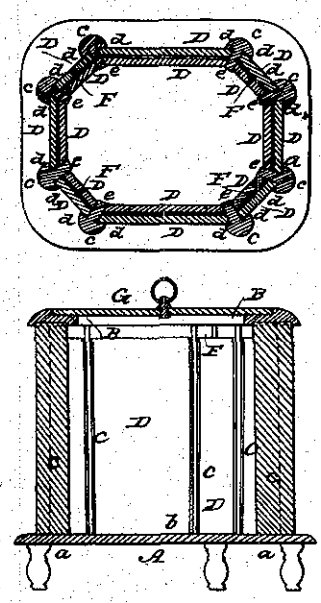


Fig. 7 — P. Dodge's soapstone stove, of which sales on trial in 1854 voided the patent applied for in 1857.

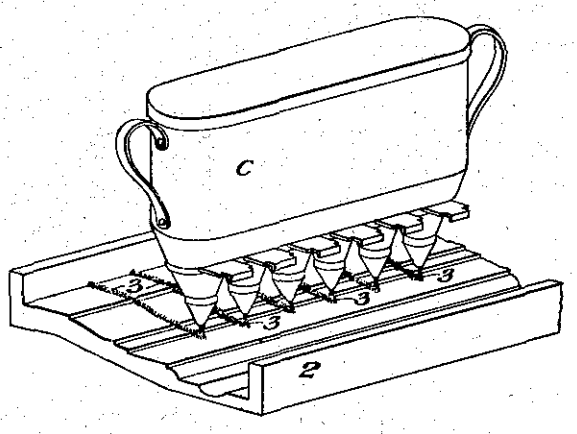


Fig. 8 — P. E. Denivelle's process of making stone, held "sold" in 1910, thereby invalidating the patent applied for in 1915.

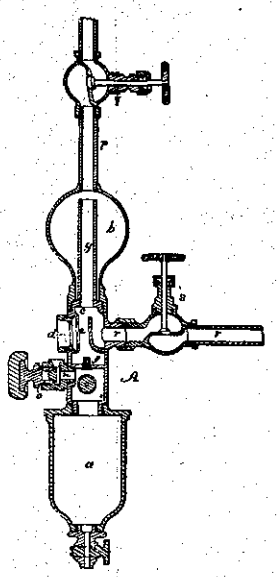


Fig. 9 — W. H. Craig's engine lubricator, sold after modification in early 1883, invalidating the patent applied for in late 1885 for the unmodified form.

of soapstone slabs. The drawing looks a trifle incomplete, but the patent helpfully states that the stove may be provided with a door and with stove pipe. A few stoves were sold on trial in 1854, to be returned if they were not satisfactory to the buyers. Taking place over two years before the inventor applied for a patent in 1857, they rendered the patent invalid. The patentee's contention that the stoves were experimental was unavailing in a suit decided in 1880 since their conditional sale was not a proof that the inventor had any doubts as to their operation and intended to use his customers as guinea pigs. He had all the facilities needed for testing the stoves himself and did not need to sell them to find out their defects.

Sale of process

Although the word "sale" brings to mind a transaction involving a tangible object, the principles governing the effects of sales of patented inventions have been extended to processes. The process of making artificial stone shown in Fig. 8 was so involved. This figure shows a mold into which are poured a series of veins of dense cement, the veins afterwards to be backed by a layer of porous cement showing between the veins to imitate rock comprising alternate dense and porous layers.

This process was used by the inventor in 1910 for making the strikingly attractive facings of the Pennsylvania Station in New York. The job was completed and accepted more than two years before a patent claiming both the process and the product was applied for in 1915. Although the sale of the stone was subject to replacement of material showing defects within one year, it had the same effect as an unconditional sale. It was held in 1925 that both the process and the product of the invention had been placed on sale and sold for a profit outside of the permissible period and that the patent therefore was invalid.

Ineffective invention sold

When a sale of a novel article is made, the buyer is not always aware of the nature of the invention embodied in the article he is buying or even that it contains any invention. The effect of the sale on a subsequently procured patent remains, nevertheless, the same even if the invention has been rendered ineffective in the article sold. This actually happened with respect to the sight feed lubricator for steam engines shown in Fig. 9. This lubricator comprises a pipe for connecting the condenser to the boiler and a short inner pipe for conducting live steam from the condenser to the oil discharge pipe.

In a suit decided in 1896, the inventor testified that one such lubricator was tested on a prospective buyer's engine in 1883, but that the inner pipe was plugged up before the lubricator was finally sold. This took place more than two years before he applied for a patent for the lubricator as originally made, including the inner pipe. It was held that the invention had been sold because it was embodied in the lubricator, so that the buyer could avail himself of it simply by removing the plug.

Sale to test market

One of the oldest excuses used to explain sales of an invention before patenting is that the sales were made to test the salability of the invention on the market. Even if it is true, such reason does not avoid the effect of a sale on a patent applied for more than two years later. In a celebrated decision, the Supreme Court in 1877 held invalid the patent on the fruit jar shown in Fig. 10 because of sales of this character.

the discussion of the objects is called, should not always be taken at face value. It is not unusual for a statement of invention to be written in such general terms as to be practically meaningless, or for it to be overdrawn and grossly misleading as to the invention which the patent actually covers. A weak and colorless statement of invention, as well as an overdrawn or misleading statement of invention, is a decided handicap in the interpretation of a patent.

How an overdrawn or misleading statement of invention gets into a patent is easily explained. When an inventor files his application for a patent, he proceeds on what he knows of the prior art, and he writes his statement of invention on the basis of this knowledge. The U. S. Patent Office may then cite prior patents or other references to show that the inventor was mistaken in what he thought he had invented; and when he finally gets his application allowed on what patentable surplus it may contain, he forgets or neglects to revise his statement of invention in conformity with the actual state of the prior art. Thus, we see that the statement of invention is not an infallible guide towards a correct understanding of what the patent really covers, and we would make a grave mistake by judging a patent merely on the strength of the contents of the statement of invention.

The principal purpose of the statement of invention is to give us an understanding of the utility of the invention and of its advantages which the inventor believes are his contribution to the advance of the art. Knowing that much about the invention, we come closer to the appreciation of its merits, but what the patent really covers still remains to be seen.

• Disclosure

The law requires, as we have seen, that a patent contain a full disclosure of the invention, and the discussion of the objects serves in part to comply with this requirement. In order to further comply with the requirement for a full disclosure, the specification of the patent proceeds with a description of an embodiment of the invention. Naturally, the inventor selects for exemplification in the patent the best mode he knows of for carrying out the invention. By doing so, however, he does not commit himself to a limitation in the sense that the invention may not be embodied in another or better way than that which he has selected for exemplification and which he thought was the best when he filed his application. A carefully written specification guards against the implication that the invention might be limited to the concrete exemplification by stating that the drawings show a "preferred" embodiment of the invention or by other statements of like import.

The desire to avoid undue commitments in the description of the drawings also finds expression by frequent reference to possible alternatives or substitutions. Such statements are sometimes helpful in segregating the important from the less important features of the invention, but they often cause the uninitiated reader to wonder about their possible meaning. For instance, if an inventor has included a statement that one part of his device is connected to another "by bolts or any other suitable means," we will be about ready to agree with the pungent criticism of a commentator who observed, "He may be talking about bolts but I think that the brother is nuts." Indiscriminate references to alternatives will indeed confuse rather than clarify the invention, but if judiciously used, they are no mere legal hocus-pocus and serve a real purpose in elucidating the invention.

The selected exemplification of the invention is usually described with meticulous care, it being the inventor's theory that by enlarging upon details he will be sure to catch the invention. In the case of a machine, the description of its construction and mode of operation often becomes cumbersome reading to which, however, we must submit in order to be fully equipped for a critical view of the invention.

• Claims

In addition to the requirement of a full disclosure of the invention, the patent law requires that the inventor shall "particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention." In other words, the entire disclosure, including drawings, statement of invention, and description is mainly and lastly only a basis for the claim or claims which appear as one or more numbered paragraphs at the end of the specification.

The original patent document which the inventor receives from the U. S. Patent Office bears on its first page an impressively sealed statement which proclaims that the patent is to grant to the inventor, for the term of 17 years, the exclusive right to manufacture, use, and vend his invention throughout the United States and the territories thereof. In order to make it reasonably possible for any one to respect this grant and avoid infringement, the inventor must not only disclose his invention, but he must also claim it.

Let us assume that there were no claim or claims in a patent. In that case the inventor could assert his right of exclusion against supposed infringers entirely at his pleasure and in the most high-handed manner. It would leave the door open for him to change his mind from time to time about what he intends to claim as questions of infringement arose, and there would be no end to arguments about his rights.

For example, there would be those who would say that the inventor could not claim infringement unless the embodiment of the invention as it appears from the disclosure had been copied in every detail—a very disputable argument, because it must be remembered that the concrete form in which the invention has been incorporated only reflects the spirit of the invention, and that even an inven-

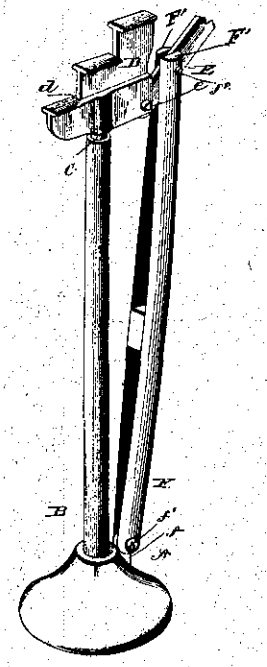


Fig. 1 — C. Emons' wagon jack, displayed for sale in 1888, invalidating patent applied for in 1890.

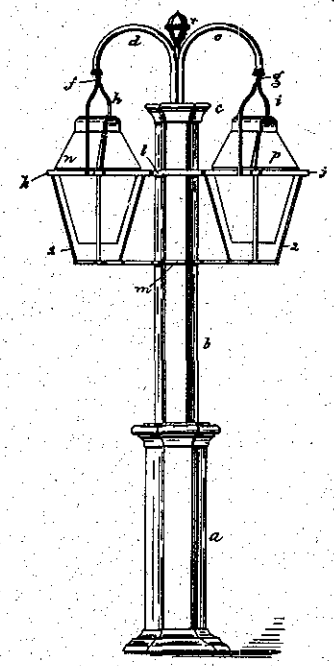


Fig. 2 — G. D. Burton's lamp post, offered for sale in 1875. Design patent, applied for in 1878, rendered invalid.

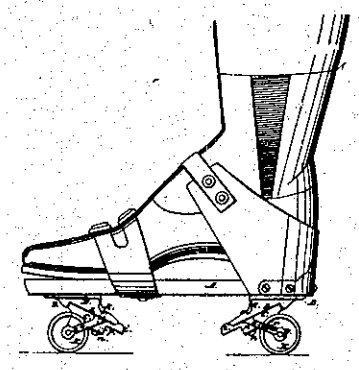


Fig. 3 — J. L. Plimpton's parlor skate, included in a price list in 1863, rendered void the patent applied for in 1865.

Fig. 4 — C. A. Juengst's cash register, invented to order and sold in 1886, nullifying the patent applied for in 1890.

reduced to a mere prophecy. Any "sale" of an untried invention is therefore questionable.

Invention exposed for sale

To establish that an invention was on sale, it is not necessary to prove any offer to sell to any particular person. One sample of the wagon jack, shown in Fig. 1, was exposed for sale in a hardware store in 1888, more than two years before its inventor applied for a patent in 1890. The jack may or may not have been offered to any customer in 1888, and in fact it was sold only in 1899. But its mere display was sufficient to cause the patent to be invalidated in a suit terminated in 1901. The patentee's contention in the suit was that the jack had not yet been made at the time it was supposed to be on sale. This defense was original and would possibly have been successful but for the fact that it was disproved by the testimony of credible witnesses.

Invention on price list

Although an article can be "on sale" only after at least one sample of it has been made, it is not necessary that the object itself be shown to prospective buyers.

This became apparent as early as 1883 from litigation involving the roller skate shown in Fig. 3. Its inventor, the pioneer in the invention of "parlor skates" as they were then called, had already made skates having their wheel bearings mounted on brackets through inclined pivots so that the wheels would cock in response to shifting of the weight of the skater to take curves. The skate in suit was an improvement of this earlier skate, differing from it in details. The inventor included it in a price list which he distributed early in 1863, more than two years before he applied for a patent covering its improved construction. This was one of the reasons for which his patent was ultimately held invalid.

Design exhibited for sale

In many respects the patent laws make no distinctions between the so-called mechanical patents, which are the only patents known to most people, and the less familiar design patents, such as those illustrated in Figs. 2 and 5, which are used to protect ornamental designs. The restriction of sales before patent application applies equally to both kinds of patents and was fatal to the design patent covering the lamp post shown in Fig. 2. The patentee applied for his patent in 1878, but unfortunately it was proved in a suit decided in 1880 that another manufacturer had submitted the same design to a township in 1875. Only a drawing was exhibited with an offer to sell the lamp posts, but lamp posts differing from that offered to the township only in an immaterial detail had already been made. The design was therefore on sale, and the patent was properly held invalid for that reason and because of public use of the design.

Invention sold when accepted

Since an invention is not on sale until it has been put in tangible form, it may be asked at what time an

MAKE YOUR MARK!

That maze of patent numbers seen on some patented articles is there for good reasons. For, without correct patent marking, the patentee may lose part of the protection otherwise available to him.

D. Journeaux

PATENT ATTORNEY • ALLIS-CHALMERS MANUFACTURING COMPANY

● As their name clearly indicates, Letters Patent are public documents open to everyone for inspection. Anyone interested in starting to manufacture a new article is therefore able to consult, as he should, the records of the Patent Office, to determine whether the article is patented or whether it may be manufactured freely.

Frequently a manufacturer starts making articles that are already on the market, for the simple reason that it is easier for man to copy than to create; and it is unjustly that we taunt our four-handed cousins with the time-honored aphorism, "Monkey see, monkey do." If an article is sold without showing any indication that it is patented, a manufacturer desiring to copy it will be sorely tempted to assume, without investigation, that it is not patented and may be made and distributed without restriction. With some 750,000 patents now outstanding, a patent infringement search is often a formidable task and one not to be undertaken lightly.

Patented articles should be so marked

As early as 1842 Congress decided that, human nature being what it is, it should be permissible to copy unmarked articles without investigation, and passed the first statute requiring articles made under patent protection to be so marked. Under this statute and its amendments, every article patented in this country and made or sold in this country should be marked with the word "patent" and the number of the patent so as to "give sufficient notice to the public that the same is patented." (The date of the patent may be substituted for its number if the patent issued before April 1, 1927.) The marking may be applied to the package containing one or more articles if the article itself is of such character that it cannot be marked.

In former years the penalty for failing to apply the proper patent marking used to be a fine. At present, however, the patentee neglecting properly to mark his patented articles is merely prevented from recovering damages caused to him by infringement of his patent, unless the infringer continues his invasion of the patentee's rights after being duly notified of his infringement.

Conversely, it is a criminal offense punishable by a fine to mark an unpatented article as being patented, but only if this is done "for the purpose of deceiving the public." Thus, when there is no intent to deceive, placing a patent marking on an unpatented article is condoned, a fortunate circumstance for manufacturers who have to keep straight the markings of different kinds of patented and unpatented articles.

Even articles on which the patent has expired may, with impunity, bear a patent marking if it appears that this was not done to deceive the public. In 1876, sewing machines of a popular make were marked with the dates of several patents, including the one shown in Fig. 1, which had all expired at that time. Apparently this marking had been initiated during the life of the patents and carried through past their expiration, and it was held in 1882 that no intention was apparent to represent the machines as still being patented.

Patent marking is required on articles made under design patents as well as mechanical patents, but should not be confused with copyright marking. Lack of patent marking does not render a patent invalid, while lack of copyright marking precludes the securing of copyright protection.

Articles should be marked plainly

The language of the marking statute is simple enough; but, as with all laws, the bewildering variety of unforeseen circumstances under which it was applied caused the courts to investigate its requirements in many litigations in which it was invoked. For example, since the purpose of patent marking is to give

trical transportation it was experimental, but as a use of carbon brushes in combination with a segmental commutator on an electric motor it was a substantial public use . . . it was a practical use of the invention, since the motor was used occasionally to propel the car in connection with the experiments on the cable system, which the apparatus was intended to embody."

Such was the history of the third paradox of an invention being in public use in an experimental system.

Experimental use should be planned

The passages above quoted were taken from only a few of a long line of decisions which seem to be relatively free of the apparent or real contradictions often found between court decisions based on different sets of circumstances. It may be deduced from them that an invention will not be held to be in public use if it really requires experimentation at the time of its being used and if the inventor makes it clear that such is his purpose in using it.

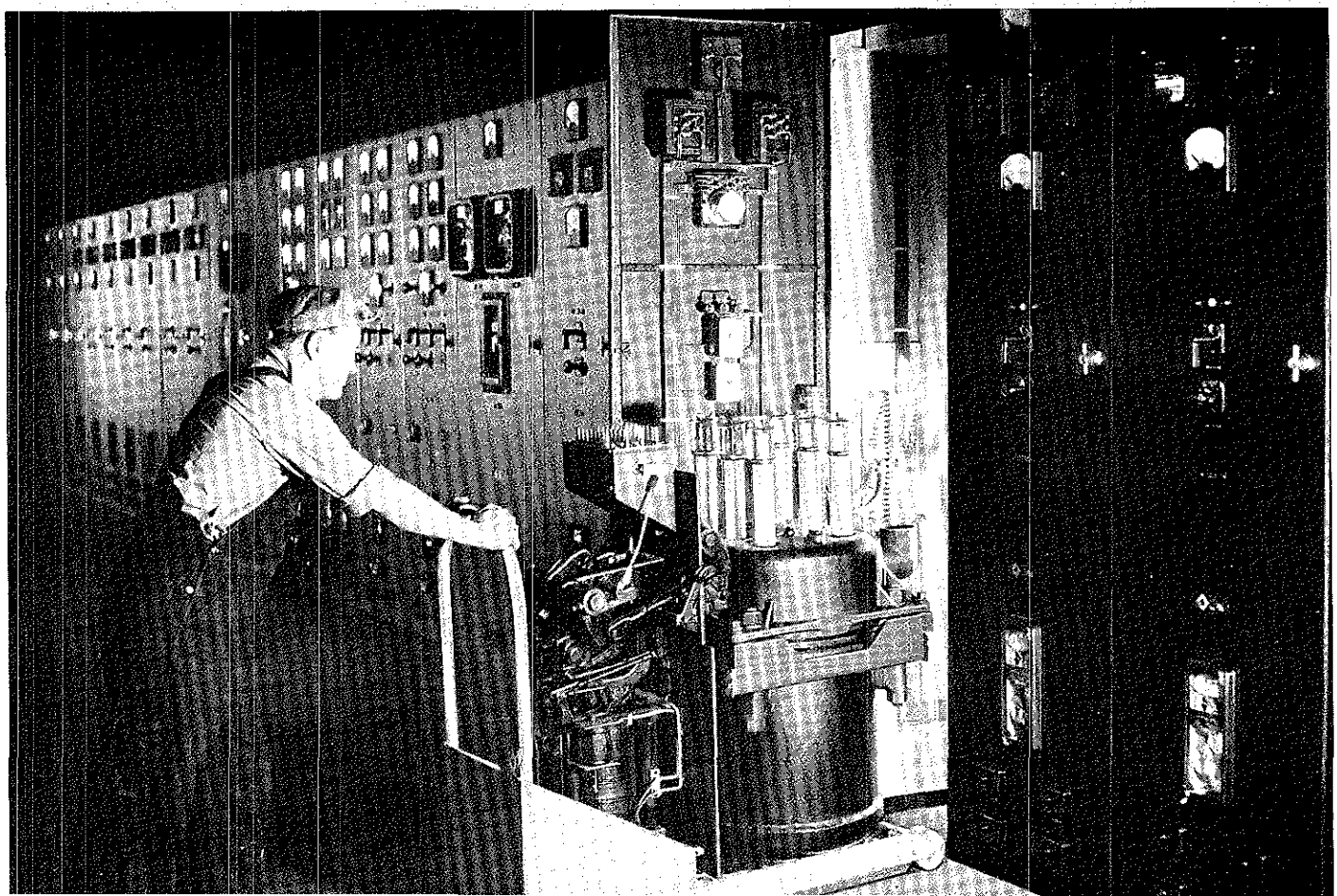
With a view to possible future patenting of the invention, it is, therefore, advisable to make it of record that an experimental use is intended even before such use is begun. Any agreements that may be necessary should be reached beforehand with the users of the invention to insure that it remains under the full control of the inventor or of his assignee for experimental purposes. Last but not least, the use should be actually conducted as an experiment, and records made of observations from which the desirability of changes or the suitability of the structure under test will be apparent.

Prompt filing advisable during experimental use

It is seldom, however, that an experimental use of a complete invention needs to last as long as one year to determine whether the invention will perform satisfactorily. In general it will be possible to file a patent application on the fully tested invention within one year from the beginning of experimental use. If it is desired to subject the invention to a life test under actual operating conditions or even under abnormally adverse conditions, the experiment may extend over a period of years.

Although application for a patent may still be delayed until the test is completed, nevertheless the inventor may save himself a considerable amount of trouble in establishing or asserting his patent rights by filing his application within one year from the beginning of the experiment. Of course, any protection that he may seek by a patent will be limited to whatever features of his invention were in his mind at the time of filing his application. But if continuance of the test suggests to him some valuable improvements, he may still protect them by other patent applications.

Because of its compactness, accessibility and safety, vertical lift metal-clad switchgear is widely used. U. S. Patent No. 1,792,861, to H. V. Nye, covers the method of construction in which several individual sections can be assembled and shipped as a unit with bus bars connected, thereby reducing installation time and costs.



The jar was intended to be an improvement of another jar of the same inventor, still popularly known as a Mason jar. The inventor had a few samples of the modified jar made in 1859. Some of these were sold at that time for three or four dollars a dozen for the purpose of testing their popularity with the public and also to make a little easy money. This was sufficient to invalidate the patent, which was applied for only in 1868, when the inventor was stimulated into activity by seeing jars similar to his being sold on the market.

Sale of new article not experimental

The test of the market being an insufficient excuse, some other had to be found by the inventor of the bed spring shown in Fig. 11. This spring had the banks of coils tied top and bottom by tie rods and hooks, a feature which was apparently novel when the spring began to be sold in the normal course of business early in 1880. Naturally, at first the putting of the spring on sale was something of a gamble, but the same can be said of almost any article of commerce.

The spring, however, sold well; and, evidently as an afterthought, the inventor made his patent application late in 1882. This was too late, even though the patentee obtained his patent in less than ten

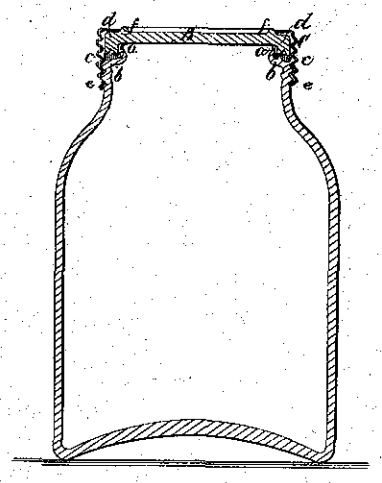


Fig. 10 — J. L. Mason's modified fruit jar, of which samples sold in 1859 invalidated the patent applied for in 1868.

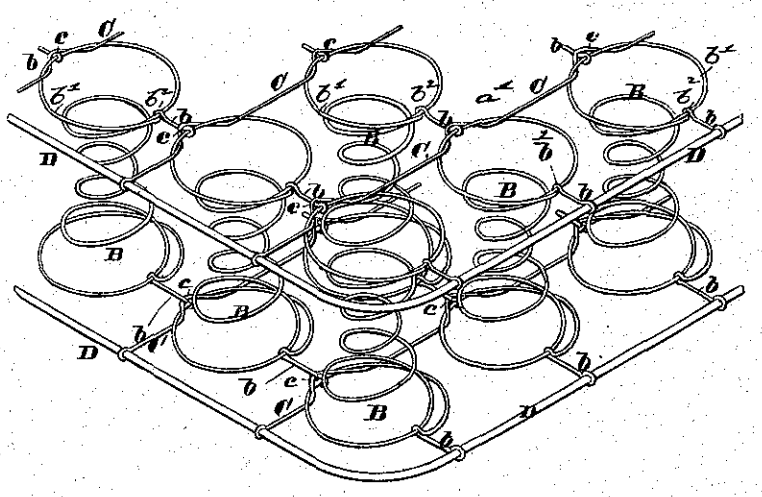


Fig. 11 — J. G. Smith's bed spring, sold in quantities in 1880, invalidating the patent applied for over two years later.

Fig. 12 — A. M. Swain's hydraulic turbine, sold without experimentation in 1879, rendering void the patent applied for over two years later.

them. As to the use being experimental, it is not shown that any attempt was made to see if the plates of the safes could be stripped off, and thus to prove whether or not the conical bolts were efficient. The safes were sold, and apparently no experiment and no experimental use were thought to be necessary. The idea of a use for experiment was an afterthought. An invention of the kind might be in use, and no burglarious attempt be ever made to enter the safe; and it might be said that the use of the invention was always experimental until the burglarious attempt should be made, and so the use would never be other than experimental. But it is apparent that there was no experimental use in this case, either intended or actual."

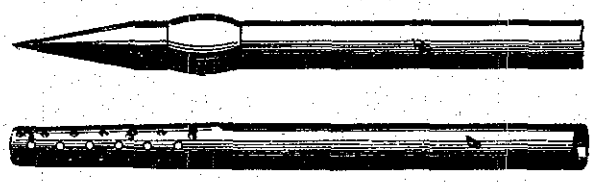


Fig. 4 — N. W. Green's driven well invented in 1861, patented in 1868. The patent was held invalid because of prior public use of the invention based on information given by the inventor.

Public use of process

The litigation involving the so-called driven well patent distinguished from the above cases in that the patent was for a process and in that the patentee had no participation in the public use which defeated the patent. The latter claimed the method of making a well by driving the well casing into the ground or by first driving a mandrel which is then replaced by the casing. This method had considerable merit, and it is still standard practice for procuring drinking water in rural communities. Both mandrel and casing, shown in Fig. 4, may have been new when the inventor provided them with his process in 1861, but he did not claim them as his invention.

Soon after inventing his method he demonstrated it in public, and within the next few years wells were driven by some who either had witnessed his demonstration or heard of it. Unfortunately, the patentee delayed applying for his patent until 1866, and in 1887 the patent was held invalid because the driving of the wells constituted a public use of the invention outside of the permissible period. The fact that the invention would not be readily apparent upon inspection of the finished wells was immaterial since it had been used by the makers of the wells, who were members of the public.

Public use of material

Likewise a material used in the manufacture of articles of commerce is in public use even if its processing has rendered its composition unrecognizable. Thus, in 1928, an infringer of a patent for a rubber composition comprising a particular type of vulcanization accelerator pleaded that an accelerator of that type had been used in the manufacture of rubber tires more than two years before the patent was applied for in 1914. The accelerator was destroyed by the vulcanization process before the tires were sold to the public, and there was no way of learning from the finished tires either their composition or the process by which they had been made. Could such use of the material be public? The court answered:

> "This was the only kind of use possible and it was public. . . . Once the invention has been embodied in goods which are put in public use it becomes impossible for a later inventor to secure a patent."

Experimental use disproved

Another invention which had an element of inaccessibility was the cable railway track illustrated in Fig. 5. The inventor designed this arrangement in 1876 for a short line which began operating in 1878, more than two years before he applied for a patent. When suing an infringer in 1892, the inventor argued that this installation was experimental because its construction was still untried; and, therefore, he had doubts as to its permanency. But the circumstances of this use were not similar to those of the pavement case previously considered. The court therefore disagreed with the inventor, stating that:

> "He did not treat it as an experimental thing, but allowed it to be appropriated as a complete and perfect invention, fit to be used practically, and just as it was, until it should wear out or until it should demonstrate its own unsuitableness. He turned it over to the owners without reserving any

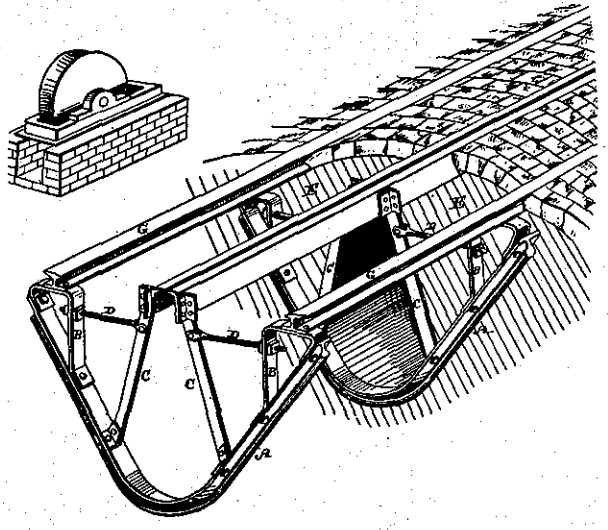


Fig. 5 — H. Root's cable railway foundation, invented in 1876, patented in 1882. The patent was held invalid because prior use of the invention could not be proved to be experimental.

invention becomes "on sale" when an embodiment of it is made only after receipt of a purchase order. The question was answered in several court decisions, one of which involved the adding cash register shown in Fig. 4. This machine contained an interlock or coupler between the keys to insure that all keys depressed simultaneously would register even if some were released before completing their stroke.

In this case the order for the machine was placed with the manufacturer before he made the invention in question, neither the seller nor the buyer then knowing how the machine was going to be arranged. It was only in the course of the manufacture of the machine and after evolving an unsuccessful design that the manufacturer invented the coupler. The machine containing the coupler was delivered to the buyer in 1886. It was held in a suit decided in 1910 that the sale was completed by the delivery and acceptance of the machine, the title to which only then passed from the seller to the buyer. Taking place more than two years before the patent was applied for in 1890, the completion of the sale rendered the patent void. The court also found good reason to declare that the patenting of the machine was just an afterthought.

The fact that the machine was manufactured and delivered upon an advance order rather than manufactured before an order was obtained did not alter the effect of the sale. But, if the invention had been made by the buyer instead of by the seller, the sale of the machine would not have been a sale of the invention. The buyer would then have been paying for having his invention embodied in a machine, but he would not have paid for his own invention. A sale of the invention can only be made to a member of the public: in other words, to anybody except the inventor himself.

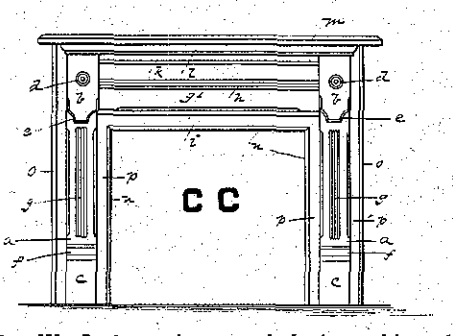


Fig. 5 — W. Anderson's mantel design, shipped and billed in 1888, rendering invalid the design patent applied for more than two years later.

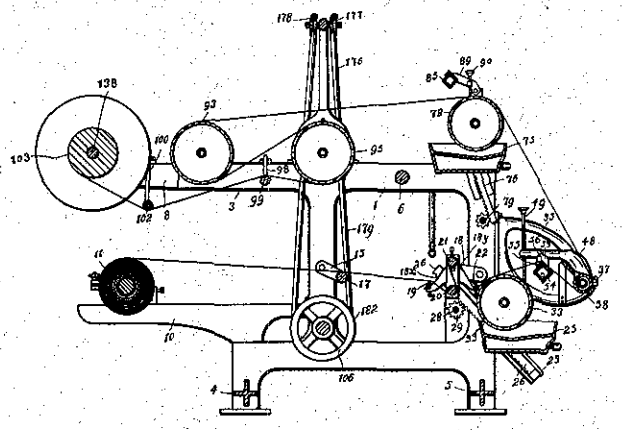


Fig. 6 — C. W. Mayer's paper coating machine, for which bill of sale in 1908 invalidated patent applied for in 1911.

Sale completed by implied acceptance

A sale of an article embodying an invention may be completed even if the acceptance of the article is not expressed but merely implied. In the case of the fireplace mantel shown in Fig. 5, one mantel was shipped to a purchaser in 1888 and shortly thereafter was billed to him. The bill was rendered two years and two days before the manufacturer applied for a design patent covering the mantel. There was no formal acceptance of the mantel, but the fact that the invoice had not been protested was apparently sufficient evidence of the goods being accepted. The patent was held invalid in 1893 although the mantel was paid for less than two years before the patent was applied for.

Sale with delayed delivery

Sometimes a sale may even be completed before actual delivery of the article sold. Such a sale was fatal to the patent on the coating machine shown in Fig. 6. The patented structure comprises a heated coating roller closely adjacent to a heated equalizing scraper and a cooled smoothing roller and is an improvement over a machine previously built by the inventor in 1908 on borrowed money. The latter machine was used by the inventor to make carbon paper for his financial backer. Instead of repaying the loan, the inventor gave his backer a bill of sale of the machine, and soon thereafter the buyer leased the machine back to the inventor's wife.

In a suit decided in 1918, the inventor contended that this queer sequence of transactions did not constitute a sale and that the machine was simply security for a mortgage. The court, however, held the sale completed by the transmission of the bill of sale, more than two years before the patent was applied for in 1911. In fact, the machine was actually delivered to the buyer in 1910. Even though the machine sold was perhaps imperfect and the structure shown in the patent greatly improved, the sale invalidated the patent because the machine sold was within the scope of the patent claims.

Conditional sales

The completion of a sale by acceptance of the article sold is not affected by any money-back guarantee or other guarantee of satisfactory operation, as long as it is not agreed between the seller and the buyer that the article sold is purely or at least principally experimental and that the sale is made for the purpose of testing the invention.

Conditional sales were sufficient to invalidate the patent on the stove shown in Fig. 7. The stove consisted of a cast iron frame supporting a double wall

as a source of revenue. Naturally, if a patentee happened to put his invention to any use at all before the period allowed by law, an infringer will solemnly assert that the use was public and that it invalidates the patent, while the patentee will contend no less strenuously that the use was experimental and hence permissible. The Supreme Court, therefore, went one step further in an attempt to bring order out of this chaos, and stated that:

> "A use by the inventor, for the purpose of testing the machine, in order by experiment to devise additional means for perfecting the success of its operation is admissible; and where, as incident to such use, the product of its operation is disposed of by sale, such profit from its use does not change its character; but where the use is mainly for the purpose of trade and profit, and the experiment is merely incidental to that, the principal and not the incident must give character to the use. The thing implied as excepted out of the prohibition of the statute is a use which may be properly characterized as substantially for purposes of experiment."

Experimental use must be proved

Although the grant of a patent is not accompanied by a guarantee of validity, it is a general rule that a patent is assumed to be valid until sufficient reason is shown in court why it should not have been granted. An infringer, who would establish that a patent is invalid because the invention claimed therein was in use before the permissible period, must furnish full and convincing proof of it. If he succeeds in doing so, what will the court do on the basis of his evidence? The answer was well formulated in a court decision stating that:

> "Instead of laying down a fixed rule, it seems to us that in each case the court should direct its attention to the fundamental inquiry: Under what circumstances and for what purpose did the public use or sale take place? And, where it appears that there has been a public use or sale more than two years before the application, the burden is thrown upon the patentee to establish, by full, clear, and convincing proofs, that such use or sale was principally and primarily for experimental purposes, and that such purposes were not merely incidental or subsidiary. Whatever expressions may be found in the opinions of the Supreme Court to the effect that a single sale comes within the statutory prohibition, we think a careful examination of the cases shows that the primary and governing consideration is the purpose and object of the inventor in making such sale."

The question whether an invention was in public use or in experimental use, while depending on the inventor's intentions, resolves itself into a question of fact. The inventor's intentions are, no doubt, often obscure or nebulous, and his testimony regarding them after a number of years is, at best, unreliable. Facts carrying out these intentions, however, can be proved by witnesses, and the inventor may then be credited with whatever intentions are consistent with his actions. If his acts and his professed intentions were not in accord, he deserves little sympathy and will probably receive none.

Experimental use in public

If an inventor decides beforehand that the first use of his invention will be experimental, making his intentions clear to all persons involved in such use, and conducts the use as an experiment, that use may extend over a number of years without invalidating a patent subsequently applied for. Most cub patent attorneys cut their legalistic teeth on one instance of such use, which is famous for its extreme length and publicity as well as for the masterly explanation of the law that it occasioned.

The invention in question, shown in Fig. 1, consists of a pavement of wooden blocks with wide joints filled with a mixture of tar and gravel and laid on a waterproof foundation. Upon being sued, an infringer pleaded the patent was invalid because a 75-foot strip of the pavement had been used by the public for six years before the patentee filed his application. This strip was installed in 1848 by the patentee, at his own expense, on a toll road owned by a corporation of which he was treasurer. The patentee made it clear, from the beginning, that it was experimental, and he inspected its condition himself almost daily.

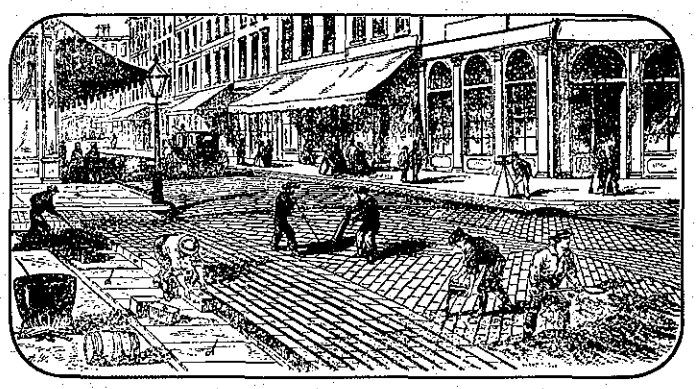


Fig. 1 — S. Nicolson's wooden pavement, first used experimentally in 1848. The patent, which was applied for six years later, was nevertheless valid.

In view of these circumstances, the Supreme Court in 1878 held that there was no public use of the invention and that the patent was valid. Thus was born the paradox of an invention being used by the public for years without being in "public use." But, as an experimental use on that scale was unprecedented, the Court based its decision on the established rules governing the public use of machines, of which it said:

INVENTIONS "ON SALE"

D. Journeaux, **Patent Attorney, Allis-Chalmers Mfg. Co.**

Invented articles may be sold before filing application for patent without detracting from resulting United States patent rights. When is an article "on sale," and how long may it be on sale before filing an application for a patent covering it?

In spite of the intimate dependence of our daily life on innumerable inventions, the monetary value of new inventions is usually quite unpredictable and is often, therefore, a matter of opinion. In this connection it is sometimes implied that inventors, as a class, are inclined to place an excessive value on their inventions. This is quite likely to be true of an inventor whose invention is outside of the field of his trade or profession and who therefore may lack the right yardstick for measuring its value. On the other hand, a manufacturer owning an invention, whether made by himself or assigned to him by someone else, may be expected to look at it with a more critical eye. To him the value of an invention resides very often in its chances of immediate commercial success, and money spent on a commercially untried invention may be an unwise investment, particularly for a man with limited capital.

Patent protection must be sought promptly

This may explain why manufacturers have often put valuable inventions on the market without taking the obvious step of first patenting them. If an invention is a commercial failure, money spent to patent it may be wasted. If it sells well, however, it is eventually seized by competitors, and then its originator may realize that the few hundred dollars that a patent would cost might be well spent. Often the question was raised, alas, too late, for the patent statutes require inventors to seek patent protection promptly. The latest that a patent application may now be filed is one year after the invention has been in public use or on sale in this country for the first time, but a delay of two years was permitted up to a little over a year ago. Failure to comply with this requirement renders the resulting patent invalid. To avoid any confusion, it may be stated that the public use or sale refers to an embodiment of the invention; the statute makes no reference to sales of rights to an invention.

A requirement of this nature, far from being an imposition, is really a concession to inventors. Any delay in applying for a patent defers the time at which the inventor will have to relinquish the invention to the public. Under most circumstances, the allowed time cannot be extended; and, as with other laws, ignorance of patent laws is no excuse. If an inventor, after his invention has been on the market for one year with or without his consent, has not applied for a patent, it will be presumed that he does not desire it. His failure to apply for a patent is taken as evidence of his intent to abandon his invention to the public.

In recent years it has been rather infrequent for patentees to see their patents invalidated by premature sales of their inventions. Apparently prospective patentees nowadays are well coached by their counsel as to the legal requirements. These requirements, of which the full import could only be guessed toward the end of the last century, have now been clarified by numerous court decisions. The efforts of tardy patentees to prove that their inventions were not on sale outside of the permissible period have caused the courts to look into a sufficient variety of circumstances of sales to satisfy even the most fastidious inquirer.

Inventions on sale

One of the earliest principles established by the courts in this connection is that an invention is to be considered "on sale" not only when it is sold but even when it is merely offered for sale. But an invention cannot be considered offered for sale until it has been completed by being at least tried out with all its elements or, in the language of the courts, "reduced to practice."

It is reasonable enough to disregard offers to sell an invention before it has been fully tested and found satisfactory. The language of the statute seems to indicate that the sales it refers to are only those that may lead to immediate use of the invention by the public. But even a very simple invention is apt to have fatal defects or disadvantages which may not be obvious upon casual inspection. A final test of the invention may show the need of considerable modification, in which case any "sale" made before test is

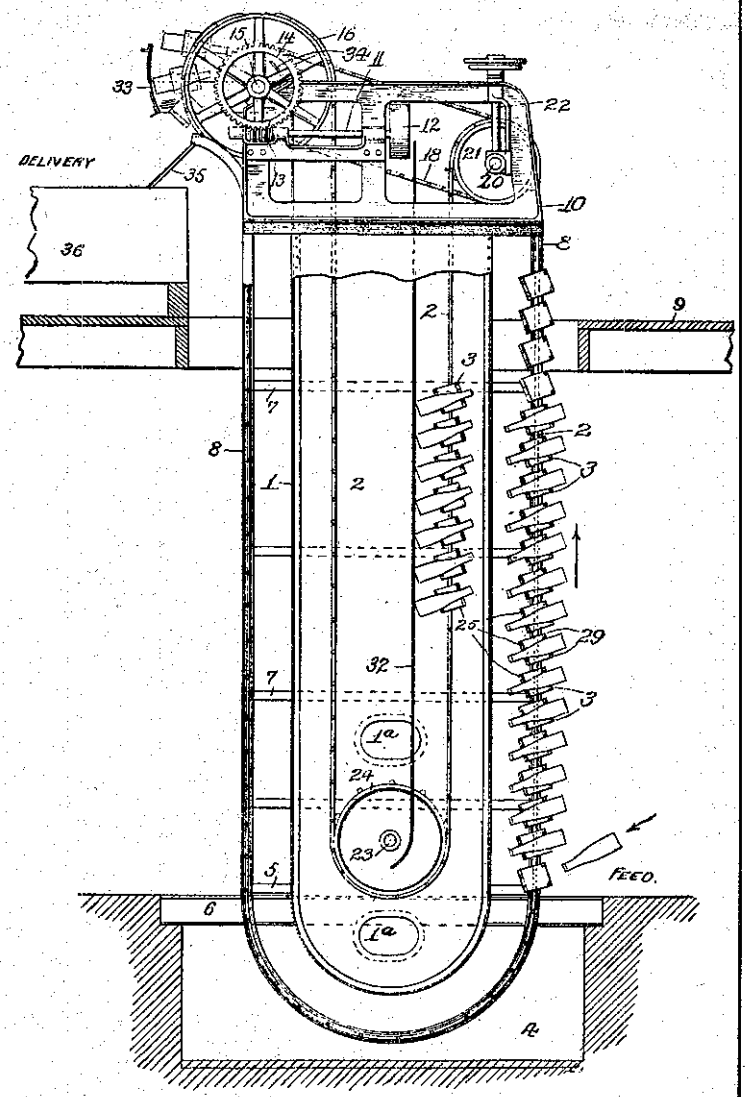


Fig. 3 — S. Volz' machine for soaking beer bottles in a cleaning solution. The patent was held invalid in 1917 because a similar machine had been invented and installed in a brewery by an earlier inventor, who, however, did not apply for a patent.

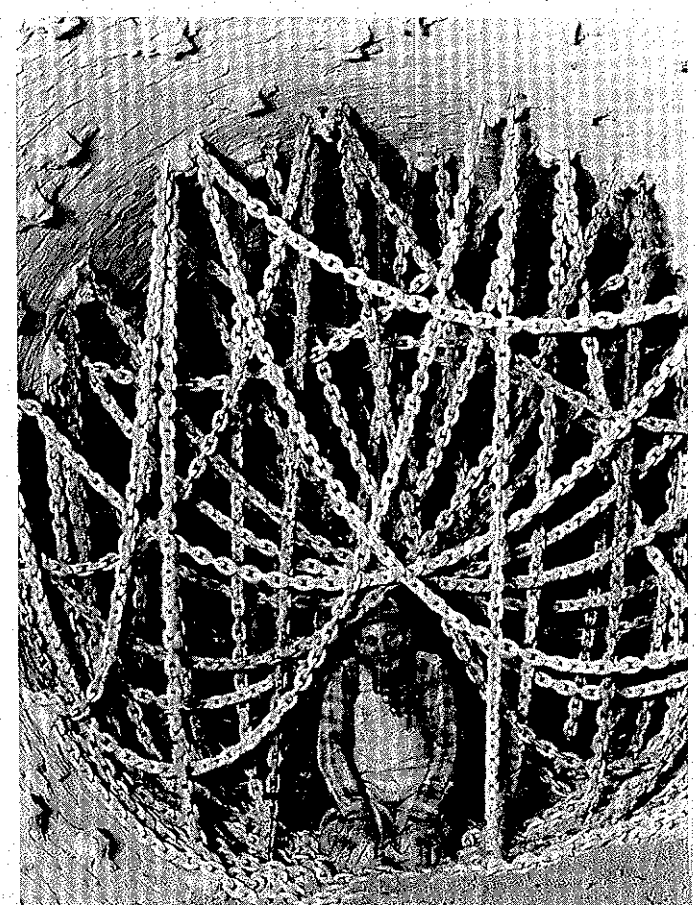
application for patent will be rejected or, if a patent is improvidently granted to him it will be invalid. Judged by Patent Office standards he is not the first inventor. Thus the public-behind-closed-doors use of the invention protects the user against successful interference by later inventors just as effectively as if it had been given world-wide publicity or even been patented.

In this connection, a bottle-making machine installed in a brewery rendered invalid the patent on the later machine illustrated in Fig. 3. Although the public at large had no knowledge of it, the machine was built and used without attempt at concealment before the patentee himself independently completed the invention, and "Prior knowledge and use by a single person would have been sufficient to require denial of the patent." If, however, the use of the machine had been purposely and successfully maintained secret until brought to the attention of the court by any imaginable chain of circumstances, the conclusions of the court might have been different.

It may be mentioned that the inventor who has elected to put his invention in public use may find it desirable also to try to patent it. He must, however, file his application within one year from the beginning of the public use; otherwise his patent will be refused or, if improvidently granted, will be invalid. If he fails to file a timely patent application and, several years later, wants to stop his competitors from using his invention, he will be unable to do so, whether the invention was obtained by others from seeing it practiced in his factory or was reinvented independently. In that respect he is in the same situation as if he had abandoned his right to a patent by concealing his invention successfully.

If he chooses secrecy, however, not only is he entirely powerless to stop a competitor who has later invented the same invention, but he may even conceivably see this competitor obtain a valid patent thereon. And it should be borne in mind by anyone tempted to keep secret his contribution to the art that at the present stage of our industrial activity the same improvement is often invented independently by several inventors. This is evidenced by the numerous instances of patents for the same invention being applied for by several inventors, sometimes at the same time and sometimes one after the other. The protection afforded by secrecy, which may have been dependable when those acquainted with manufacturing problems were few and far between, therefore seems destined to become more and more illusory as the manufacturing industry continues to expand.

"Curtains of Steel" — the Allis-Chalmers chain system for heat transfer in rotary kilns. Covered by U. S. Patent No. 2,059,176 to R. C. Newhouse. This invention has greatly increased efficiency of previous devices, also steps up capacity by eliminating back-spill.



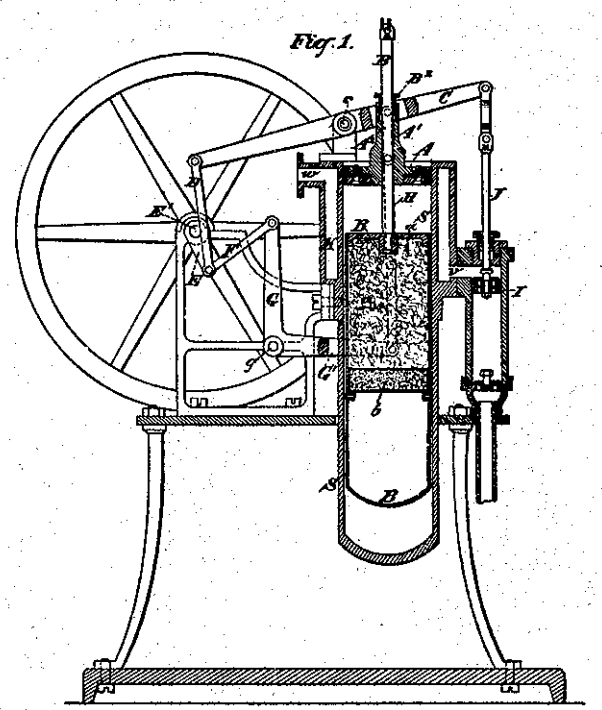


Fig. 6—J. Ericsson's hot air engine of 1877, patented in 1880. The patent was invalidated by prior use of the engine beyond the control of the inventor.

future control over it, and knowing that, except as a subordinate, he would not be permitted to make any changes in it by way of experiment."

No experimental use after unrestricted sale

Equally unsuccessful was the assignee of a patent for the engine shown in Fig. 6. This engine, operated by hot air, was similar to some toy engines still sold today, but of a species apparently otherwise extinct. It embodied a water pump discharging through the water jacket of the engine cylinder. Several engines were sold outright and installed in Manhattan by the patentee's assignee for pumping water into the attic tanks of residences, a job otherwise incumbent upon the house coachman. At least one engine installed in 1877 was frequently inspected and repaired, sometimes without cost, by the manufacturer. The engine efficiency however was not guaranteed, and there was no agreement to take it back. After seven years' use it was traded in as part payment for a new engine of similar construction. In an infringement suit it was argued that such a set of circumstances was evidence of experimental use. But the court held in 1893 that the engine had been in public use, stating that:

"If the inventor wishes to keep control of the machine which embodies his invention, to secure his own access to it for examination, and to keep it in the friendly hands of those who, he intends, shall aid him by practical experiment, he must make such restrictions a part of the contract of sale, and the court cannot assume them to exist in the absence of proof."

Public use in experimental system

The carbon brush, which has assumed considerable importance in the manufacture of electric motors, is also notable for the peculiar circumstances which led to invalidation of the basic patent granted for it. Fig. 7 shows one of the constructions illustrated in the patent. In 1881 the inventor tried replacing the then current copper brushes by carbon pieces. Later he devised an overhead conveying system utilizing a car running on a cable and propelled by an electric

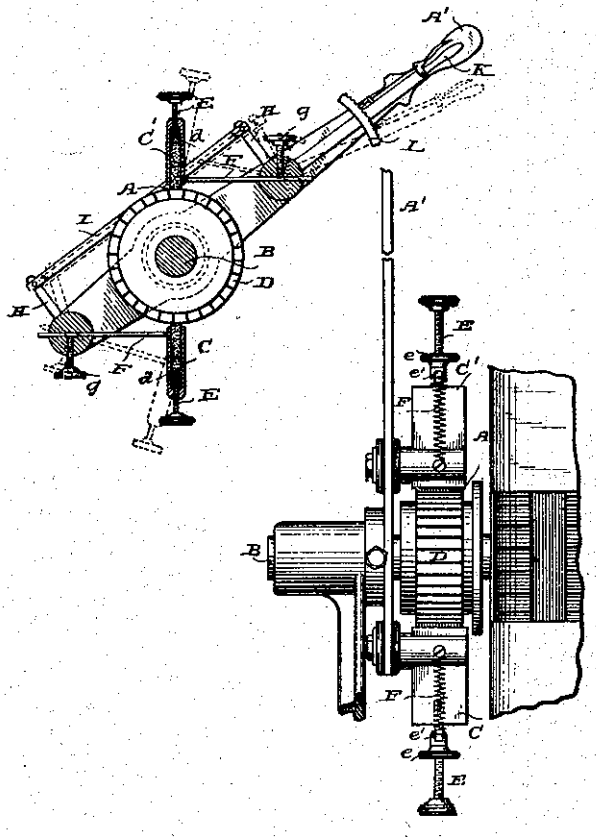


Fig. 7—C. J. Van Depoele's carbon brush for electric motors, invented in 1881, patented in 1888. The patent was held invalid because of prior public use by the inventor in an experiment other than to test the brushes.

motor. An experimental model of this novel system, driven by a motor provided with carbon brushes, was built in 1885 for the sole purpose of demonstrating its operativeness. The inventor did not need to experiment with the carbon brushes, as he had already found them satisfactory years before. The motor simply did its duty as a motor, and there was nothing experimental about it. Were then the brushes in public use? The court denying the validity of the patent in 1901 found that:

"There is no dispute on the proof as to what this use was. As to a system for overhead elec-

tion of the most limited scope is always capable of modification, at least to some extent, without becoming extinct.

Then there would be those contestants who would be willing to concede that the disclosed embodiment of the invention is capable of modification, but only within certain limits—limits which they would fix entirely to their liking and to the utter dislike of the inventor. The inventor of course would say that the invention entitled him to claim the world.

Extreme views such as these may appear unreasonable and unlikely to be taken even if patents were issued without claims since honesty and reasonable judgment may be expected on both sides, on the side of the public as well as on the side of the inventor. Be that as it may, the fact remains that a patent without claims would present the greatest difficulties to an equitable and impartial interpretation. Without expert knowledge of the art to which the patent relates, we could not even guess what the inventor might be entitled to claim, but, with the inventor's claims at hand, we can at least form an opinion as to the possible limits of his right of exclusion.

A claim is a definition of the disclosed invention, and in formulating such a definition the inventor will withdraw more or less from the embodiment of the invention which he has described. For instance, he probably will not call a spade a spade, but he will call it a soil working implement if the invention is susceptible of definition under the broader term; and he will otherwise couch the claim in general rather than specific terms.

This may make it difficult for us to understand the claim upon first reading if we have not taken a good look at the disclosure. But after we have understood the disclosure and then read the claim carefully and keep our mind fixed on the disclosure, we will see quite readily how it reads on the disclosure. The mystery which at first seemed to surround the claim will quickly vanish, and the invention defined by the claim will—or should—come to light. Before any claim is allowed it must pass the criticism of the examiners in the Patent Office, who consistently refuse to allow claims which they consider vague, ambiguous, or indefinite. Rejections on these grounds are quite common, and when a patent is issued, its claims are supposed to be free from these defects.

• Terms

The preference of general terms over specific terms in the phraseology of a claim is an expedient to which the inventor resorts in order to make the claim, and, therefore, his protection, as broad as possible. A claim in which the constituent elements of the invention and their functional relations to each other are defined in broad terms leaves room, without further inquiry, for a broad interpretation of the invention, while a claim in which the constituent elements and their functional relations are defined in specific terms tends to indicate that the invention is not susceptible of a broad interpretation.

However, breadth of language, while desirable, is more or less a matter of form; and when we analyze a claim, we must be guided by its spirit rather than by its letter. Equivalents—that is, true equivalents within the scope of the invention—are always included within the scope of a claim, and the doctrine of equivalents can be invoked where the terms of a claim are specific, but the invention which it defines is generic.

• Number of elements

A matter far more important to the inventor than the language of the claim is the question of whether it includes the least number of elements which are necessary to define the invention. The inclusion of any additional element in excess of the least number required introduces a limitation, and if an allegedly infringing device does not include all the elements which are recited in the claim, infringement will seldom, if ever, be found to exist.

As a rule, the inventor who has secured a broad claim, or possibly a few broad claims, also has narrower claims incorporated in his patent, and in the narrower claims he usually takes a firmer grip upon the embodiment of the invention which he has described. It is not necessary that the narrower claims include a larger number of elements than the broad claim since many limitations can be effected by qualifying the elements of the broad claim. A change of a single word in the broader claim or the addition of only one word to it is sometimes sufficient to make it narrower; and, where such fine distinctions are made, we have to look closely to determine which is the broadest claim.

The introduction of additional elements into the broad claim is another method of limiting it and adding to the number of claims, the only requirement being that the additional element and those of the broad claim must combine to produce a unitary result and not merely an aggregation. Narrow claims, in addition to broad claims, are generally desirable because the patent will then not stand and fall with the broad claims alone. Upon suit for infringement, the broad claim or claims may be held invalid, while the narrow ones may be held valid and infringed. Or, if the suit does not involve the narrow claims, an adverse judgment upon the broad claims may leave the narrow claims undisturbed, in which case the inventor could still assert rights of exclusion under the narrow claims, and these would be entitled to a presumption of validity like any other unadjudicated claim.

We see, therefore, that the claims are the most important part of any patent. If we want to know what the patent covers, we have to know what is in the claims. It is the claims, and the claims alone, on which the inventor is permitted to rely in asserting his right of exclusion—an elementary rule which cannot be emphasized too strongly.

"When the subject of invention is a machine, it may be tested and tried in a building, either with or without closed doors. In either case, such use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing its operation. He may see cause to alter it and improve it or not. His experiments will reveal the fact whether any and what alterations may be necessary. If durability is one of the qualities to be attained, a long period, perhaps years, may be necessary to enable the inventor to discover whether his purpose is accomplished."

Public use in private

Going from one extreme to the other, the same court, in 1881, declared another patent invalid in a decision which has set, for generations of patent attorneys, the standard of non-permissible use. This decision also gave us the second paradox of an invention being in "public use" merely because it was used privately by one person other than the inventor. The invention in litigation is shown in its pristine simplicity in Fig. 2. It is a double leaf corset spring which, at the time of its invention in 1855, no doubt deserved considerable attention. It was devised to replace the disconcertingly breakable single leaf springs then currently in use and to give to the feminine body the softly resilient support now more generally provided for automobile bodies.

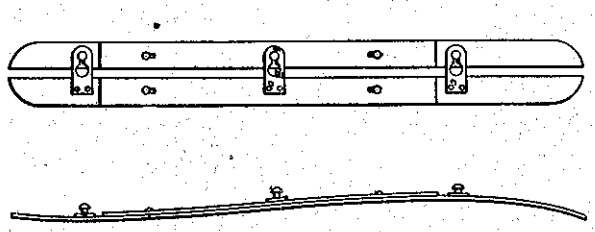


Fig. 2 — S. H. Barnes' double leaf corset spring, invented in 1855 and first patented in 1866. The patent, reissued five times, was finally held invalid because of prior use of the invention by one person.

The inventor made some springs and gave them to his future wife to be used by her, but without enjoining her to keep his idea secret. Apparently he did not have in mind that such use be made under his direction as a scientific experiment. In 1866, when the inventor applied for his patent, the springs had somehow, it is stated, gained general acceptance by the trade. But the patentee was too late to gather his reward. In the words of the Supreme Court, the inventor slept on his rights for eleven years. Like Rip van Winkle, he found on awakening that what once belonged to him had passed to others. His patent, to which he belatedly gave so much attention that he and his wife reissued it five times, was held invalid. The general principles of this holding were laid down as follows:

"To constitute the public use of a patent it is not necessary that more than one of the patented

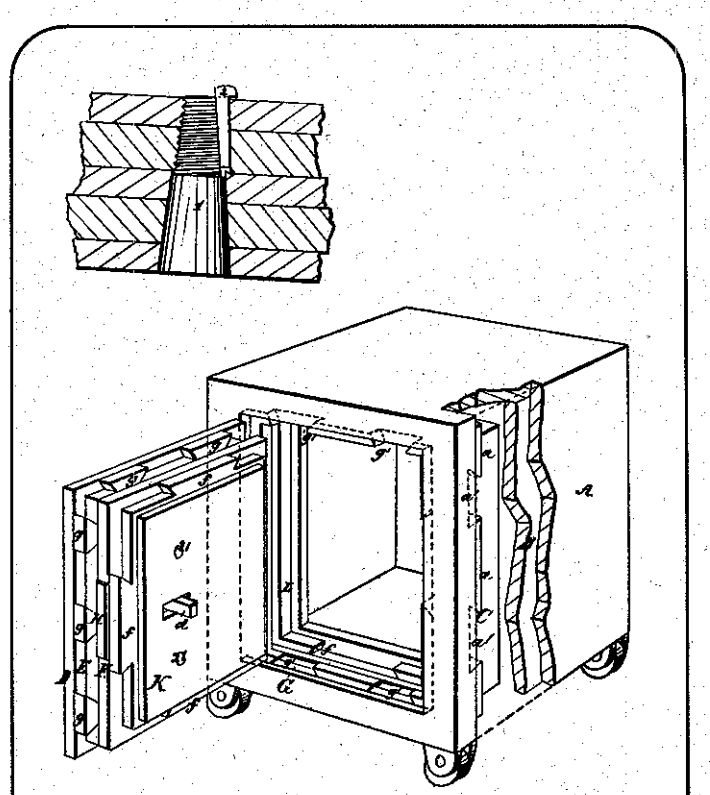


Fig. 3 — J. L. Hall's burglar-proof safe patented in 1867. One claim of the patent was invalidated by prior use of the invention although the invention could not normally be detected.

articles should be publicly used. . . . Whether the use of an invention is public or private does not necessarily depend upon the number of persons to whom its use is known. If an inventor, having made his device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, within the meaning of the statute, even though the use and knowledge of the use may be confined to one person."

Public use beyond knowledge of user

Use beyond the knowledge of the general public was also fatal to a claim of a patent on the safe construction shown in Fig. 3. The claim was directed to the tapered bolts used for fastening together the plates forming the casing and the door. The patentee made and sold outright a few of these safes more than two years before applying for the patent. The invention embodied in those safes was held in 1883 to be in public use for the reasons that:

"The construction and arrangement and purpose and mode of operation and use of the bolts in the safes were necessarily known to the workmen who put them in. They were, it is true, hidden from view, after the safes were completed, and it required a destruction of the safe to bring them into view. But this was no concealment of them or use of them in secret. They had no more concealment than was inseparable from any legitimate use of

Date of Issue

Patent No.

Patented May 3, 1949 **2,468,786**

Government Agency Which Issues Patent

UNITED STATES PATENT OFFICE

2,468,786

ELECTROMAGNETIC CORE ASSEMBLY AND METHOD

Title

As of this Date, the Patent is a Reference for what it Discloses

William C. Sealey, Wauwatosa, and Fritz W. Arend, West Allis, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis., a corporation of Delaware

Names of Inventors

Owner of Patent

Application August 21, 1944, Serial No. 550,358

6 Claims. (Cl. 175—356)

Identifies Patent Office Class in which Patent was Assigned on Day of Issue

1

This invention relates in general to electromagnetic cores and particularly to an improved core assembly for induction apparatus having substantially radial laminations and to an improved method of assembling such core.

Prior art cores for induction apparatus have been made substantially cylindrical in shape and have been formed of laminations extending substantially radially and longitudinally of the cylinder. In order that laminations of uniform thickness throughout their radial length may be used, sectors of the core, substantially triangular in cross section, have been formed of laminations having progressively decreasing radial length. When these sectors were assembled to form a cylindrical core, thermo-setting varnish has been used in an attempt to hold the laminations in place during the assembling operation. This method of assembling these cores had the disadvantage of permitting relative movement of the various laminations during assembly and operation. Welding of the laminations has been avoided so as to eliminate the flow of eddy currents through the welds in the laminations.

It is therefore an object of the present invention to provide a core assembly and method of assembling the same that will avoid the above disadvantages.

It is also an object of the present invention to provide an improved core assembly and method involving radial laminations in which packages of laminations are welded or otherwise fusibly united together without effecting increased eddy current losses.

It is a further object of the present invention to provide an improved core structure and method in which the laminations can be easily welded at low welding currents and without deformation or burning of the thin laminations.

It is also an object of the present invention to provide a core assembly and method in which the laminations are welded in an improved manner so that packages of the laminations can be assembled with insulation therebetween to form an improved cylindrical core with the laminations extending substantially in a radial direction.

Objects and advantages other than those above set forth will be apparent from the following description when read in connection with the accompanying drawing, in which:

Fig. 1 is a top view of a core assembly embodying the present invention;

Fig. 2 is a section view taken on the lines II—II of Fig. 1;

2

Fig. 3 is a partial enlarged view of the core structure shown in Fig. 1; and

Fig. 4 shows a modified form of the invention as shown in Fig. 3.

Statement of Invention

Description of Embodiments shown in the Drawings

The core assembly as shown in Figs. 1 and 2 is substantially cylindrical and is formed of a plurality of sectors 19, in which the laminations of sheet core material are substantially radial. In Fig. 1 only one core sector 19 is shown with the laminations in place, for the other sectors would be similar if assembled. Each sector 19 is made up of a plurality of packages 18 of laminations as shown more in detail in Fig. 3. Each package 18 is made up of a group of laminations 5 of one length and one lamination 9 of a longer length. The groups of laminations 5 of one length as shown in Fig. 3 contain three laminations, however, this number may be increased or decreased as desired.

The packages 18 of laminations may be fusibly united as by spot welding as at 10 in Fig. 3. These packages of laminations are then spot welded, starting with the shortest package 18, to a common supporting lamination 12 which will become one of the laminations in the longest group of the adjacent sector 19. This weld is shown at 11 and can be made with very little current as only two thin laminations are involved. With low current there is no deformation of the material and no burning. The package 18 of laminations can be easily held in place and several of these welds 11 are made to hold one package as shown in Fig. 2. As the packages 18 are assembled, a layer of insulation such as paper 13 is placed between adjacent packages.

When the welded packages of one sector 19 are assembled and held together by the above method, this incomplete sector is put in place as shown in Figs. 1 and 2 with the inner notch 8 in the supporting lamination cooperating with a collar 7 on the central hub 15. As shown in Fig. 3, the sector is completed by a stack of unwelded laminations of the same size as the supporting lamination and by the supporting lamination of the following sector. Each sector is then welded to the hub 15 as at 14. When the entire core is assembled an outer ring 6 is placed in the outer notches 8 and an insulating tube 17 is then placed around the edges of the circumferential edge of the core. This tube 17 is held in place by a screw 22 threaded into the ring 6.

The core assembly thus forms a rigid assembly utilizing radial laminations but in which no additional eddy current path is formed because of the welded structure. Inasmuch as the welds are

SPECIFICATION of patent cited in Plate A is a written description of the invention. It is written in such clear and exact terms that any person skilled in the field of the invention can make it or use it without difficulty. **(PLATE B)**

A typical U. S. patent, chosen for the purpose of explaining the make-up of a patent, is No. 2,468,786.[4] This particular patent comprises one sheet of drawing and three pages of printed matter. The sheet of drawing is shown in Plate A. The first page of the printed matter is shown in Plate B. The printed matter is known as the specification. When received from the U. S. Patent Office, the pages are stapled together so that the patent has the appearance of a booklet, roughly of letter size.

Patent heading contains useful information

The first page of the specification, illustrated in Plate B, carries information at the top of the page which permits identification and classification of the patent. In the upper left-hand corner appear the words, Patented May 3, 1949. This is the issue

[4] The reader is advised to obtain a copy of this patent. It is only by studying the patent copy first-hand that the reader will appreciate the points brought out in this article. Patent copies cost 25 cents and are obtainable from the Commissioner of Patents, Washington 25, D. C. When ordering, give identifying number, name of inventor, and date of issue.

PUBLIC USE IN PRIVATE, OR VICE VERSA

D. Journeaux, **Patent Attorney, Allis-Chalmers Mfg. Co.**

To be valid, a patent application must be filed within one year from the first "public use" of an invention. But "experimental use" is encouraged. Question: When is a use public, when experimental?

● Complaints have often been made of the slowness of the procedure that inventors must follow before they can obtain the patents which should rather, in their minds, be pressed upon them. Yet one of the purposes of the patent system of this country is to give to the public the benefit of disclosures of inventions at as early a date as possible. Indeed, the history of our patent laws seems to reveal a series of attempts to determine, by a method of successive approximations, just how soon prospective patentees can be required to file their applications after completing their inventions.

One year public use

At present a valid patent on an invention cannot be obtained unless the application be filed within one year from the first public use or sale of the invention in the United States. Formerly the length of this period was two years. The thought back of this limitation of public use is that the public should not suddenly see itself deprived of an invention after having enjoyed the unrestricted use of it for a period of years. In this respect a patent assumes a certain similarity to real property; and it was held in a suit for infringement that, if an inventor allows the public at large to use his improvements for many years, "he must be deemed to have made a gift of them to the public, as much as a person who voluntarily opens his land as a highway, and suffers it to remain for a length of time devoted to public use."

The law, at least since its revision in 1870, is perfectly clear as to this requirement. Yet its application has been found so full of difficulties that it has been disregarded by numerous patentees, who were often apparently quite unaware of being tardy.

What is public use?

Naturally, before different aspects of public use are examined, the question arises, just what does constitute a public use? As is often the case in patent law, a too general definition is dangerous in that it may be inapplicable to some unforeseen set of circumstances. With due caution it may be considered that an invention is in public use when it is used openly by the inventor for its intended purpose and also when it is used by any one beyond the control of the inventor. To apply this rule to any particular instance of use, it is, however, always necessary to bear in mind the explanatory statements made by the courts and the conclusions reached in cases involving similar states of facts.

Experimental use

Taken literally, the public use statutes were always quite inflexible. It was not very long, however, before inventors, or more probably, their counsel, had the brilliant idea that, if a public use of an invention for more than two years (now one) before filing is a bar to the grant of a patent, there is no reason why some other kind of use could not take place at that time without having such an effect. The most frequent example of innocuous use is experimental use, which has served many times as an excuse for delay during the last six or seven decades. While in many instances a long use of an invention cannot reasonably be interpreted as being experimental, a well proven experimental use made in good faith has often been held by the courts not to be a public use. The authority for this policy is the Supreme Court, which stated that:

> "It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it."

Profits from experimental use

Litigants in patent suits have often made legal history out of the fact that experimental use and use for profit may be hard to distinguish, and a use in public may even serve both as an experiment and

1. A core assembly of laminations of sheet metal extending substantially radially about a longitudinal axis, said core assembly comprising a plurality of sectors, certain of said sectors comprising a plurality of stacked packages of said laminations, adjacent said packages being non-uniformly spaced from said axis to define a series of steps, each said package comprising a stack of laminations which are at a substantially uniform distance from said axis and a single lamination extending to a smaller distance from said axis to define a protruding edge, said protruding edges lying substantially parallel to said axis, said edges resting on a common supporting lamination of an adjacent said sector, and bonds of fused metal uniting certain of said packages with said supporting lamination at intermediate points of the lines of contact of said edges with said supporting lamination.

Patent Claim No. 1

Defines the Invention

List of Prior Art cited by the Patent office during the Prosecution of this Patent

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

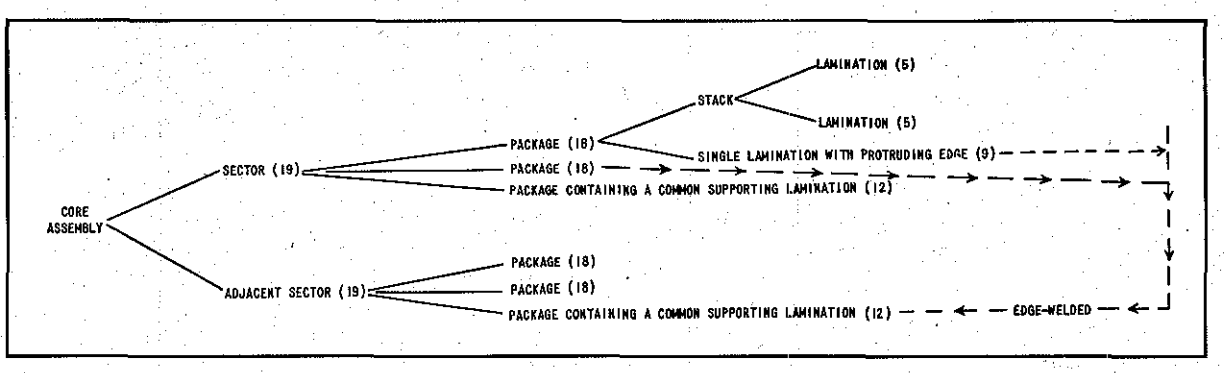
Number	Name	Date
2,114,070	Bouwers	Apr. 12, 1938
2,359,102	Foster	Sept. 26, 1944

FOREIGN PATENTS

Number	Country	Date
27,873	Sweden	Aug. 8, 1908
111,716	Germany	July 9, 1900
482,771	Great Britain	Apr. 5, 1938
504,328	France	Apr. 12, 1920
595,363	France	July 13, 1925

PRIOR ART REFERENCES cited against the application for U. S. Patent No. 2,468,786 while it was pending in the United States Patent Office are listed above. These references, found at the end of the specification, do not disclose the invention claimed in the patent. **(PLATE E)**

THE CLAIM, shown above, defines the invention protected by the patent. It must distinguish the invention from all other inventions known to the public. **(PLATE C)**



GRAPH OF CLAIM 1 of U. S. Patent No. 2,468,786, shown in Plate C, illustrates one way to analyze a claim so that the invention it describes may be more easily detected. Graphing may help in future readings. **(PLATE D)**

have come to have a precise meaning. It will be well for the engineer to become acquainted with the meanings of the more common of these terms. Expressions like "comprising," "consisting," "plurality," "substantially," "predetermined," and "means for" doing so and so appear frequently in claim language.[6]

Patent claims make sense

When reading a patent claim, the engineer should always remember that he is simply reading a definition of the invention. If this is kept in mind, the claim will be more easily understood as the reading proceeds. For explanatory purposes, claim 1 of the patent will be discussed, see Plate C.

A count of the number of words in claim 1 shows the claim to contain 137 words. There is no doubt that, while this number of words makes the claim very difficult to read, it does not follow that it makes it impossible to read. Before attempting to analyze the claim, however, the engineer should ask himself "What do I already know about the invention?" If the engineer has read the first paragraph on page 1 of the patent copy, i.e., the statement of invention, he knows that the invention has to do with the electromagnetic core of a piece of induction apparatus. He knows further that the invention deals with a core which has substantially radial laminations.

[6] These terms have a precise meaning when used in patent claims. "Comprising" leaves a claim open for the inclusion of unspecified elements. In other words, "comprising" does not exclude elements which are not recited. "Consisting of" closes the claim to the inclusion of elements other than those recited. "Predetermined" means measured beforehand or preselected. "Plurality" as a modifier means more than one. "Substantially" implies permissibility of a slight latitude or variation. "Means for" doing so and so is the broadest way of defining an element. For example, "means for supplying power to a driven shaft" could be any one, or combination, of several sources of motive power, such as an electric motor, gas turbine, or diesel engine.

He is probably familiar with laminated cores and by looking at the drawings and briefly reading the description he should have a good idea of the structure described. With this in mind, he is ready to undertake reading of the claims. The engineer will probably find it helpful in tackling his first few claims to list the elements recited and identify them from the drawings by reference numerals. If he uses this method with claim 1, he will have the following list of elements:

Elements	*Reference Character*	*Drawing*
Core Assembly		Fig. 1
Laminations	5	Figs. 3 and 4
Packages of Laminations	18	Fig. 3
	28	Fig. 4
Common Supporting Lamination	12	Figs. 3 and 4
Single Lamination	9	Fig. 3
	29	Fig. 4
Protruding Edge of Lamination	11	Figs. 3 and 4
Bonds of Fused Metal	11	Figs. 3 and 4

Understanding the claim

If the claim is again examined, keeping in mind the listed elements, the engineer will see that the claim is merely a recitation of those elements linked together by functional language to define an operative structure. The functional language of claim 1 explains how the laminations are arranged to form a stack, how the stack is combined with a single lamination of longer length to form a package, how the packages are arranged to define a series of steps, how a group of these stepped pack-

were occasional visitors, but not many persons came to the factory "from mere curiosity." Under the circumstances the court felt constrained to rule that:

> "It has always been held that when the public have had means of knowledge they have had knowledge of the invention. Thus if a book has been published describing the invention, it is not important that no one has read it. . . . If a pier has been placed in the bed of a river, or a pipe under ground, it is conclusively presumed to be known to all men. . . . It is enough that any one or more persons, not under a pledge of secrecy, saw the invention practiced, or even might have seen it if they had used their opportunities, provided it was in fact practiced in the ordinary way after being completed. And it must be held either that the workmen and visitors were a part of the public, or that they were persons from whom the public might have acquired the art without a breach of trust."

It may well be asked how much those who actually have seen an invention in use in a factory need to have learned therefrom to render its use public. In another decision a court ruled it not essential to be established

> "that persons who witness the prior public use of an anticipating device understood and appreciated its method of operation. That, too, in a practical sense, is more than can be asked. A prior use of an invention may be public, even though the portion of the public who witnessed it are not skilled in the art to which the use appertained."

Having due regard for particular circumstances, it may be considered that, as tersely expressed by the Supreme Court in a recent decision:

> "A mere experimental use is not the public use defined by the Act, but a single use for profit, not purposely hidden, is such. The ordinary use of a machine or the practice of a process in a factory in the usual course of producing articles for commercial purposes is a public use."

Secrecy is abandonment of right to patent

Another and perhaps more dangerous pitfall than "public use" lies in the path of the inventor who, having reaped the benefits of secrecy, seeks yet to reap those of statutory exclusion and, feigning repentance, finally discloses his invention in return for a patent. If this secret use of the invention extended over a period of years, an infringer sued under the patent may very well plead that the inventor had, by his actions, rendered his patent void. By choosing secrecy, he "abandoned" his invention so far as the Courts are concerned and, by law, he should not have received a patent if his invention had been "proved to have been abandoned." This may seem arbitrary, but after all, "Congress, having created the monopoly, may put such restrictions upon it as it pleases." And such restrictions are clearly dictated by public policy. The intentions of Congress were authoritatively clarified in this respect by the Supreme Court, which held as long as a hundred years ago that:

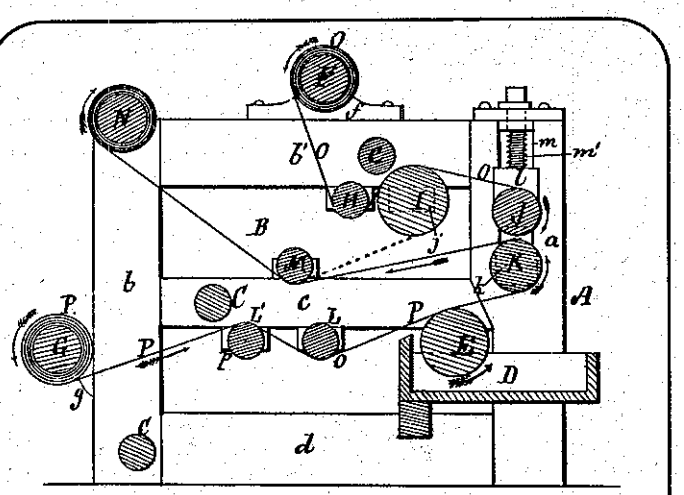


Fig. 2 — E. L. Perkins' machine for joining two strips of paper by a thick layer of paste to form stiff cardboard. A leading court decision handed down in 1880 held the patent invalid because of commercial use of the machine without secrecy over two years before the patent was applied for in 1876.

> "If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should for a long period of years retain the monopoly, and make, and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure; and then, and then only, when the danger of competition should force him to secure the exclusive right, and he should be allowed to take out a patent, and thus exclude the public from any further use than what should be derived under it during his fourteen years (seventeen under the present laws); it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries."

The Supreme Court also recently cited with approval a lower court decision drawing from the above its conclusion that:

> "Not to accept the benefit of the patent laws, but to rely upon the trade secret law for protection of an inventor, is as clear an abandonment by him of the privileges and obligations of the patent law as the abandonment of its advantages in any other manner would be."

Public use protects against later inventors

If a machine or process is used in the privacy of a factory without attempt at complete secrecy, the invention may be stolen, at least in its essential features, by unscrupulous visitors. On the other hand, such use, being public, will render invalid the patent of even a prior inventor if he has waited until the public use had continued for more than a year before applying for his patent.

If this machine or process is later reinvented by one who believes himself to be its first inventor, his

PROTECTING NEW INVENTIONS

Leo Teplow, **Formerly Patent Attorney, Allis-Chalmers Mfg. Co.**

Shrouding an invention in secrecy is likely to defeat its own ends. Instructions for inventors should read, "Write it down; get it witnessed; reduce it to practice!"

Tragic is the tale of the poor, hardworking inventor whose revolutionary invention is stolen by an unscrupulous villain who obtains a patent for the invention and makes a fortune from it. Far be it from me to destroy so satisfactorily heartbreaking a picture. But it is unfortunate that the oft-told tale has so inspired inventors with a fear lest their inventions be stolen that the inventions are sometimes lost through too much caution.

What is the best way to protect an invention on which no patent has been obtained? What to do with an invention before an application for patent has been filed? Is keeping an invention secret the best protection? These questions frequently occur to the inventor, and visions of the defrauded inventor may result in the practice of such complete secrecy that the inventor may never be able thereafter to find any one to corroborate his own statements as to the dates of conception or reduction to practice of the invention. The following are a few suggestions which may help the inventor not only to prevent the theft of his invention, but to preserve his rights in subsequent litigation.

Write it down

1. When you conceive an invention, *write it down.* If possible, make a sketch to show the principle on which the new invention operates and one or two modifications. Write in at least enough description to make the sketch comprehensible. *Sign and date each sheet* on which the invention is disclosed. If it is ever necessary to add anything to these original disclosures, use a different color of ink, and initial and date the additions or alterations so that it will be possible to determine the nature and date of the original invention and of subsequent alterations or additions.

"But if I put my invention down on paper, some one may see it and claim it for his own." Possible, but not likely, if you take the next step, discussed below. But the importance of putting your invention down on paper cannot be overemphasized. The human memory is an unreliable guide. Prompted by numerous suggestions, we may "remember" things we never knew. It is hard to distinguish between that which we remember and that which we have recently learned. Moreover, how can one prove exactly what the invention was, unless one can point to a description made at the time?

Get a witness

2. Get someone to *witness your sketches and description.* At least two witnesses are preferable. If possible, explain your invention to these witnesses, and have them sign your sketches as follows:

"Witnessed and understood
(Signed) A. B. Cook
June 3, 1937.
(Signed) D. E. Fort
June 3, 1937."

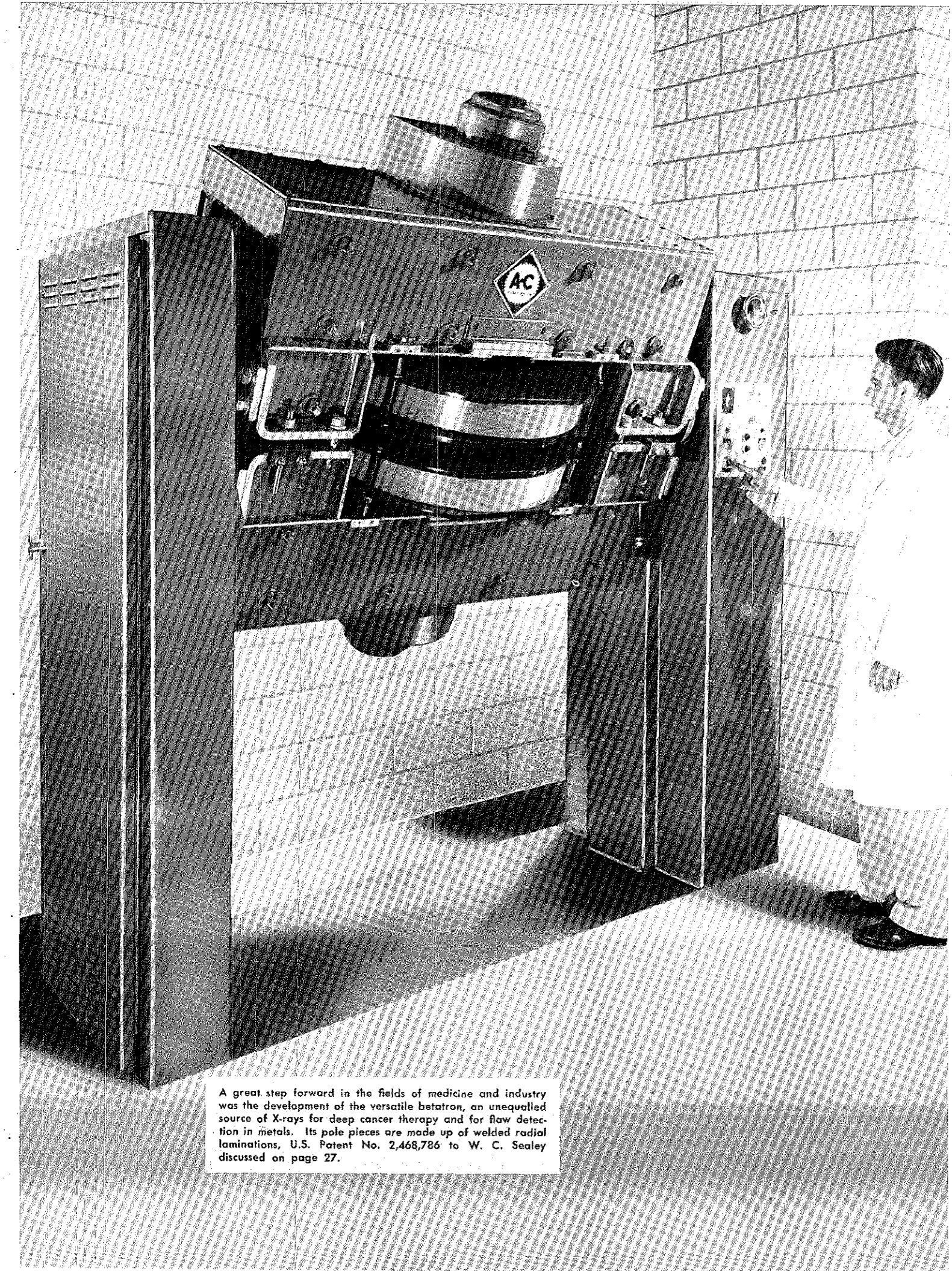
"But," you object, "if I explain my invention to others, what is to keep them from stealing it?"

The surest guarantee that your witnesses will not steal your invention is their signature as witnesses to your invention. If the question of priority of invention between you and your witnesses ever arises, their signatures *as witnesses to your invention* are the best possible proof that they believed that you were the inventor at the time they witnessed your sketches.

It is of the utmost importance to illustrate your invention, to explain it to others, and to have the illustration witnessed. It is very difficult and frequently impossible to prove the date when you made your invention, unless you can produce documentary evidence in the nature of sketches, written description, correspondence, working drawings, etc. And when such documentary evidence is available, its value is greatly enhanced if it can be identified by witnesses.

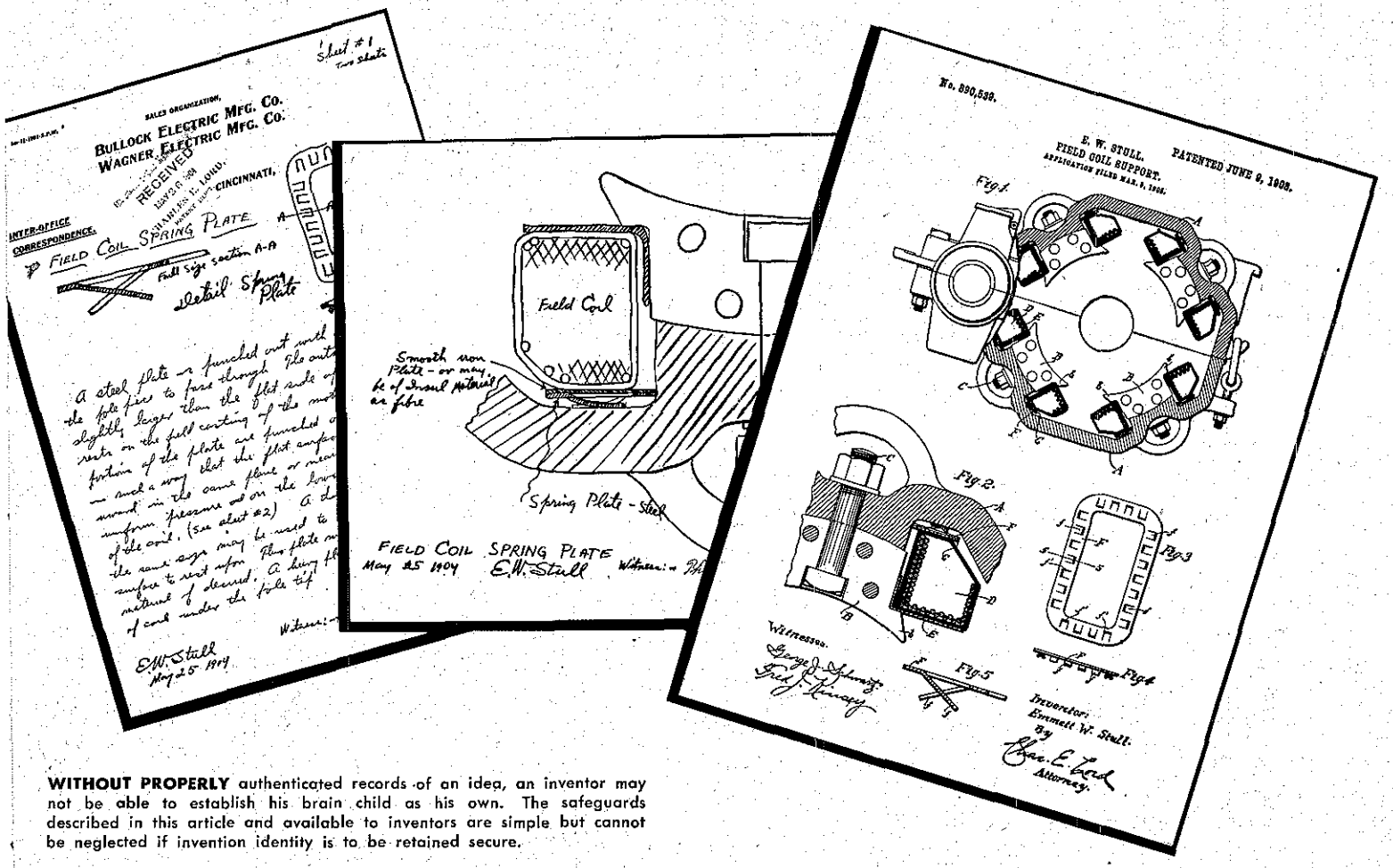
Perfect it

3. Keep actively at work perfecting your invention until you either (a) file an application for patent on it; or (b) obtain a working model or full sized machine to prove that the invention is successfully operative, and test it before witnesses. If you have a brilliant idea, and put it on the shelf for a couple of years until you have more time to spend on it, another inventor may come along after you, conceive the same idea, and by working diligently to reduce it to practice and perhaps put it on the market, be legally adjudged to be *the first inventor.* This is because invention is more than cerebral pyrotechnics. Invention consists of the two steps of (1) conceiving the solution to a problem (frequently preceded by a realization of what the problem is, which may be an important step in obtaining the solution); and (2) making



A great step forward in the fields of medicine and industry was the development of the versatile betatron, an unequalled source of X-rays for deep cancer therapy and for flaw detection in metals. Its pole pieces are made up of welded radial laminations, U.S. Patent No. 2,468,786 to W. C. Sealey discussed on page 27.

BIRTH CERTIFICATES



WITHOUT PROPERLY authenticated records of an idea, an inventor may not be able to establish his brain child as his own. The safeguards described in this article and available to inventors are simple but cannot be neglected if invention identity is to be retained secure.

and dated the sketch but there is no evidence available that the invention was explained to some other party on that date. The tribunal trying the question of first inventorship will not accept an inventor's unsupported statement that he made a sketch on a certain date, even if the date appears on the sketch. The tribunal requires corroborative testimony.

The best and simplest way for the inventor to lay a foundation for testimony that he is the party who made a sketch on a certain date is to sign and date the sketch and submit it to some other person, capable of understanding the invention, and have the other person sign the sketch as a witness. For the witness' signature to be of any substantial value, the person signing must also apply the date when he applies his signature. The sooner the inventor has his sketch witnessed the better. The effective date of a sketch will ordinarily be no earlier than the date of its first disclosure to another person.

If the invention is the joint product of more than one inventor, each inventor should sign and date the sketch or other paper, and the document should be submitted to some third person for signing and dating. This is because joint inventors are considered together as an entity and hence the testimony of one of the joint inventors will not be accepted to corroborate that of another joint inventor.

Written descriptions are vital

Most engineers make very good sketches, but even a good sketch or drawing ought to be supplemented by a written description. Sometimes, depending upon the subject matter, a written description without a sketch is better than a sketch alone. Judging by experience, many engineers seem to have a special aversion to making written descriptions of their inventions. A written description is not only of great value to make certain the construction and arrangement of the parts of a structure, but to explain the mode of operation of the invention which, from a mere consideration of the structure, is often not apparent at all, or not clear.

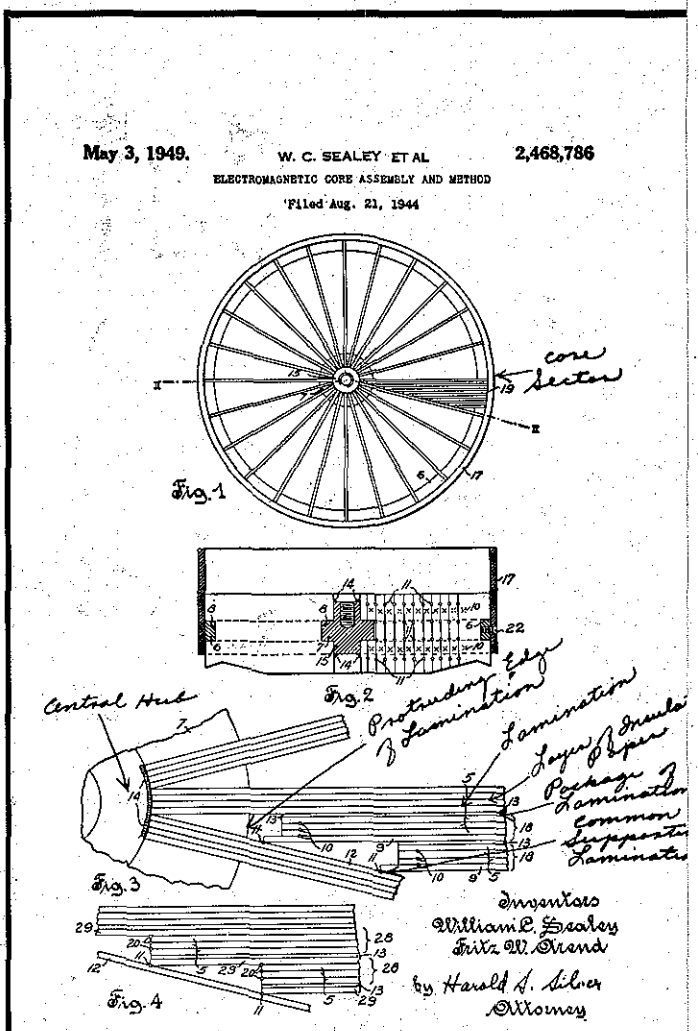
Since the sketch is presented as showing something new, something that has never been seen before by others,

middle class encouraged private speculative enterprise. During the 16th century, the formation under royal charter of joint stock companies to promote trading and manufactures created a demand for patent protection, and the Crown obliged.

English records of Queen Elizabeth's reign (1558-1603) show patents issuing on such diverse subjects as a dredging machine, the manufacture of soap, and an improvement in knife handles. Patent grants were not confined to inventors, however. Importers of industries and machines from abroad, as well as courtiers and servants who made no inventions but to whom the Crown was often indebted, received grants. Many of the patents granted by Queen Elizabeth and her successors to the throne, James I and Charles I, were clearly contrary to English common law. These illegal grants, embracing no new inventions but giving court favorites monopolistic control over the basic necessities of life, ushered in an era of scarcity and high prices. An outraged public eventually forced, in 1624, the passage through Parliament of the famous Statute of Monopolies. This act, the prototype of modern patent statutes, made such monopolies illegal, and emphasizing the common law restricted the issuance of patents to only the true and first inventor of a new manufacture.

The Statute of Monopolies was to leave its impress on certain of the American colonies in the 150-year period which followed the passage of the Statute in England. In that period, colonies like Massachusetts and Connecticut passed similar laws and issued patents. It is not surprising, then, to find that many of the delegates to the Constitutional Convention of 1787 at Philadelphia were familiar with patents. Recognizing the desirability of encouraging invention under our new government, once established, the delegates adopted, without debate, a provision for a U. S. patent system. Subsequent legislation enacted by Congress established the United States Patent Office and empowered the Commissioner of Patents to grant patents for new inventions. Further legislation, in 1870, provided for the printing and sale of patent copies.

These copies are obtainable from the Patent Office for 25 cents. They are exact reproductions of the patent with one exception. The cover page, which is known as the grant, is not reproduced.



DRAWING SHEET of U. S. Patent No. 2,468,786 shows four vie two forms of laminated core assembly for induction apparatus. The v elements which make up the core are identified in the views by refe numerals. For example, "5" identifies the laminations. **(PLATE A)**

Patent owners' rights are limited

The grant confers on the patent owner the exclusive right to make, use, and sell the invention throughout the United States and its territories for 17 years. The term "exclusive right" means that the patent owner has at law only the right to exclude others from making, using, and selling his invention. He himself has no right to use the invention if it requires the use of another's patented invention. When this situation exists, the patent owner must obtain permission from the other patent owner before he can use the invention he himself owns. This permission usually takes the form of a license. If this is puzzling, perhaps an example will serve to explain it.

Nikola Tesla secured the basic U. S. patent on the polyphase induction motor.[2] Shortly afterward and while Tesla's patent was in force, the inventor Dobrowolsky secured a patent on an improved winding usable in Tesla's motor.[3] Suppose that Dobrowolsky, wishing to realize on his invention, had desired to manufacture Tesla's motor with Dobrowolsky's improved winding. Would Dobrowolsky have been free to do so? Not without a license from Tesla. The patent system must work this way, otherwise Tesla's right would have dissolved into thin air, if every time someone else made an improvement on Tesla's motor that someone else had been free to use Tesla's invention. Since the practice of any patented invention by the owner may require the use of someone else's patent, it is always advisable for the patent owner to check the patent situation relative to his patented device before undertaking manufacture. Otherwise he may be unpleasantly surprised to receive a letter from the other patent owner asking him to cease manufacture, or else.

Patents describe inventions

Prior to the American Revolution, the public could not discover from reading an English or Colonial patent much about the actual invention. No attempt was made in the early patent grants to describe the invention, either by writings or drawings. When patents were few, this did not matter much. But with the advent of the industrial revolution and increased inventive activity, a written description came to be required as part of the grant to distinguish new inventions from the old. The description of the invention appearing in a modern patent should be sufficient to teach anyone skilled in the field to which the patent pertains to practice it after the patent has expired.

[2] U. S. 382,280.
[3] U. S. 427,978. First squirrel cage winding.

WHO INVENTED IT?

Leo Teplow, **Formerly Patent Attorney, Allis-Chalmers Mfg. Co.**

Because failure to file a patent under the name of the real inventor makes it invalid, the importance of determining "who invented it" cannot be overstressed.

● The determination of paternity of children has involved a tremendous amount of research among medico-legal experts. Many and complex methods have been devised, involving laws of heredity as well as blood analysis, all of which, together with circumstantial evidence, must be considered.

Difficult as this problem may be, the determination of paternity of brain children is even more troublesome. One cannot resort to blood analysis of the invention, and hereditary characteristics are seldom recognizable.

● "Build a better mousetrap"

The Ketch-A-Mouse Corporation manufactures an excellent, reliable mouse trap, but what with the onset of another depression and the active competition of Rattatorium, Inc., producers of de luxe streamlined mouse traps, the Ketch-A-Mouse Corporation is losing business. A new trap must be produced to attract the interest of a jaded public.

Mr. D. Zine is Chief Engineer of the Ketch-A-Mouse Corporation, while D. Velop is a subordinate — let us say a draftsman — in the employ of the same company. D. Zine lies awake nights in an effort to figure out a new and better mouse trap. He discusses his problem with his wife, his friends, his associates, his subordinates. It even affects his bridge.

Finally Mr. D. Zine calls his corps of draftsmen together and says: "This thing has gone on long enough! What do we have an engineering department for, and a million dollar appropriation, if you ———————— (profanity deleted.—Ed.) can't invent a better mouse trap than that bunch of so-called engineers at Rattatorium?! Let's go to work now, and work up a mouse trap that will rival the Pied Piper of Hamelin. Let's get a mouse trap that will attract mice and hold them. Two days on this; and I WANT RESULTS."

At the end of the second day Mr. D. Velop submits his inspiration. It is a novel and useful mouse trap, in which a piece of cheese is placed before a magnifying mirror. A mouse, on seeing the cheese, approaches it, but sees his reflection — a much bigger mouse, heading for the same cheese. Being a prudent mouse, he waits for the big mouse to go away, and starves to death.

A test on the company's proving and breeding grounds shows that the invention works like a charm. Working drawings are made up, sources of material contacted, and the company prepares to go into production on a mass basis. But hold! The president wants to know whether the company is free to make and sell the new "Mouse Boudoir." Mr. Pat Attorney is consulted and determines that the field is clear.

The next question is — can we protect it so that Rattatorium and our competitors cannot copy it? Mr. Pat Attorney is instructed to file a patent application on the new invention. One of his first questions is, "Who is the inventor?" Mr. D. Zine is not at all bashful. "I invented it. I told the boys to rig up a trap that would attract the mice and hold them. Here it is. Obviously it was my idea."

Mr. Pat Attorney is not so sure. "Did you tell the boys to arrange a mirror, particularly a magnifying mirror, behind the bait?" he asks. "No-o," admits Mr. D. Zine. "That was their job. I just told them what the problem was."

"Then you are not the inventor," says Mr. Pat Attorney. "The father of this brain child is the chap who conceived the idea of arranging a bait in front of a magnifying mirror." And so the patent application is finally filed in the name of D. Velop, who was the true originator of the revolutionary "Mouse Boudoir."

● The inventor and the solution

With certain exceptions, the inventor is not the person who states the problem. The inventor is the man who hits upon the solution of the problem which the ordinary mechanic, the mythical "man skilled in the art to which the invention appertains," cannot solve. The inventor is not he who discovers that the house is wet because the roof leaks; the inventor is he who discovers a new and useful (and inventive) means to prevent the roof from leaking.

The general rule stated above — that the inventor is not the man who states the problem — is subject to certain exceptions. It may happen that the solution to a given problem is obvious once the problem is clearly understood, but the true problem is not obvious. Assume that it is not known why iron corrodes. A researcher comes to the conclusion that the corrosion of iron is due to the action of the oxygen in the air or in water. He concludes that if we could keep air and water out of direct contact with iron, we would prevent its corrosion. The solution is obvious — a coat of paint or other

date of the patent. Without looking at a calendar for 1949 we know that May 3, 1949 was a Tuesday because it is only on Tuesdays that patents issue. Since U. S. patents have a life of 17 years, the patent will be in force until May 3, 1966. In the upper right-hand corner appears the patent number, 2,468,786. This identifies the patent as the 2,468,786th patent to issue since the Patent Office began numbering patents in 1836.[5] Before that date, patents were not numbered serially. Next in bold face type appears the government office of origin, the UNITED STATES PATENT OFFICE. Beneath it, in small type, the patent number is repeated. Under the number is printed the title of the patent, ELECTROMAGNETIC CORE ASSEMBLY AND METHOD.

Below the title, a brief paragraph in block form gives the names of the inventors and their post office address. This paragraph also contains the further information that the patent has been assigned to the Allis-Chalmers Manufacturing Company, a corporation of Delaware. This latter statement means that Allis-Chalmers was the owner of the patent when it issued.

Next appears the date when the patent application was filed in the United States Patent Office, August 21, 1944, and the serial number of the application. The filing date, August 21, 1944, is important because a United States Patent is a reference for what it discloses as of its filing date. Beneath the filing date appears the statement, "6 claims," which means there are six formal definitions of the invention at the end of the specification.

To the right of the statement, "6 claims," there appears in parentheses the expression, "Cl. 175-356." This simply means that, at the time of issue, the patent was classified by the U. S. Patent Office in Patent Office Class 175, Subclass 356. If one refers to the looseleaf classification manual issued by the Patent Office, he will find that Class 175 is identified as Electricity, General Applications, and Subclass 356 as Stationary Induction Apparatus. This method of classifying patents was adopted by the Patent Office to enable a searcher to find similar patents relating to the same subject matter. Thus there are today roughly 50,000 classes and subclasses into which all U. S. patents are respectively classified. These classes and subclasses are constantly being revised by the Patent Office.

First paragraph of patent orients reader

The printed matter below the heading is known as the specification. For convenience of discussion, it may be thought of as divided into a number of parts which are identified as—

Statement of Invention
Discussion of Prior Art
Objects of Invention
List of the Drawings
Description of Embodiments Shown in Drawings
Claims

The opening paragraph of the specification (page 1 of the patent) is known as the statement of invention. Its purpose is to point out to the reader the field of art in which the invention lies. Its significance lies in the fact that, if it is not carefully stated, it may unnecessarily limit the protection afforded by the patent claims at the end of the specification.

The patent copy of Plate B, in the first paragraph on page 1, discloses that the invention relates in general to electromagnetic cores. The statement of invention further informs the reader that the kind of core referred to is an improved core assembly for induction apparatus. And the statement identifies the particular type of core as one that has substantially radial laminations. Lastly, the statement of invention informs the reader that the invention also relates to an improved method of assembling such a core.

Following the opening paragraph, the patent generally discusses the prior art. By the term "prior art" is meant those inventions and practices which have already been utilized by others in the past.

The patent copy of Plate B follows the accepted practice and states that the laminations of prior art cores were held together during assembly of the core by thermosetting varnish. The patent goes on to state that the varnish has the disadvantage of permitting the laminations to move relative to one another during assembly and operation. This disadvantage, the patent discloses in its third paragraph, has been overcome by the present invention.

Following the discussion of the prior art, the patent proceeds to state the purposes of the invention. The statements of these purposes are known as the objects of invention. They are important because they are often examined by the courts when patent claims are in dispute to determine the inventor's exact intentions. The objects of invention tell what the invention seeks to accomplish.

Directly following the objects of invention is a brief list of the figures of the drawing. These figures illustrate certain embodiments of the invention. Following the list of figures of the drawing is a detailed description of the embodiments shown in the drawings.

In the description, the figures of the drawings are referred to and the various elements shown in the drawings are identified by reference numerals. For example, in Figure 3 of the patent drawings the laminations of the core are identified by the reference numeral 5. The description of the invention is required by law to be so clear that any person skilled in the field to which the invention pertains can make it when the patent expires.

Patent claims define the invention

The patent specification ends with one or more claims, which are formal definitions of the invention. To the casual reader, patent claims offer the most difficulties. In form, each claim comprises a single sentence. Since it is not unusual for claims to number 200 words or more, it is easy to see why they are difficult to read. The engineer may ask if anything can be done about the length of patent claims. Short of reforming the Patent Office and the patent attorneys, the answer is no. The form of the patent claim, while relatively new historically, has become established through long usage. There is little likelihood of any immediate change. There is no recourse, then, except for the engineer to relax, even if he can't enjoy it.

One other characteristic of the patent claim which baffles the novice is the language used. Patent attorneys, like members of all professions, employ a professional jargon. It is not employed, however, to mystify engineers, as many of them seem to think, but rather because the jargon has over a period of years acquired a legal certainty. It must be remembered that patent claims are definitions of the invention. Since they distinguish the inventor's contribution from all others, they must be stated with an exactness that will withstand the scrutiny of the courts during the life of the patent. Through court and Patent Office decisions, certain terms used in claims

[5] Barring those patents that have been withdrawn from issue by the Patent Office for various reasons.

JOINT INVENTORSHIP

Leo Teplow, **Formerly Patent Attorney, Allis-Chalmers Mfg. Co.**

If more than one person contributes to an invention, the invention becomes a joint one. And reluctance to give credit where credit is due can lead to invalidity.

● Devious and mysterious as any detective story is the problem of inventorship — Who invented it?

When a proud inventor submits his invention to a patent attorney or to a possible purchaser, it would be no flippancy to inquire, "You and who else?" The invention may be the result of two, three or four people working jointly to achieve the final result. And any one of them may consider himself the sole parent of the brain-child, unless searching questions bring out the facts.

● Status of inventors

Much has been said about the importance and the dignity of the act of invention. It has been generally overlooked that inventions may be helpful or harmful, depending on the uses to which they may be put. But assiduous cultivation has created the myth that an inventor is a superior kind of person to whom all mankind is perpetually indebted. Obviously, a street sweeper is a much more useful member of society than the inventor of an infinitely destructive submarine, no matter how complicated the submarine may be. Yet so thoroughly have we inherited conceptions of caste and class from the Old World that the lowly street sweeper never receives—nor expects—a word of thanks nor adequate remuneration, while our inventors of weapons of destruction are regarded as belonging to the cream of society, and are rewarded accordingly.

So strong is the desire to become one of the select company of inventors that there is keen competition among those who are working together to be named as *the inventor* of an improvement which may be the result of many minds. There are good reasons why it is important to determine who is the real inventor: Not only in the interests of justice, that every man may have his due; not only to avoid the friction always aroused when one man is given credit for another man's work; but also for the very good reason that a patent, which may cover a valuable invention, may be declared invalid if issued to anyone other than the true inventor.

* * * *

Assume that D. Velop and Imp Ruve are two designers employed by the Kachamouse Corporation, D. Velop being in charge of the development of a new and striking mousetrap. The two men work side by side and continually compare notes and discuss the progress of their latest development. After much scheming and planning, they succeed in developing a mousetrap in which the jaws are entirely hidden in the normal position of the trap. All that meets the eye of the prowling mouse is a little platform with a piece of cheese on it, inviting the prowler to his death.

● Success story

So pleased is Mr. D. Velop with his success that he rushes to the Vice-President-in-Charge-of-Development-and-Research, enthusiastically explaining his idea. Patent approval having been obtained, dies, presses, and special machine tools are ordered to manufacture the new Kamooflage trap in quantity.

"And let's get patent protection on that," instructs the Vice-President-in-Charge-of-Development-and-Research. "Who's responsible for this invention — you, D. Velop?"

"Yes, that's my baby," responds D. Velop proudly, conveniently forgetting that Imp Ruve had just as much to do with the development as he. And so the patent covering this important advance in the art of mousetraps is obtained in the name of D. Velop.

● Invalidity

Disappointed that his contribution has not been recognized, Mr. Imp Ruve leaves the Kachamouse Corporation and eventually winds up as an employee of Rattatorium, Inc., Kachamouse's most serious competitor. Rattatorium isn't doing so well. Kachamouse's Kamooflage Mousetrap is sweeping the country, and Rattatorium is losing business. What to do?

Imp Ruve finds himself sitting in on a conference between Rattatorium's Sales Manager, Production Manager, and Patent Attorney.

"Isn't there some way we can get around this D. Velop patent?" It is Mr. Hy Preshur, the Sales Manager, speaking. Then, his voice rising, "What's the use of having a patent attorney if he can't find some way for us to get our share of the business?"

Mr. Imp Ruve can contain himself no longer. "That patent shouldn't have been issued to D. Velop alone anyway. We both worked out that arrangement; and while I didn't do it alone, I certainly had as much to do with inventing that Kamooflage mousetrap as D. Velop did."

At this Mr. Pat Attorney pricks up his ears. "You did? Can you prove it?"

ages form a sector and how each sector is bonded by an edge weld to a supporting lamination of the next adjacent sector to result in a core assembly. The engineer will note the recurring use of the term "plurality" which simply means more than one. Thus, a core assembly comprising a plurality of sectors comprises more than one sector. By this time the engineer will have already discovered that the recitation of elements in the claim is according to a descending order of magnitude of the elements, but this is not always so. For example, the core assembly generally comprises sectors, each sector in turn comprises packages, each package in turn comprises a stack of laminations together with a single lamination having a protruding edge. A simple graph of the claim would look like that shown in Plate D when read on Figure 3 of the patent drawings.

Such a graph is the first step in understanding the claim, and it can be made to show the invention defined by the claim. Here the invention comprises the edge welding of the protruding edges of the packages to the common supporting lamination of the next adjacent sector.

The engineer will find it wise to keep his graph as simple as possible. Complicated graphs can be more difficult to understand than the bare claim itself. The experience gained by graphing will eventually enable the engineer to discard the graph in favor of a shorthand statement of the claim. For example, claim 1 can be reduced to a statement, "packages of laminations having their protruding edges edge-welded to a supporting lamination of the adjacent sector." Or shorter yet, "packages protrudingly edge-welded to adjacent sector." Some engineers may find it helpful to use symbolic notation to indicate the contents of the claim, such as ABC, ABD, etc., where the letters stand for the elements listed.

Once the engineer recognizes the invention defined by the first claim, he is ready to examine the second claim. The procedure will be the same. Listing the elements and comparing the list with that for claim 1, the engineer will discover that claim 2 mentions for the first time another element; namely, "a central member." (See line 59 of column 3 of the patent.) Claim 2 further states that another bond of fused metal unites the supporting lamination with the central member. (See lines 1-2, column 4 of the patent.) These are features not mentioned in claim 1 and serve to distinguish claim 2 from claim 1.

The graph for claim 2 will be similar to the graph for claim 1 with the addition of the "central member" and an added broken line showing the welding of the supporting lamination to the central member. Using the shorthand method claim 2 can be represented by "claim 1 plus supporting lamination welded to central member."

The remaining claims can be treated in like fashion and a simple table drawn up distinguishing the claims from one another. When this is done, the engineer is in a position to see whether the claims read on (i.e. define) the particular device he is interested in, which device may be his company's proposed product.

Engineer can help avoid infringement

The ability to analyze claims is an important one for the engineer. He, more than anyone else, is in a position to prevent his company from infringing another's patents. By infringing is meant using another's patented invention without the owner's permission. If the engineer is familiar with the prior art and his competitor's patents, he is well able to protect his company from possible liability arising out of infringement. Such liability may take the form of a money settlement with the owner of the infringed patent. It may mean the scrapping of costly tools and dies through a forced change in design. Or it may mean the expense of defending a lawsuit and the payment of damages if his company is the loser. Generally this responsibility falls on the shoulders of the chief engineers of corporate organizations. Usually they delegate it to one of their subordinates. Since any engineer may suddenly have the responsibility thrust upon him, it is not a bad idea for the young engineer to become familiar with patents early in his career. The earlier the better, because he will find that patent knowledge is predominately gained by experience and not from textbooks.

The engineer, reading a recently issued patent, such as U. S. 2,468,786, will notice that the patent copy carries at the end of the specification a paragraph entitled, "References Cited," Plate E. The references referred to are usually United States and foreign patents, but may include magazine articles and textbooks. They comprise the prior art which the Patent Examiner in the U. S. Patent Office cited against the patent application during its prosecution. This art is of value in determining the scope of the patent claim. The term "scope" in patent law has the usual dictionary definition: namely, range and extent. When applied to a patent claim, it means the range and extent of the invention defined by the claim. Thus a claim concerning vacuum tubes, when read literally, might appear to cover all types of vacuum tubes, yet when read in view of the cited prior art may be limited to screen grid tubes.

Knowledge of the prior art in his own particular field is of inestimable value to the engineer because he can rapidly assess the value of a patent by means of such knowledge. Occasionally the Patent Office, through inadvertence or mistake, issues a patent containing one or more claims of doubtful validity. If the engineer has a good knowledge of the prior art, he is in a position to detect such spurious claims and provide his company with the basis for a good defense against any possible charges of infringement.

Besides the ability to recognize infringement, a knowledge of the prior art will aid the engineer in recognizing a patentable invention when he sees one. This follows when it is understood that an invention to be patentable must be a measurable advance over the prior art. Without a knowledge of the prior art, it is therefore impossible to say whether an invention is patentable or not.

It is therefore to the engineer's advantage to acquire a certain competence in the field of patents. A working knowledge of patents can be obtained only through actual experience and by reading relevant material dealing with patents and their need in engineering. The sources of information on this subject are many and readily available. A short bibliography of works written to enable engineers to arrive at a clearer understanding of patents appears at the end of this article.

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PATENT INTERFERENCE

Leo Teplow, **Formerly Patent Attorney, Allis-Chalmers Mfg. Co.**

"Interference," as used in patent law, does not pave the way to touchdowns. Rather it has proved a headache to many inventors whose priority is contested by rival claimants.

To the lay mind, the word "Interference" conjures visions of a large stadium, teamwork and touchdowns. To the patent lawyer, "Interference" usually means a headache.

An interference, in patent parlance, is a proceeding to determine which one of two or more inventors who claim to have made the same invention is entitled to be declared the first inventor and to receive a patent covering this invention.

Let us assume that D. Velop is a draftsman working for a shoe machinery manufacturer in Bangor, Maine. When business tapered off during the depression, D. Velop found himself on a payless vacation of indefinite duration. Being of an original and inventive turn of mind, he went to work in his basement on several ideas which had been floating around in his mind, but which he had had no time to work on previously. After weeks of alternate anguish and bliss (the way of the inventor, like that of the transgressor, is hard, strewn with many false promises of success), he emerged triumphantly clutching a contraption of tin cans and bent wire. "I got it!"

"Got what?" asked patient, long suffering Mrs. D. Velop. (The way of an inventor's wife is even harder.)

"A mousetrap! A successful mousetrap! The world will beat a path to our door."

"But we've got a path. And besides, how can anybody make a path with a mousetrap?" Her worst fears were realized. The loss of his job and the constant tinkering down in the cellar had unsettled her husband's mind.

But Mr. D. Velop was quite sane. That is, quite sane for an inventor. He had invented a mousetrap with easily removable jaws, so that the jaws could be discarded with their victim, leaving no tell-tale odor to warn other mice.

• Consults attorney

With the unquenchable enthusiasm possessed only by inventors and reformers, Mr. D. Velop persuaded his friend Pat. Attorney to undertake to prosecute an application for a patent on his new and useful invention. Mr. Pat. Attorney, normally a level-headed lawyer, in this instance agreed to file and prosecute a patent application for a share of the proceeds from the sale of the invention.

Let us pass quickly over the next year or two, while Mr. D. Velop alternately tries to sell his invention, without success, and works on the development of other revolutionary inventions. Every month or two he inquires about how that patent is coming along, but his friend Pat advises patience. "Rome wasn't built in a day. It takes time to get a good patent."

Then one day Pat. Attorney walked in on D. Velop while the latter was hard at work on an improved oil-filter. "Cheap to make. Millions of them being used. Why, General Motors alone . . ." he was muttering to himself.

"Hold on, D. V., let's get back to mousetraps," interrupted Pat.

"Oh, mousetraps. Did we get the patent?"

• Interference declared

"No, not yet. Fact is, we're in trouble. The Patent Office has just declared an interference."

"Interference? What's the Patent Office got to do with interference?"

"Plenty. Some other inventor got the same idea, and filed a patent application on it. The Patent Office has to decide which of the two is the first inventor. The first inventor will get the patent."

"Who is the other fellow? Bet he stole it from me." D. Velop was quite bitter.

Pat sat down on the cellar stairs. "Not necessarily, D. V. Sometimes several people get the same idea entirely independently, and about the same time. The other inventor is named N. Ventor, he lives in Oshkosh, Wisconsin, and the patent application is assigned to Rattatorium, Inc., one of the biggest manufacturers of mousetraps in the

a model or full size machine (or other article) in accordance with the conception and operating it in the way it is intended to operate in actual use. In technical jargon this second step is termed "reduction to practice." Conception and reduction to practice *together* constitute invention. To put it arithmetically,

Conception + Reduction to Practice = Invention.

Strive to reduce it to practice

Therefore, if you have conceived an invention but have not reduced it to practice, you have not technically made an invention at all. If, while your conception is lying on the shelf, so to speak, another inventor comes along with the same idea and diligently goes to work to reduce it to practice and makes a working model of it before you get around to developing your brain-child, the other fellow is regarded as being the first inventor. Therefore, it is important to keep actively developing your invention and not to let it lie dormant after conception. For if you are *diligent* in attempting to reduce your invention to practice, a later inventor is not entitled to a patent even if he completes it before you do.

In order to encourage inventors who may not have the time or money to reduce an invention to practice, the law considers that an inventor who files an application for patent has made a "constructive" reduction to practice. The word "constructive" as used in law indicates that the thing to which it is applied is a legal fiction and for legal purposes will be regarded as fact. So in this case, the filing of a complete application for patent is regarded as a "constructive" reduction to practice, although every one knows that a patent application is not a working model. Therefore, a man who invents an improved tractor does not need to build a tractor or even a model of a tractor in order to complete his invention; he may simply instruct a patent attorney to prepare a patent application; and, if there has been no lack of diligence between the time that the invention was conceived and the date of filing a complete application therefor, the inventor's rights are preserved.

There are many and conflicting decisions as to what constitutes "due diligence" required of an inventor to maintain his priority rights, but it is beyond the scope of this article to go into that. Suffice it to say that an inventor who conceives an invention should diligently strive to reduce it to practice or to file a patent application covering it, in order to protect his inventor's rights.

Of course, it is possible that the inventor may be so poor that he has neither the means to embody his invention in an operative model nor the funds to pay an attorney's fees for a patent application. He may then file an application himself, without the aid of an attorney, but the preparation and prosecution of patent applications is so highly technical a matter that an inexperienced inventor is not likely to get adequate patent protection without competent legal advice; and there would still remain the problem of paying the filing fee and the final fee, should the application mature to patent.

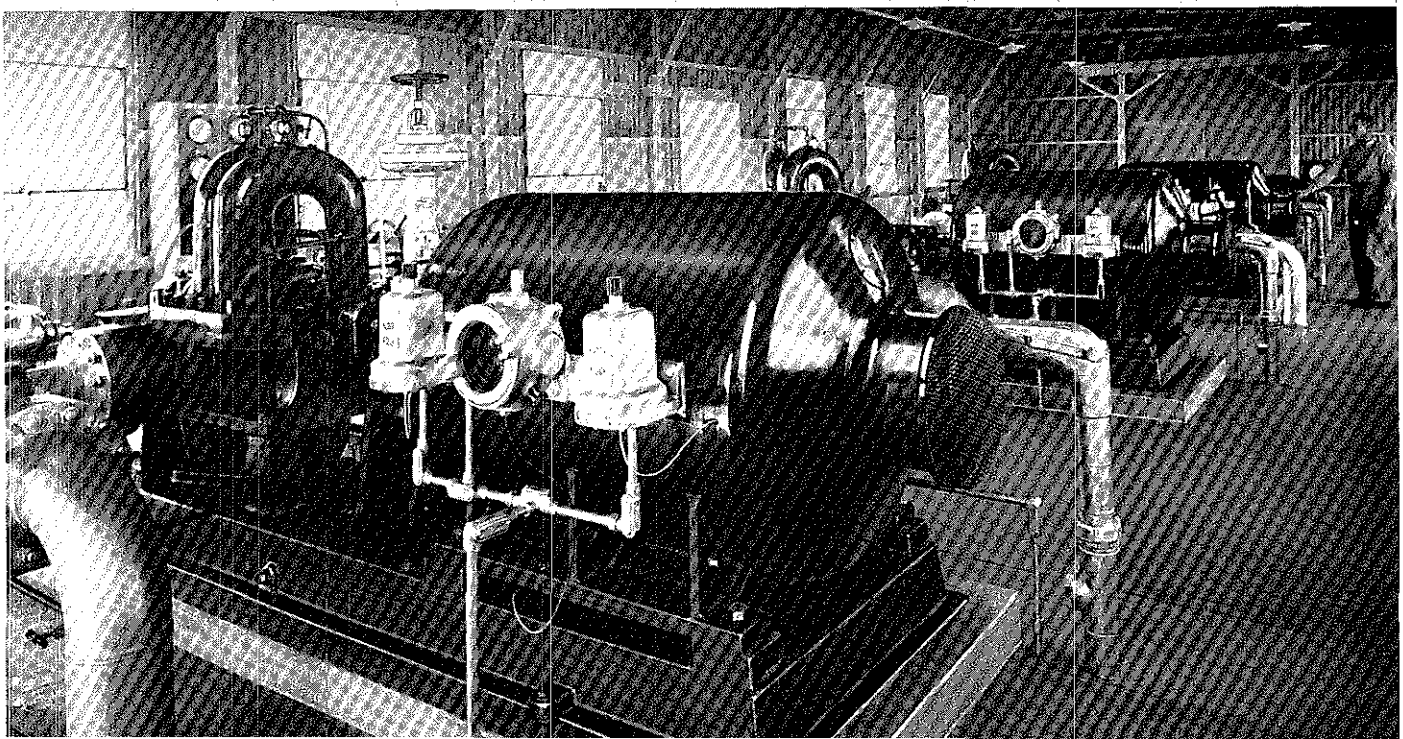
The problem of an inventor who cannot raise enough funds even to meet the filing fees remains unsolved. As with all other legal rights, the rights of an inventor are applicable to rich and poor alike; but a certain minimum amount of money is essential to set the wheels of law in motion to enforce those rights.

Secrecy is dangerous

From the above preliminary discussion, it should be clear that to surround an invention in secrecy is a risky matter which may result in loss to the inventor; and that the safest steps to take to protect the inventor's rights are: (1) To make a sketch and written description of the invention, signed and dated; (2) To have the sketches and description witnessed (signed and dated by two or more witnesses); and (3) To continue diligently developing the invention until an application for patent has been filed thereon, or until the invention has been embodied in a successfully operative structure, and its operation witnessed by others.

Like miserliness with wealth, shrouding an invention in secrecy is likely to defeat its own ends.

Day in, day out, with constant dependable service, these Allis-Chalmers induction motors drive the pumps propelling petroleum products through the endless pipelines of our country. They are of explosion-proof construction, U.S. Patent No. 2,526,047 to G. L. Ringland.



"Well, what's this motion period? Funny name for a time when we just sit still and do nothing."

"The motion period is a time set by the Patent Office to bring any motions either party desires to have considered. For example, we may think that there are other patentable features common to your invention and his. In that case we move to add other counts to the interference defining those common patentable features. Or we may think that N. Ventor has no right to claim the same invention. In that case we may move to dissolve the interference on that ground. Or there may be other similar preliminary steps we want to take. That's what the motion period is for."

"Well, what do we want to do in this case?"

"Maybe we'd better not do anything. His invention is very close to yours. There's no question about his right to make your claims. I think the claims are patentable. All the common patentable features are included in the interference already. Let's just wait and see what N. Ventor does."

The months slipped by. D. Velop was having trouble with his filter. It filtered all right when it was new, but soon became clogged and was too expensive to replace. Maybe he'd better go back to mousetraps. He wondered how that interference was coming along. He disconnected his soldering iron, put on his threadbare business suit, and went over to see Pat.

• Settlement

"Good news for you, D. V. The motion period ended without anybody filing any motions. That saves us time and effort. Some of those motions can make awfully hard work. And when I sent for a copy of N. Ventor's preliminary statement, I found that he didn't even think of the idea until after your model was completed. That makes it a clean case for us. Of course, there may still be a lot of expense to take testimony, which includes examination and cross examination, and have the whole thing transcribed and printed. That's expensive business. But maybe that can be avoided. Just got a letter from N. Ventor's attorney suggesting that we settle the matter of priority between us. And if we can show them, by documentary evidence, that you're the first inventor, they are ready to concede priority to you, thereby avoiding all this expense on both sides. And they'd like to buy your invention."

"Whoops! And if we don't settle?"

"Well, there'll be the expense I spoke of. I think you'd win in the end and get your patent anyway. You might be able to sell the patent to someone else. Rattatorium, Inc., might lose interest and go to something else if you don't meet them halfway now. They're the logical people to work under the patent, because they're apparently developing and experimenting with that very thing right now. Why not see what they'll offer?"

There's little to add, except that they lived happily ever after. D. Velop not only assigned his invention and patent application to Rattatorium, Inc., for a sufficient amount to cancel his depression debts, but also obtained a job in Rattatorium's research laboratory, where he could tinker to his heart's content and get paid for it.

• Insurance

Lest the gentle reader conclude that an interference is not such a bad experience after all, he should be reminded that the particular interference described above was an abbreviated, streamlined affair; that an interference—which includes motions (during the motion period) which are opposed by one or more of the parties; testimony by the inventors and their witnesses and experts; extensions of time to obtain information from parties hard to locate; and appeals to the Board of Appeals and possibly the courts — may consume years of time and more money than most inventors have available. And when the interference involves three or more parties, as happens not infrequently, all the factors are complicated tremendously.

The most touching aspect of any interference proceeding is the man who may actually have been the first inventor, but whose records are in such chaotic condition that he is unable to substantiate his claims. The history of interference proceedings has indicated the fallibility of human memory and the unreliable nature of verbal evidence uncorroborated by documentary evidence. Therefore more and more weight is placed on documentary evidence, on written records made contemporaneously with the acts to which they pertain. Not infrequently the man who may actually have made the contested invention subsequently to the first inventor receives a valid patent on it, because the first inventor kept no records and therefore could not prove his case.

If this be considered unjust, let it be remembered that in order to prevail in legal matters a person must have not only legally enforceable rights, but also evidence with which to prove his rights. The keeping of accurate records is a cheap form of insurance for the attainment of justice.

While not directly pertinent here, it may be added that accurate contemporaneous records are equally important for other reasons. It is sometimes important to prove the date of invention of subject matter years after a patent has been granted on it to sustain its validity.

The importance of documentary evidence in proceedings relating to patents and inventions can hardly be overemphasized.

Inventions NEED

Ideas, like people, have to retain a record of their identity from birth to maturity



GEORGE M. ALBRECHT
Patent Attorney
Allis-Chalmers Mfg. Co.

PATENT rights to an invention are often lost through failure to record all acts with respect to the invention from its conception to the filing of a patent application with respect thereto, and to the time the invention is actually reduced to practice by the building and successful testing of a full size embodiment of the invention, whether a patent application is or is not filed. Working models and records which have been preserved may also be of great value defensively, as where it is desired to invalidate a patent of a third party.

Why keep records?

The fundamental reason for making records is that under the patent laws a patent is valid only if granted to the first inventor. In signing his patent application the inventor must in fact state under oath that he believes himself to be the first inventor.

There are many situations where questions of first inventorship arise, only a few of which need be mentioned here. Assume that a patent application has been filed, is still pending, and that in the course of its prosecution the Patent Office cites a patent, issued less than one year before the filing date of the application in question. This patent includes in its disclosure, but does not claim, some of the subject matter being claimed by the applicant. The attorney at once seeks to determine whether the applicant, under the rules and applicable decisions, can antedate the filing date of the application which resulted in the cited patent.

What the attorney looks for are records. If records can be found legally sufficient to antedate the filing date of the cited patent, the inventor signs an affidavit making oath to facts supported by such records, whereupon the Patent Office withdraws its rejection of the applicant's claims in question and may allow the claims.

On the other hand, if no records can be found, or none legally sufficient to support an affidavit, the patent cited against the applicant's claims in question continues to stand against them and the applicant loses them.

Interference proceedings

An important situation in which first inventorship cannot be decided by mere affidavit arises when two applications are pending in the Patent Office, both of which claim, or can claim the same invention. In this situation, the Patent Office declares what is known as an interference. The purpose of this proceeding is to determine which one of the rival claimants is the first inventor.

The first step in an interference proceeding is for each of the rival claimants to file what is called a preliminary statement. This statement, made under oath, is required by the rules of the Patent Office. Each claimant is required to state, among other things: the date upon which the first drawing of the invention and the date upon which the first written description of the invention were made; the date upon which the invention was first disclosed to others; the date of reduction to practice of the invention.

It is obvious that a preliminary statement cannot be prepared at all unless records are available from which the required dates can be determined. The search for records, made by the inventor, his attorney, and anyone having had anything to do with the development of the invention, must be thorough, for if an earlier record should be found after the statement is filed, the Patent Office can refuse to admit it in evidence.

The preliminary statement is not of itself evidence but serves to limit the testimony a party may thereafter offer to support the allegations of the statement. Testimony is taken in an interference proceeding in accordance with the rules of evidence, as in litigation in a court.

In a case where the sole question is priority of invention, that party to an interference who can antedate the other party by testimony duly supported by records will win. It is outside the scope of this article to mention the many, and often complicated, situations that may arise. It is sufficient to point out that it usually becomes necessary to take testimony as to all activity which followed conception of an invention and resulted in the filing of a patent application or the actual reduction to practice of the invention, or both.

Dates are important

Therefore, besides the date when an invention was conceived and the date when it was reduced to practice, other dates became important, including such as the dates of layout drawings, shop or working drawings, purchase orders, shop time slips, models, photographs, tests and reports thereof, commercial installations, erecting engineers' reports. If records have been scrapped, lost, or are not provable under the rules of evidence, they may leave such a gap in the chain of activities that, under applicable decisions, the party in question loses the interference even though he may be the first inventor.

It is apparent that usually the inventor does not have control over the making of records with respect to all of the acts mentioned. But he definitely has control of the prime acts, which are the making of the original sketch showing the invention, the making of the original description, and the disclosure to others.

An unsigned and undated sketch may serve as a basis for preparation of a patent application, but it is substantially worthless if the question of first inventorship arises and it becomes necessary to prove who made the sketch, and when. A sketch may also be worthless even if the inventor signed

tion is "obvious" or not. The battle is therefore merely over one word instead of another.

To be sure, from a comparison of the disclosure submitted by the inventor with what others had done before, some preliminary conclusion may be reached as to which features might be "new." In such an investigation, the word "new" assumes a more practical aspect. A feature may be looked upon as "new" if it appears from past experience that allowance of claims involving the feature may be expected in a patent application.

Finding the invention

With that purpose in mind, finding the invention involves more than merely cataloguing the presumably new features of the disclosure which are obviously essential. It also calls, in the first place, for a determination of the broadest scope of the invention. This means finding out all the limitations which may be omitted from the broadest claims. This is, in a way, a negative method of finding the invention. It should be accompanied by its positive counterpart, working out a variety of equivalent arrangements, bearing in mind that the most important equivalents may be worth illustrating and claiming. Often it is also useful to try to figure out different ways in which competitors are likely to try to "get around" the patent, if, and when, the latter is granted. In spite of the old proverb, a prospective patentee should count his chickens before they are hatched; but he should count the foxes as well.

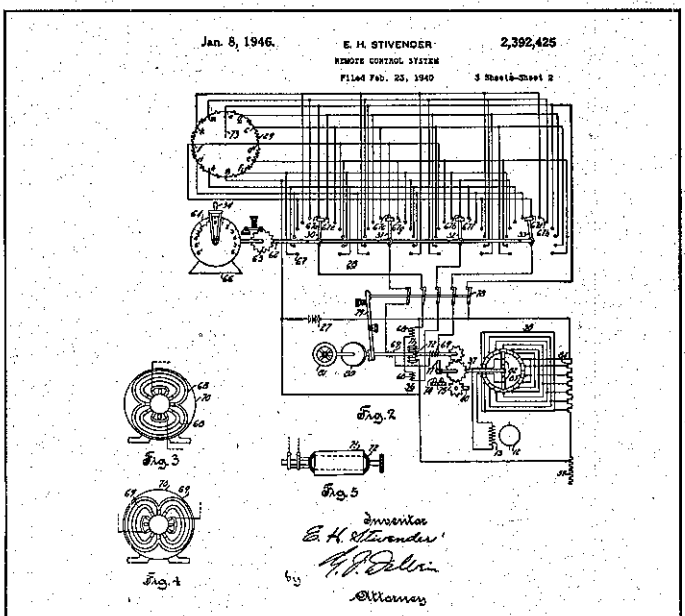
If the inventor can keep these different points of view in mind, he sometimes admits that there is more to his invention than what he has shown in his disclosure. In most instances, the latter merely shows one embodiment of the invention as the patent attorney would say, or, to put it in engineering language, a particular application. Anyway, the disclosure is merely a starting point in a systematic search for the invention.

To avoid becoming lost in generalities, let us assume that the disclosure is a diagram of an electrical system, be it of generation, distribution, or control. Such systems possibly require a more thorough analysis than any other invention. To a surprisingly large extent, simple basic electrical systems for most purposes were invented in the early days of the electrical industry, a good many of them by Thomas A. Edison. The result is that in many improvements made today along the same lines, novelty implies complexity. Besides that, diagrams of electrical systems often show incompletely many complicated pieces of machinery, so that essential details may become lost from sight.

Equivalent means

The system of the disclosure, it may be assumed, was developed to provide some means for solving a particular problem. It is generally profitable to inquire what other means could be used for solving the same problem. For example, if the system utilizes electromagnetic devices, it may be possible to devise equivalent systems utilizing instead dynamo-electric machines, electronic devices, or pneumatic, hydraulic or other mechanical means.

If the system contains fixed and movable elements, equivalent systems may be devised by making fixed the movable element and vice versa. Other variants can be devised by



FOLLOW-UP SYSTEMS having numerous novel features which include specific dimensions of elements, staggering of transmitter contacts, single contact transmitter, compensation of circuits of idle receivers, provision of different stop arrangements, and various relations between transmitter and receiver movements are claimed in Patent 2,392,425.

other such "reversal of parts" between elements of the system. Although they are not always worth claiming or even illustrating, they should be kept in mind to make sure that the claims written in the application are broad enough to cover them.

Sometimes an electrical system inherently operates only on one kind of current, be it direct, single phase or polyphase. If equivalent systems operating on other currents can be devised, it may become apparent that the invention should not be restricted to one kind only. Useful alternative systems thus can be discovered more or less automatically. Such alternative systems may be the basis for valuable claims. They may also serve to forestall an eventual holding by the Patent Office or by a Court that such alternative systems are not part of the invention.

The system of the disclosure may also be usable for other purposes than the one originally contemplated. For example, a control for an electric drive may have features which can be utilized for controlling electric generators, rectifiers, or non-electric motors. While claims are not granted for uses of an invention, it is possible to obtain valuable claims relating to different forms of the invention adapted for different uses, and to the combinations of the elements of the invention with those of other apparatus involving such uses.

The mode of operation of the system should receive particular attention as it may serve as a foundation on which to build the broadest claims. While the system may be covered by claims listing its elements and stating their interrelations, such claims cannot be relied upon to cover equivalent systems in which the elements may be different or differently connected. Broader claims in which elements are recited in the form of means of some general type for performing a stated function are therefore often desirable. This type of claim covers not only the system illustrated in the application but also a wide range of equivalents.

it is logical that even a person skilled in the art will not necessarily be able to ferret out the construction and mode of operation of this new thing. He should, therefore, be provided with a written description, not only to save time but for purposes of record and to make certain what may be absent from or doubtful in the sketch. The written description is far more valuable if the parts illustrated in the sketch have reference numerals or legends applied thereto and the written description identifies the parts by their reference numerals or legends.

An original first sketch and an accompanying written description thereof, both signed and dated by the inventor, and both witnessed and dated, constitute the best evidence of conception of the invention. These documents, when properly introduced in evidence, at once prove who conceived, what was conceived, when it was conceived, and to whom and when it was disclosed.

Records must not be altered

Sometimes an inventor describes his invention orally to another person without making a sketch. The testimony of the person to whom the invention was disclosed may tend to corroborate the inventor, but memories are short and faulty, not only with respect to what was disclosed but especially as to the date of the disclosure. Judges are well aware of that fact, and if too long a time has elapsed between the event and the time of taking the testimony, the court will give little or no weight to the testimony.

When a sketch, written description or other record relating to an invention has been duly signed, witnessed and dated, it must not be altered in any way, but should be carefully preserved in exactly the same condition as when signed and dated. If the inventor later thinks of changes or modifications, new sketches and descriptions should be made, and these likewise should be signed, witnessed and dated. It is obvious that if this is not done it will not be possible for the witness to testify that the document offered in evidence is in the same condition as it was when he signed and dated it; and if it is not, it is worthless as evidence for the inventor.

It may be advantageous to have a photostat made, as soon as possible, of an original witnessed sketch and to have the photostat promptly signed and dated by at least one person. But the original sketch must be preserved because original documents are, under the rules, the best evidence.

In the course of the development of an invention after it is conceived and before a full size embodiment is made, preliminary tests of various kinds may be necessary to determine the feasibility of an invention, as for example the testing of materials which it is proposed to use in an embodiment of the invention. Such tests, of course, do not constitute reduction to practice of the invention but they are part of the chain of acts from conception to reduction to practice and hence are important. The names of the persons making the tests should be recorded, and also the date or dates when the tests were made. Reports of tests relating to the development of an invention are usually of great importance yet a report may be substantially useless because, strange as it may seem, the party making the report too many times fails to date it.

Where large machines are concerned, it may be that the first full size embodiment of the invention will be a commercial machine, and technical reduction to practice will not take place until the machine is first operated on the customer's premises. The date of first operation is usually easily determined from erecting engineers' reports or the like. Obviously it would not be feasible to offer a large machine in evidence as an exhibit, and hence the construction of the machine in question must be proved by records such as working drawings and the testimony of engineers and others having to do with the building of the machine.

On the other hand, where a full size embodiment of an invention is relatively small it may be introduced in evidence as an exhibit in the case, provided the history of its making and testing can be satisfactorily proved. Often such working models or devices precede the manufacture of a commercial form of the device and hence are very important to prove the date of the first reduction to practice. If at all possible such early working models should be preserved, and a device which has operated satisfactorily under working conditions should be preserved without change and tagged for identification.

If it is not possible to preserve an original working model then the next best thing is to take photographs of the model, taking care to make some record as to when the photographs were taken, by whom, and what they represent. Often, however, the party taking the picture evidently does not understand that a photograph showing the outside of a totally enclosed electric motor, for example, will not serve as evidence of the construction of the interior of the motor.

The matter of first inventorship also arises where, after the inventor has had his patent duly issued to him, he files suit against an infringer, whereupon the defendant will proceed to make a thorough search for prior records, and possible prior devices or machines which might show that the patentee was not the first inventor or might otherwise invalidate the patent.

Preserve the model!

The keeping of records of inventions and the preserving of working models and the like are not subjects that can be classified as humorous but the writer recalls a decision which illustrates the point of a working model having been found to invalidate a patent, the working model being a crowned tooth in the mouth of a witness!

The plaintiff in the case was a dentist, a Dr. Rynear, who had received a patent on a particular kind of crown for teeth. The defendant was charged with infringement and he managed to find a man who had just such a crown applied to one of his teeth long before the date of Dr. Rynear's invention. In rendering his decision the judge stated:

"At least one of the witnesses called by the defendant swears to a complete anticipation. He testified that a seamless crown was made for him by a dentist in St. Louis, was placed in his mouth in 1877 and was still there at the time of his examination. This crown was examined by Dr. Rynear. The testimony is criticised because the crown was not put in evidence, but, as was suggested at the argument, it is not unfair to assume that the witness may have interposed an objection to having his teeth marked as exhibits in this cause, preferring, rather, that they should remain in his own mouth, so long, at least, as it continued to be 'a going concern'."

ARE YOU GETTING FULL PATENT PROTECTION?

A single idea often leads to several inventions — devices, machines, methods, and designs. All may be patentable.

D. Journeaux

PATENT ATTORNEY • ALLIS-CHALMERS MANUFACTURING COMPANY

● In spite of centuries of exposure to the challenge of inquisitive minds, the old adage "Necessity is the mother of invention" seems never to have been seriously questioned. Who indeed, upon seeing a need for improvement, has not exclaimed: "Somebody ought to invent something to take care of that!" Then, if the problem was proposed by someone with an inventive mind, he immediately added: "Let me see what I can do about it."

This little soliloquy, spoken or merely thought, has probably been the champagne that launched many of the inventions now making us successful in war and in peace. An inventor usually aims to provide some means or device for accomplishing a useful result, whether or not a need exists at the moment.

Mere ideas not patentable

The desired result may be new, but the mere conception of a new result does not constitute invention, according to the standards of the United States Patent Office, and such a conception is not enough to warrant a patent in this country. Patents are granted for a means for accomplishing a desired result on condition that such means be new and constitute invention.

The means may be altogether new, or a new combination of old means. It may serve to produce a new result, or it may merely produce an old result in an improved manner.

But the inventor who has applied for a patent for his new device very often has not exhausted the protection available to him under the patent laws. For example, he may be able to patent the method of operation or the device. On the other hand, this method may be old and, therefore, obviously unpatentable; or it may be new, but no more than merely the inherent operation of the device. In the latter case, it is considered that the device and its operation constitute a single invention and therefore are not separately patentable.

Device and method of operation patentable

If the method of operation is new and performed manually or by devices other than the one sought to be patented, the device and its method of operation may be separately patentable. This is true whether or not they occurred simultaneously to the inventor. Whether the device and the method should be claimed in separate patents or in different claims of a single patent is merely a question of procedure. If separate patents are to be obtained, however, the application for the second to issue should be made before the first one issues.

The drawings of a famous pair of patents, now expired, that were granted for what might be assumed to be a single invention are shown in Fig. 1. Patent 555,190 claimed what would now be called a split-phase motor, in which the main stator circuit, connected to an a-c source, energizes an auxiliary stator circuit by induction. Patent 511,915 claimed the method of operation of the motor by inducing current in one stator circuit from the other. A court held that the two patents were for different inventions, on the ground that it was probable that the patented process could be utilized in devices which are not the mechanical equivalent of the patented motor. Having made two separate inventions, the inventor was entitled to patents securing both of them against infringement.

Device and machine for making it

After inventing a new device, the inventor should give some thought, as he too frequently fails to do, to the possibility of making it. In this connection he may also invent new manufacturing processes and new machinery for performing the processes. Of course,

material impervious to air and water. In this case, the true problem is unobvious, but once the problem is correctly stated the solution is obvious. The researcher who stated the problem (even though one of his subordinates completed the invention by actually painting iron with some impervious paint) is the inventor.

To put it in the stilted language of the courts: "Where a person has discovered a new and useful principle in a machine, manufacture, or composition of matter, he may employ other persons to assist in carrying out that principle, and if they, in the course of experiments arising from that employment, make discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original principle, and they may be embodied in his patent as part of his invention."

To recapitulate, (1) the man who conceives improved means or method for accomplishing a result and shows how his conception may be adapted to use (or "reduced to practice") is the inventor. (2) Generally, the man who merely states a problem, the solution to which does not suggest itself to the average man skilled in the art has not made an invention. (The person who discovers such a solution may be an inventor, if the other requisites of invention are present.) (3) Where the true nature of the problem is not understood, the man who discovers the true problem, and employs others to work out the obvious solution or solutions, is an inventor.

• Dangers of border-line cases

It is obvious that cases arise which are not easily classifiable in any category. Human relationships frequently defy attempts at classification. Once a classification has been set up, border-line cases will arise to bedevil the orderly soul who wants a place for everything and everything in its place. In such cases, the only thing to do is to consult the rules and to place each case in the category that comes closest to fitting, having in mind that, once a patent has been granted, the courts are loath to declare it invalid, unless the evidence is clear and convincing that the alleged inventor is not the true inventor.

Cases have arisen where an employer has obtained a patent in his own name, whereas the invention was actually made by an employee. If this can be shown, the patent will be declared invalid. Therefore it is to the interest of all concerned that the patent be filed in the name of the real inventor, whether he be the president of the company or an office boy. The parental pride of inventorship is so strong a factor that it is sometimes a difficult matter to determine the truth amidst conflicting claims. Not infrequently the patent attorney wishes he were a psychoanalyst so that he might determine which of two or more claimants is the real inventor.

Particularly difficult is it to determine the identity of the inventor when an employer or head of a department contests inventorship with a subordinate. It is all too common for a subordinate to have the feeling that every idea suggested by his superior was stolen from him. Equally obnoxious is an executive who unhesitatingly absorbs his subordinate's idea, makes some slight immaterial alteration, and sends it forth into the world as the product of his personal genius. Such procedure leads not only to invalid patents, but also to a great deal of friction within an organization. Moreover, such frauds are usually fully understood and regarded as such by the perpetrator's associates.

Perhaps the most difficult of all are cases of mixed paternity — where two or more persons are instrumental in contributing essential features of the invention, resulting in what is known as a "joint invention." But this is so fertile a field for discussion that we shall leave it for some future article.

This regulator inexpensively keeps our lights burning brightly in areas where the load density is low. It utilizes an integrating mechanism, U.S. Patent No. Re. 22,224 to J. Bronaugh and a snap action contact actuating mechanism, U.S. Patent No. 2,177,109 to L. H. Hill.



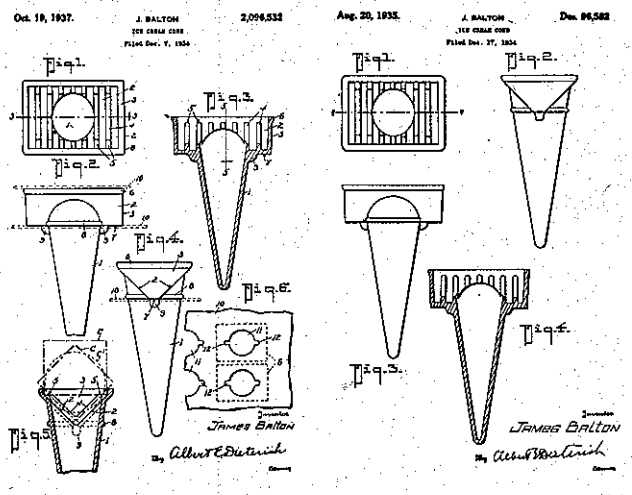


Fig. 4 (above) — James Balton's patents for a gripping ice cream cone and for a design of the cone.

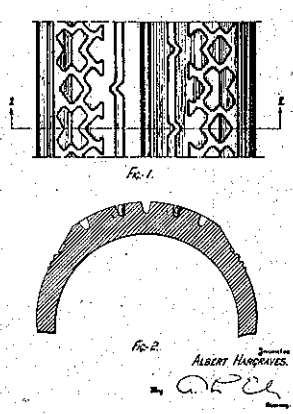


Fig. 5 (at left) — Albert Hargraves' patent for a design of automobile tire tread. Corresponding mechanical patent was refused.

with contempt. On the contrary, patents of another type, called design patents, are granted for new, original and ornamental designs.

A device invented for a useful purpose and subject to protection by mechanical patent may also have ornamental value. It is also true, although perhaps less evident, that an ornamental object of which the design is patentable may also involve some new and useful function. The result is that a mechanical patent may be granted for the useful feature of a device, and a design patent may be granted for the ornamental feature of the same device. The two patents, since they are of different kinds, are not required to be co-pending in the Patent Office. If the first of the two patents to issue discloses both the useful and the ornamental features, then application for the other must be made within one year after issuance of the first.

Ornamental and useful features patentable

The ornamental and the useful features of a device may or may not have occurred to its inventor simultaneously. Both may be patentable, but only if they are clearly distinguishable from each other.

For example, the automobile signal lens shown in Fig. 3 has a useful feature residing in the provision of opaque portions and translucent portions having particular optical properties. Its ornamental feature lies in the arrangement of the lettering and border. Only the useful feature is claimed in the mechanical patent, and only the ornamental feature is claimed in the design patent. Although both are provided in a single lens, the two features have nothing in common, and they could be used separately in different lenses.

Likewise, the ice cream cone shown in Fig. 4 has a new ornamental configuration and also a novel useful feature in the transverse ribs for gripping the block of ice cream. The ornamental design of the cone is claimed in the design patent, and the arrangement of the ribs within the cone is claimed in the mechanical patent.

When the mechanical feature and the design feature of an object are indistinguishable, the grant of both a mechanical patent and a design patent would amount to granting two patents for the same thing. For this reason, a mechanical patent for an automobile tire characterized by two continuous circumferential ribs was refused to the inventor, who already had a

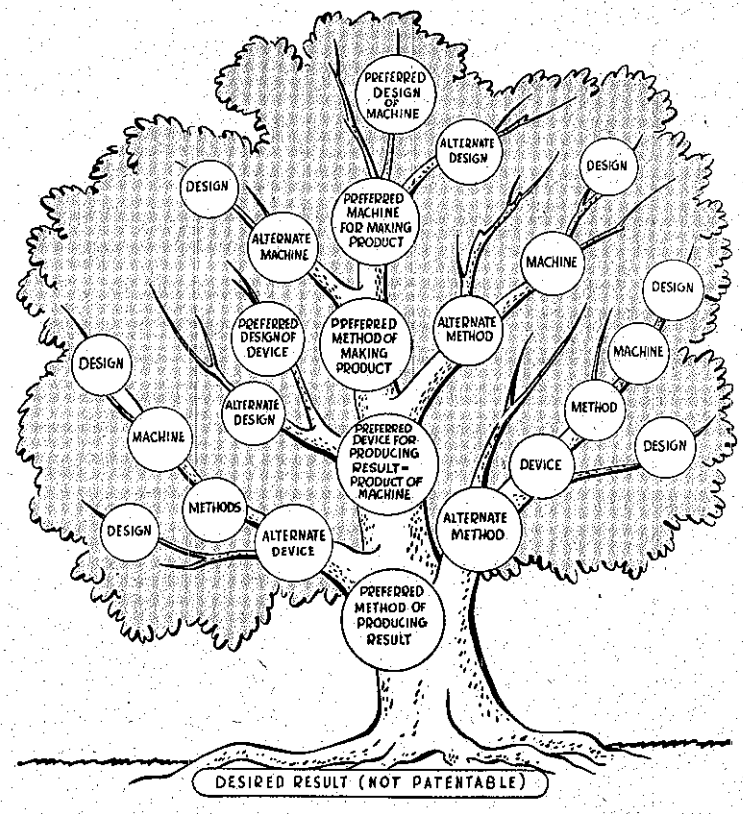


Fig. 6 — Family tree of related inventions.

"Sure, I can prove it. I didn't keep a diary for nothing. Besides, John Draftsman and Mr. Clerk sat in the same room with us. They can tell you how much I contributed to that invention."

"Well, gentlemen," crows Mr. Pat Attorney, "if I can get the evidence to support that statement, our troubles are over. Because if what Mr. Imp Ruve says is true, the Kachamouse Kamooflage patent is invalid, and the field is open to us."

"Swell," replies Mr. Hy Preshur. "We'll call ours THE INVISIBLE DEATH."

And so Mr. D. Velop and the Kachamouse Corporation learned—the hard way—that a patent must be taken out in the name of the actual inventor; and where the invention is the result of joint contributions by more than one person, the patent must be taken out in the names of the joint inventors.

* * * *

But how can we tell when there is a joint invention and when the invention is attributable to one inventor?

In the first place, the mere fact that more than one person has worked on the perfection of a new device does not mean that the result is a joint invention. One individual may conceive an invention and may instruct others to bring his conception into existence by their use of ordinary knowledge and skill. If the inventor's idea is so clear that he can instruct any skilled draftsman or mechanic to make an understandable drawing or model, it is a sole invention and the draftsman or mechanic is not a co-inventor. And even if the draftsman or mechanic adds certain valuable but non-inventive features to the invention not suggested by the original inventor, the draftsman or mechanic does not become a co-inventor.

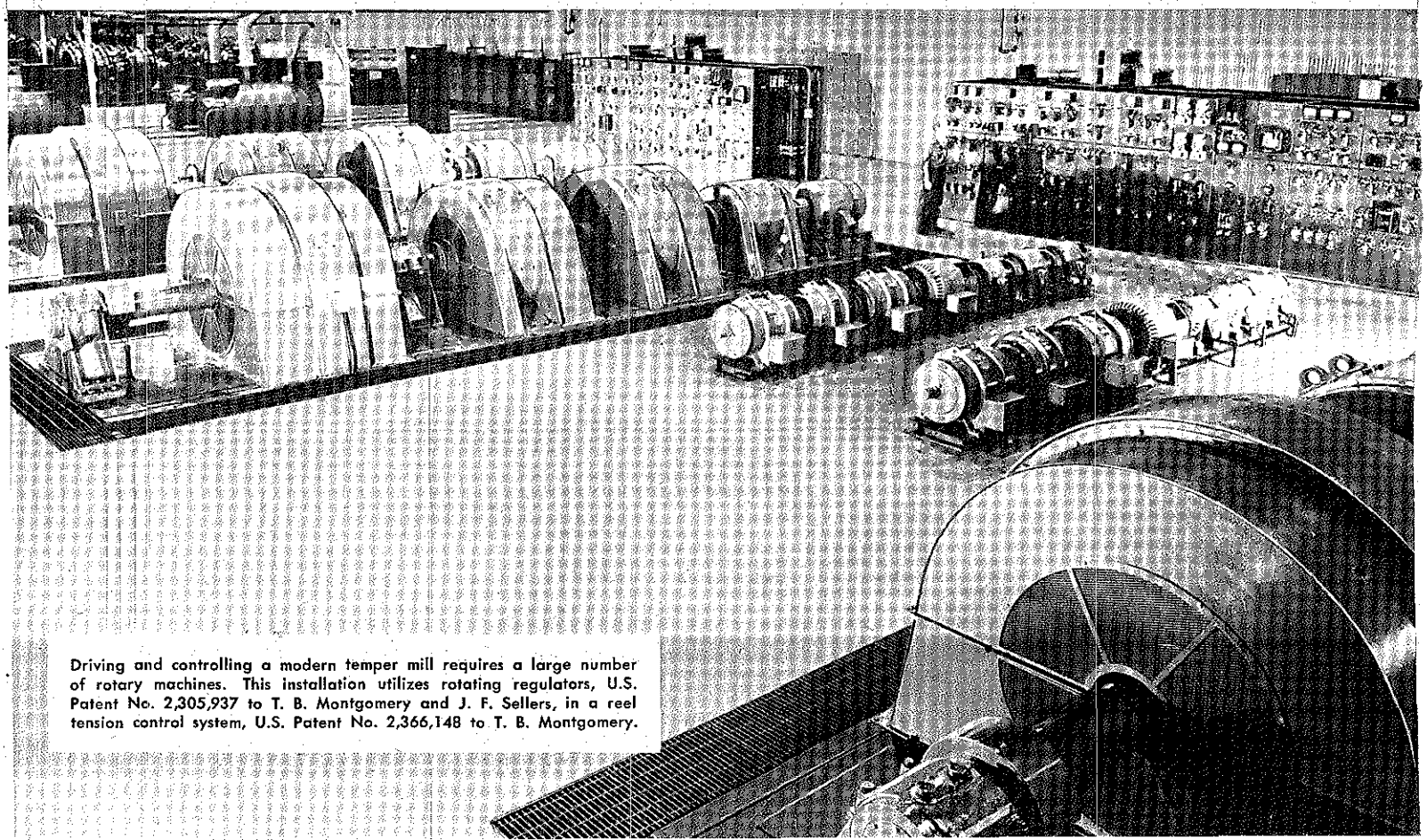
But if the original inventor's conception is so amorphous that it takes more than the usual and expected skill of a draftsman or mechanic to make an understandable drawing or model, then the *unusual* imagination required to complete the invention may rise to the "dignity of invention," and the completed invention may be a joint invention.

On the other hand, the mere fact that two individuals have contributed to an improvement does not make that improvement a joint invention. There may be two separate inventions, in which case two separate patents may be obtained. For example, if one inventor makes an improvement in the composition of the rubber of an inner tube, and a colleague invents an improved inner tube air valve, they are not joint inventors and cannot secure a joint patent, although their individual inventions may be protected by separate patents.

• Summary

To summarize, it may be stated that where more than one person has contributed more than mere skill and knowledge of the prior art to a single or unitary invention, the invention is a joint one; if the contribution of each inventor is separable from that of the others, several individual inventions may result; and if one person conceived the invention and got one or more others to complete it by the use of ordinary skill, that first person is the sole inventor.

Much needless friction and regret could be avoided if inventors would try to discard some of their personal pride of inventorship and give their colleagues credit where credit is due.



Driving and controlling a modern temper mill requires a large number of rotary machines. This installation utilizes rotating regulators, U.S. Patent No. 2,305,937 to T. B. Montgomery and J. F. Sellers, in a reel tension control system, U.S. Patent No. 2,366,148 to T. B. Montgomery.

CAN YOU KEEP A SECRET?

D. Journeaux, **Patent Attorney, Allis-Chalmers Mfg. Co.**

What to do — keep your newly invented process or machine a secret . . . or expose it to competition by getting a patent?

● During the one hundred and fifty odd years of its existence, this country has fostered inventions in such numbers that the records of the United States Patent Office alone have entered them by the million.

Naturally only a few of these inventions are of such importance as to affect visibly our everyday life. Some fewer yet are familiar to most people because they were the starting points of articles of manufacture in daily use by the public at large. Among these figure Bell's telephone, Howe's sewing machine, the Wrights' airplane. Others equally important relate to manufacturing processes and machines which, being used in factories, are less in the public eye even if their products are well known to all. Among the most important are Whitney's cotton gin, Hall's process of making aluminum, Goodyear's vulcanization of rubber.

While the number of basically new articles of manufacture invented from year to year remains relatively limited, these articles are always susceptible to being rendered more attractive to the buyer, more advantageous, or cheaper to produce. Hence the evolution of numerous improvements day in and day out. Naturally, an improved article to be sold to the public, or at least to selected users, cannot very well be kept a secret by its inventor or manufacturer. To prevent its being copied lawfully by competitors the inventor of the article or of the improvement need only avail himself of the protection given by the patent system.

Both the improvement of the article itself and the reduction of its cost may be brought about by perfecting the methods or the machines used for its manufacture. In fact, up-to-date shop equipment and shop processes are indispensable in most manufacturing plants, now that practically everything, from safety pins to battleships, is made by mass production. When it comes to placing his patentable shop practices beyond the reach of his competitors, the manufacturer may usually take his choice of two policies. He may maintain these practices secret, or he may protect them by patents. There are good reasons in favor of the one and of the other method, and each may be preferred in some cases and discarded in others.

Inventions used in public

The first inventor of a new machine or process does not need to patent it to be able to use it himself. He has naturally the right to use it secretly or publicly provided that it does not infringe some existing patent held by somebody else. A patent merely secures to the patentee, i. e., the inventor or his assignee, the right to exclude others from practicing the invention for a limited number of years. A machine or a process susceptible of use only in full view of the public — a method of erecting bridges, for example — cannot very well be kept a secret. If a patent is obtainable thereon, it provides the obvious means of securing this exclusion of competitors from its use. The patent should be enforcible without excessive difficulty because the patentee is able to observe the activities of his competitors and thus detect infringements of his patent.

Inventions used in a factory

If the novel process or machine is used in a manufacturing plant, the grant of a patent to its inventor protects it also, at least on paper, against piracy by competitors. The patent may, however, be sometimes more detrimental than useful to the patentee. The inventor of the process or machine is required to describe it in such manner that "one skilled in the art or science to which it appertains" may be able to utilize it after reading the patent and, of course, after dutifully waiting for it to expire. To an unscrupulous competitor such a patent may be a boon, as it gives him the information he desires. He may then be able to pirate the invention freely, as infringement behind the doors of his factory may be difficult to detect and more difficult yet to prove to the satisfaction of a court.

Secret inventions protected only by common law

If patent protection appears to be illusory, attempts may be made by the manufacturer to keep his improved machine or process secret. He is then, naturally, taking the chance that another may rediscover the improvement, use it freely, and even patent it. He may obtain a measure of security against communication of his secret to others only by rendering his process or machine accessible to the least possible number of employees and pledging these employees to secrecy. If one of the pledged employees then surreptitiously discloses the improvement to a competitor, this unfaithful employee and the competitor

country. Looks like we're going to have our hands full. When did you first get the idea of a mousetrap with removable jaws?"

"Oh, seven or eight years ago."

"Do you know exactly when? Did you make sketches or models or tell any one else about it?"

• Complications arise

"Well, I first started thinking about it about 1930. We were getting cuts in pay about that time, and started buying cereal and flour in large quantities because it was cheaper that way. And the rats and mice got into it. The traps weren't much good. After the first mouse in each trap, the others wouldn't come anywhere near it. It was then that I got the idea that if it had removable jaws I could throw them away and replace them after each catch, and the mice would keep coming."

"Did you build a mousetrap like that about that time?"

"No. I thought about it then, but I didn't have time to work on it, and I didn't do a thing about it until I got laid off in 1936. Then I remembered about my idea, back in 1930, and worked on it a couple of weeks. As soon as I had a really good model built, I showed it to you and asked you to get that application filed."

"In that case, D. V., your idea back in 1930 isn't going to do us a bit of good. It takes two things to complete an invention — getting the idea, or conception, and proving that it works by making a reduction to practice. Now, you got the idea in 1930, but did nothing about it until you started work on your model some time in 1936. That's the date of your invention, then, 1936 and not 1930."

"Then the fact that I thought of the idea way back in 1930 isn't going to do me a bit of good?"

"Not a bit. If, when you got the idea, you had made a working model, or if you had filed an application for patent then, or if you had worked on your idea diligently until you had a model or a patent application, your date of invention would have been 1930. Filing an application for patent is considered the equivalent of making a working model for this purpose. The only way an early date of conception can redound to your benefit would be to show that you have been diligent from the time an opposing party, like N. Ventor, became active, until the time you built your working model or filed your patent application. But cheer up, D. V. All is not lost yet. Maybe this man Ventor didn't get his idea until after you started working on your model, anyway.

"Well, we've got to file a preliminary statement now. Let's get the dope for that. When did you start working on your model? When did you finish it? Whom did you show it to? Did you make a signed, dated sketch and have somebody witness it? What evidence have you of the dates of your model, etc.?"

• No documents

Poor D. Velop was bewildered. As happens too often with other inventors, he had made no sketches or written description. He had explained his invention to no one until the day he had finished his model and showed it to his wife and oldest son.

Fortunately, Pat. Attorney had been more careful. He had written a memorandum on the day D. Velop had explained his invention to him. The memorandum was dated and signed, and contained a statement concerning the date when the model had been completed, two weeks previously. While this was not as desirable as earlier sketches and description which might have been prepared by D. Velop, it was something.

This is but one reason for keeping adequate witnessed, dated records concerning the progress of an invention. There are other advantages to doing so. But if only for the advantage it gives him in case of possible interference, every inventor should hang up a large sign in his work shop:

MAKE A SKETCH AND WRITTEN DESCRIPTION OF EVERYTHING YOU DO—
SIGN AND DATE ALL SKETCHES AND DESCRIPTIONS—
HAVE THEM WITNESSED AND DATED—
PRESERVE THEM!

Every inventor should keep such a set of instructions in his workshop — AND ACT ACCORDINGLY. That is the best interference insurance and will save him and his attorney many a headache.

On the basis of Pat. Attorney's memorandum, a preliminary statement was prepared and sworn to by D. Velop, concerning the critical dates of his invention; and the preliminary statement was filed in the Patent Office. Shortly thereafter a letter from the Patent Office stated that the preliminary statements of both parties were approved.

Thereupon Pat. Attorney ordered a copy of N. Ventor's application from the Patent Office, and they discovered that N. Ventor's invention was quite similar to D. Velop's, with slight differences. "Well, we still have a chance," remarked Pat. Attorney, "your opponent didn't file his application until a year after yours was filed."

"That means I win, doesn't it?" D. Velop was quite eager.

• Motion period

"Not yet a while, D. V. It means that you have a better chance of winning because you are the senior party, and the junior party has the burden of proof. Unless he can show by a preponderance of evidence that he is the first inventor, you will get the decision. After the motion period is over, we can look at N. Ventor's preliminary statement, and see how his dates compare with yours."

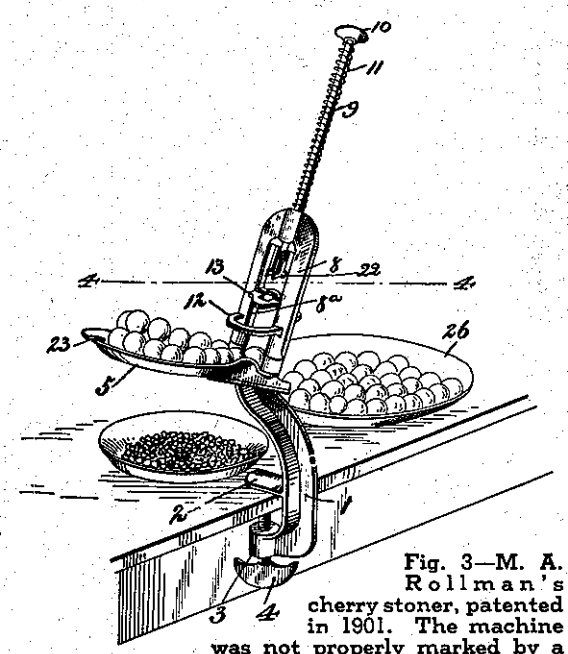


Fig. 3—M. A. Rollman's cherry stoner, patented in 1901. The machine was not properly marked by a tag tied to it and bearing the patent number.

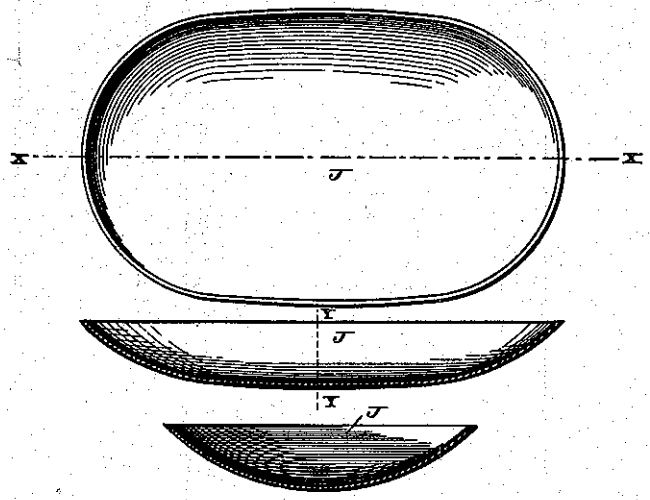


Fig. 4—S. H. Smith's wooden dish, patented in 1883. Applying the patent marking to the crate enclosing the dishes was held improper.

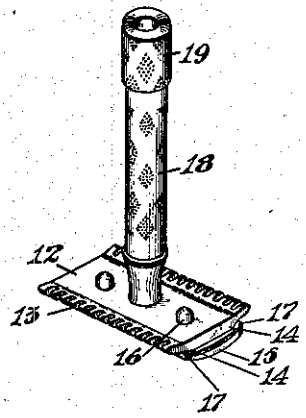


Fig. 5—R. E. Thompson's razor, patented in 1931, was properly marked by indicating the patent number on its package.

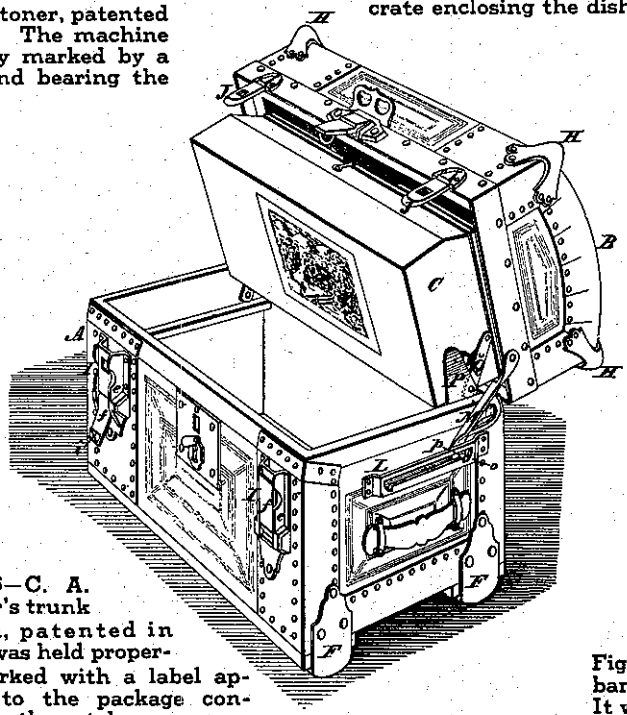


Fig. 6—C. A. Taylor's trunk catch, patented in 1872, was held properly marked with a label applied to the package containing the catches.



Fig. 7 — Lichtenstein's hat band design, patented in 1907. It was held improper to apply the number of the patent to the lining of the hat.

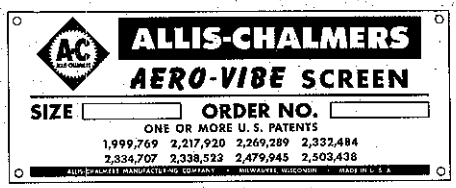


Fig. 8—Patent plate for different articles all covered by one or more of a group of patents.

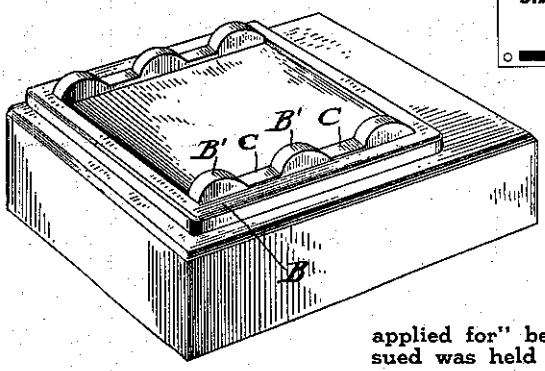


Fig. 9—F. M. Ashley's inkstand design, patented in 1912. The marking of "Patent applied for" before the patent issued was held to be of no effect.

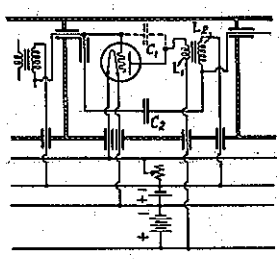


Fig. 10—L. A. Hazeltine's radio receiver circuit, patented in 1925. The patent owners were held responsible for failure of their licensees to comply with statutory marking requirements.

Do You Know Your Own Invention?



DIDIER JOURNEAUX
Patent Attorney
Allis-Chalmers Mfg. Co.

Before being patented, inventions should be checked for hidden features and ideas they may contain.

AN ENGINEER who makes an invention relating to his everyday work may meet difficulties in developing it, but at least he is on familiar ground. However, when he goes through the routine of patenting his invention, he generally finds the procedure beyond his comprehension, at least if he has had no previous experience with patent law. There is nothing very surprising about that. Patent law unites technology and law, and while this union has proved highly fruitful, the conjoints are rather ill-assorted and, in fact, hardly speak the same language.

Even after our inventor has become inured to the peculiar language in which his invention is described in a patent application, he is often bewildered by the multiplicity of features ascribed to his invention. It seems as if his brain child had gotten out of hand, and suddenly grown up beyond reasonable expectations.

But after the patent has been issued, the picture is apt to be different. Our inventor may have thought that his patent would give him a safe corner on some novel article of commerce. Yet he may live to see his competitors manage to market similar articles, of which he may or may not have thought, but which do not infringe upon his patent.

Such disappointments can be reduced to a large extent by a timely and thorough analysis of the invention by the inventor and his patent attorney. This often resolves itself into finding out what the invention actually is about.

Origin of invention

Let us assume that our inventor is a designer in a manufacturing plant. He may get the basic idea for his invention from a realization of some shortcoming of current production. The invention may also be made to order, one might say, for meeting special requirements of a customer.

In any event, an invention may generally be considered to comprise two fairly distinct mental acts. One is a more or less definite conception of a result to be obtained. The other is the provision of some means for obtaining the desired result.

But the inventor is not generally interested in such metaphysical considerations. His first concern is to put his invention to work. So, at the first opportunity, he has shop drawings made of what, to his way of thinking, is his invention, and he sends prints to the shop. If he thinks enough of the invention, he may also send a set of prints to his patent attorney. The latter is fortunate if he also receives a reasonably complete description of the invention and of its mode of operation, its background, and something of the history of its development. All this, put together, forms a so-called disclosure.

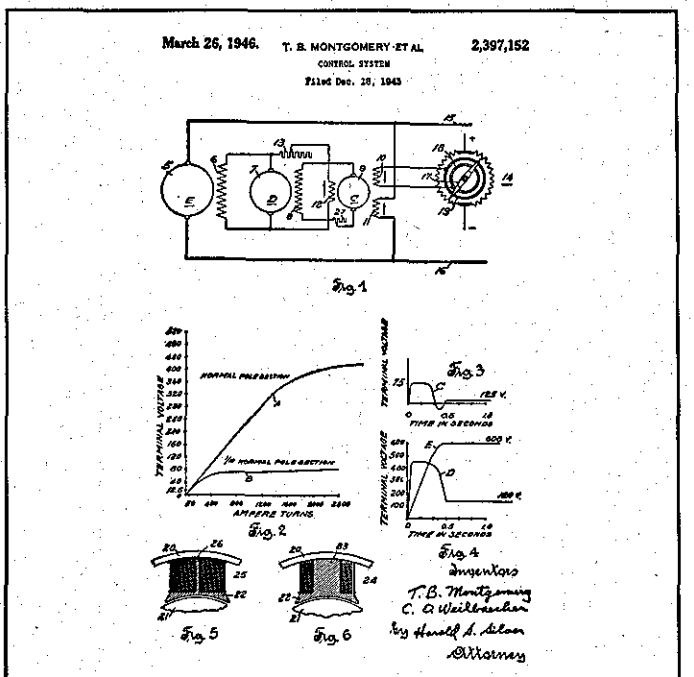
Definition of invention

At this point, the hunt for the invention is on. Of course, the quarry should meet the definition of patentable invention recognized by the Patent Office. Patentable invention is defined in a backhanded way, in the patent statutes, which provide that "Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof" may, under prescribed conditions, obtain a patent therefor.

This looks clear and simple enough at first view but, like most definitions, it can seldom be made to fit individual cases without a bit of twisting.

The result is that many technological developments, which ultimately became important, were considered at first as not involving invention. Long legal battles were necessary to ascertain whether they came within a class named in the statute.

In this connection, the greatest trouble maker is the harmless-looking keyword "new." To put it simply, at the risk of being inaccurate, a "new" device should be neither a Chinese copy of an existing device nor an obvious modification of it. The "obvious" is supposed to be what can be expected of the average technician in his particular field. But as nobody has so far been able to set up a standard for average technicians, it is often uncertain whether a particular modifica-



CLAIMS OF PATENT 2,397,152 are directed to a system including a control exciter in which the field winding arrangement and the saturation of properly dimensioned field poles result in forcing of the exciter voltage and delayed damping action.

SELLING THE INVENTION

H. S. Silver, **General Patent Attorney, Allis-Chalmers Mfg. Co.**

By observing a few simple rules, an inventor — lacking the means to promote his invention himself — can do much to safeguard his rights and encourage its success.

● If Necessity be the mother of invention, certainly Commercial Production is the food on which the infant grows lusty and strong. The problem of feeding the infant is often a grievous one.

Few inventors, other than employees of manufacturing companies, have the facilities at hand for commercially producing their brain children. Perhaps a market must be created. Perhaps a large selling corps is necessary to persuade the buying public that the new device is a real improvement over existing structure. Perhaps the invention is an improvement in a highly specialized line of manufacture. Probably the inventor has no ready cash with which to gamble; or, although certain that his baby, if properly nurtured, will revolutionize the industry, would rather gamble with someone else's money.

The inventor must, therefore, either find a provident speculator who will finance the inventor in commercial production of the invention, or find some manufacturer who will take over and commercially produce the invention on a royalty basis or outright sale. If neither can be found, the inventor has little choice left except to turn the invention over to a patent promoter for possible but improbable disposal.

● Safeguard against loss of rights

Before any of the above steps are taken, the inventor should guard against loss of his rights in his invention by obtaining the best evidence possible as to dates, origin, and subject matter of his invention. He should, if possible, perfect his rights by patenting the invention or at least by filing a patent application. If neither is feasible, he should complete his invention by reduction to practice, that is, by embodying it in a successfully operated full size device, and he should have evidence thereof. If no reduction to practice has been made, evidence of conception of the invention in the form of signed, dated, and witnessed sketches and description should be obtained.

● The manufacturer's considerations

The inventor usually submits his invention to some company manufacturing the line of goods to which his invention pertains. Let us consider the plight of the manufacturer when an inventor comes in with:

1. an embryo idea;
2. an invention actually reduced to practice and disclosed to others;
3. an invention on which a patent application has been filed;
4. a patented or otherwise published invention.

The manufacturer must consider the matter from at least three angles:

(a) commercial value;

(b) possible trusteeship after disclosure;

(c) extent and effect of confidential relation under which invention is disclosed.

From the commercial value standpoint any invention is more or less "a pig in a bag." The value of a patented invention is, of course, more definite after litigation of the patent in a court of last resort. A recently issued patent may, moreover, within one year from date of issue, become involved in an interference proceeding and the claims thereof taken by another. Inventions for which patent applications have been filed may become involved in an interference or may never mature into a patent because of prior art or statutory bars. Inventions which have been actually reduced to practice (embodied in a successfully operated full size device) at least have had a demonstration as to operativeness and utility.

Mere ideas (unpatented paper inventions), not reduced to practice, are pregnant with possibilities of commercial failure. Failure may be due to the fact that patent protection is not obtainable. It may be due to undesirable engineering features, which will appear only when an attempt is made to embody the invention in a commercial device. In general, therefore, patented inventions have an initial commercial value greater than unpatented inventions.

If a manufacturer draws an arbitrary line and

Reprint from Allis-Chalmers ELECTRICAL REVIEW, March, 1938

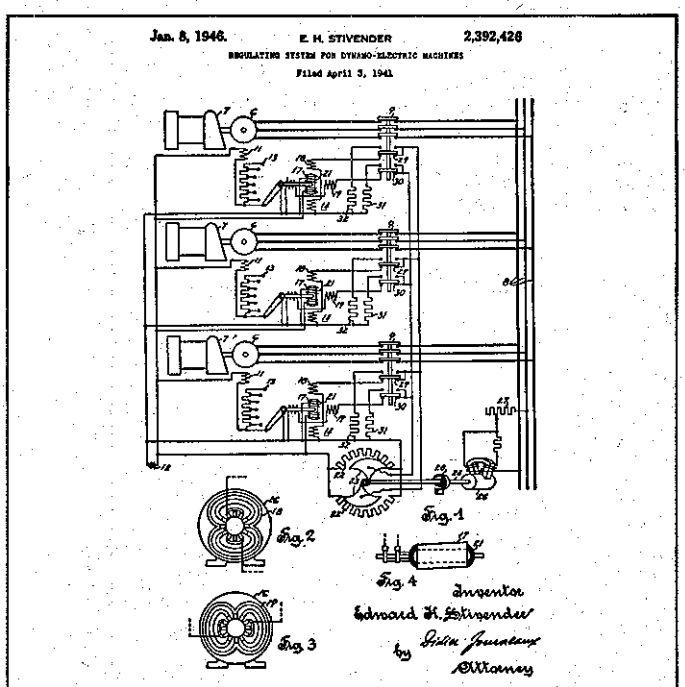
Particularly with electrical systems, it often pays to consider, not only the primary function of the system as a whole, but also the auxiliary functions of the different elements and of the circuits in which they are connected. The disclosure and a prior publication may show systems for performing the same primary function. Elements of the disclosure may, however, perform auxiliary functions not performed in the reference, such as limiting a voltage or forcing a division of current between parallel circuits. Of course, the auxiliary functions of all the elements of the reference should be known. This is not always easy, as such functions are often described incompletely or not at all in patents relating to electrical systems.

In some instances, the intended operation of the system is obtained by giving critical dimensions to some elements. For example, electrical systems may perform quite differently depending upon whether or not magnetic elements are so dimensioned as to operate within the range of so-called saturation.

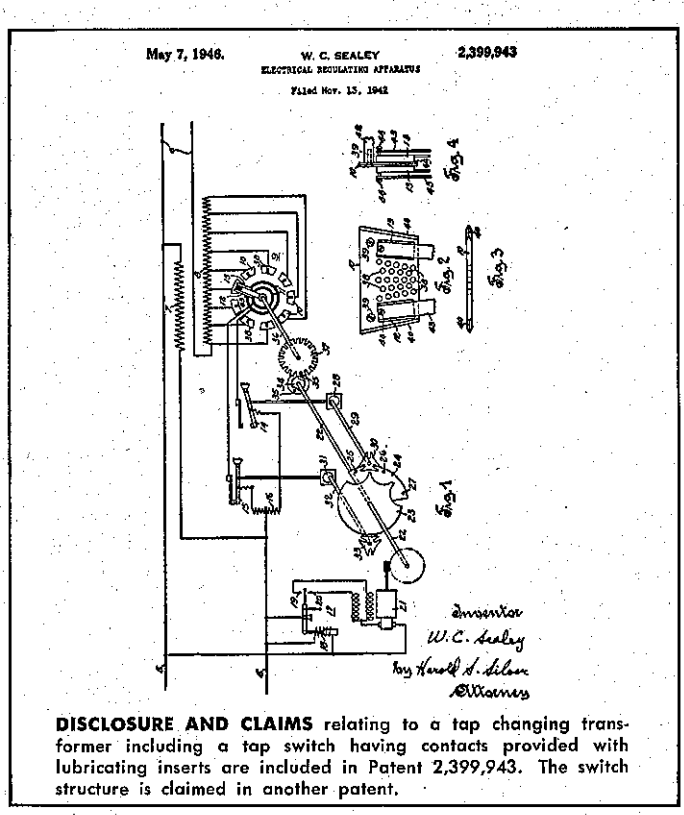
The different steps involved in the operation of some electrical control systems are performed manually. In automatic systems also, the different steps may often conceivably be performed by hand, or at least by means other than those of the disclosure or their equivalents. The operation itself may then be the subject of method claims.

Some regulating systems serve to maintain a chosen quantity, as a voltage, at a predetermined value. All regulating functions are necessarily affected by inaccuracies, and while such inaccuracies may not detract from the usefulness of the system, they may make it difficult to rely on the function as a novel feature. It may then be advantageous to consider the novel combinations of elements of the system, and their auxiliary functions, as generally affecting the regulated quantity without necessarily maintaining it at any particular value.

When the disclosure has been considered from all those angles, any new feature that it may contain should have become pretty well apparent. Features, such as apparatus and its method of operation, may be interdependent, or at least so closely related that they may be considered to constitute a single invention. They may then be claimed in a single patent application. Otherwise, it may be advisable to claim them in separate applications.



PARTICULAR USE of the follow-up system of the preceding figure is the basis for claims to the combinations of regulating elements covered by Patent 2,392,426. Also included in the claims are elements of the follow-up system.



DISCLOSURE AND CLAIMS relating to a tap changing transformer including a tap switch having contacts provided with lubricating inserts are included in Patent 2,399,943. The switch structure is claimed in another patent.

Looking ahead

When an invention becomes published in a patent, it is open to study by the people most able to detect and remedy its shortcomings, and to use it as a starting point for further improvements. It is therefore advisable, while the disclosure is undergoing analysis, to look somewhat beyond its immediate purpose. The inventor may then advantageously be led to think of the most obvious or immediate improvements which would eventually occur to others or to himself in the future development of his invention.

For example, the system may be able to function smoothly once it has been started, but, like internal combustion engines, it may require special means to get it going. For that matter, there may even be problems to be solved to get it to stop. Regulation for imparting a desired operating characteristic to the system may require other means than those previously used in other systems. Likewise, protection of the system against disturbances may call for the development of new and patentable arrangements.

All this sounds like a tremendous program, but of course, it may be gone over lightly whenever it appears that a thorough investigation would be unprofitable. The main thing to bear in mind is that an invention may not reveal all its aspects until it has been scrutinized from a number of different points of view. By a systematic analysis of his invention, the inventor may thus bring out all its features, just as he may make inventions by a systematic analysis of what others have done. A good time to do that is when getting ready to file a patent application. If the inventor does not do it then, somebody else will do it later.

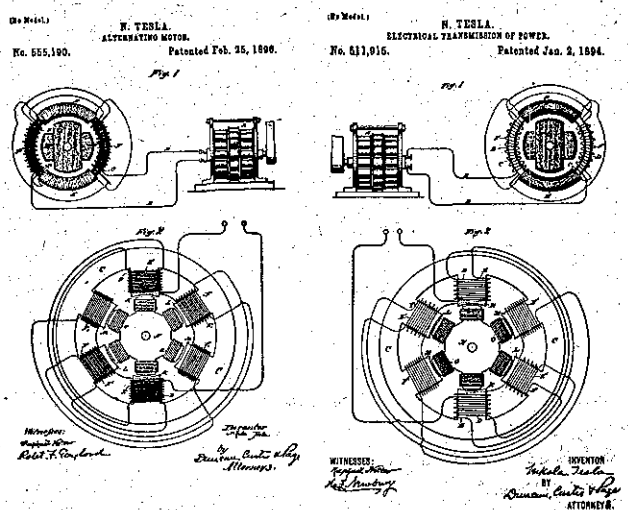


Fig. 1—Nikola Tesla's patents for an induction motor and its method of operation.

the inventor's mind need not necessarily follow that particular sequence of thought. When a device is merely an improvement of an old device, it may be hard to determine whether a new machine was developed for making the improved device, or whether the improved device was the natural result of the improved machine.

From the viewpoint of patentability, a machine and its product are entirely separate, and each may be patented if it is new. The process performed by the machine, which is its method of operation, may however be patented only if it is new and if it can be performed by other machines or manually.

The four patent drawings in Fig. 2 illustrate the point. This invention is the ubiquitous bottle cap. Patent 468,226 is for the bottle cap as developed by its inventor to about the form in which we find it today. Patent 792,285 is for an improvement in the composition of the sealing gasket in the cap. Patent 792,284 is for a method of securing the sealing gasket to either form of cap, and patent 887,838 covers the machinery for performing that method.

These four patents have withstood successfully the test of trial in court. The single idea of the bottle cap led its inventor and others to make numerous other patentable inventions relating to the form of the cap and to the machinery for making the cap, applying it to a bottle and, last but not least, removing it from the bottle.

Mechanical and design patents

The patents so far discussed are all of the general type known as mechanical patents, which are granted only for purportedly utilitarian inventions. Inventions of a purely ornamental nature, or design, are presumably without utility and are therefore excluded. However, it would be jumping to conclusions to assume that the Patent Office looks on ornamentation

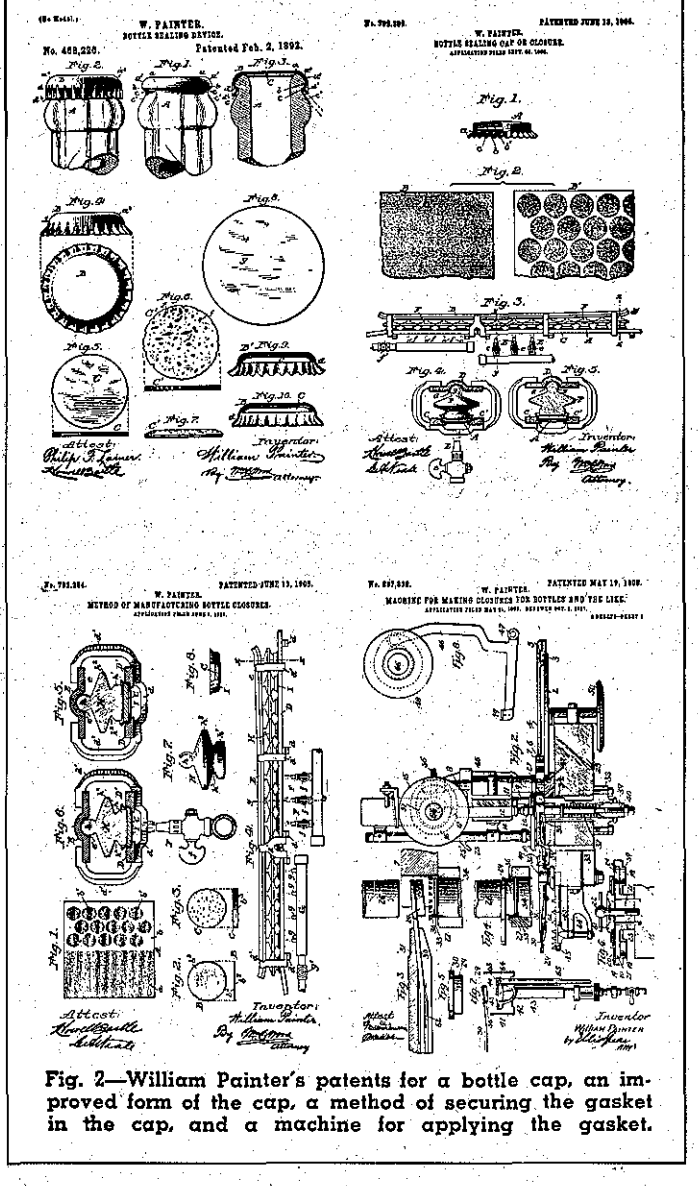


Fig. 2—William Painter's patents for a bottle cap, an improved form of the cap, a method of securing the gasket in the cap, and a machine for applying the gasket.

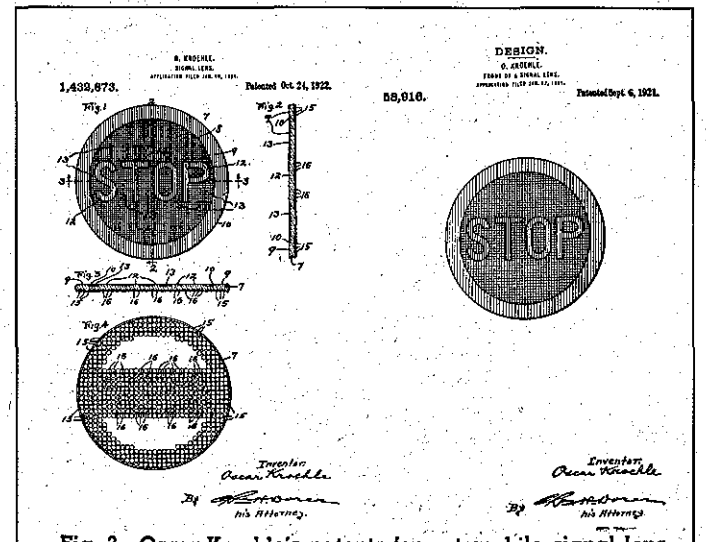


Fig. 3—Oscar Kroehle's patents for automobile signal lens of improved optical properties and for a design of lens.

LITHO IN U.S.A.

design patent, shown in Fig. 5, directed to the same feature.

Family tree of related patents

As evidenced by these examples, the pursuit of a single idea in achieving a result may lead an aggressive inventor to develop a related group of patentable inventions. In general, these inventions will fall into the following classes:

1. Methods of obtaining the desired result.
2. Devices for obtaining the desired result.
3. Methods of making the devices.
4. Machines for making the devices.
5. Designs of the devices and of the machines.

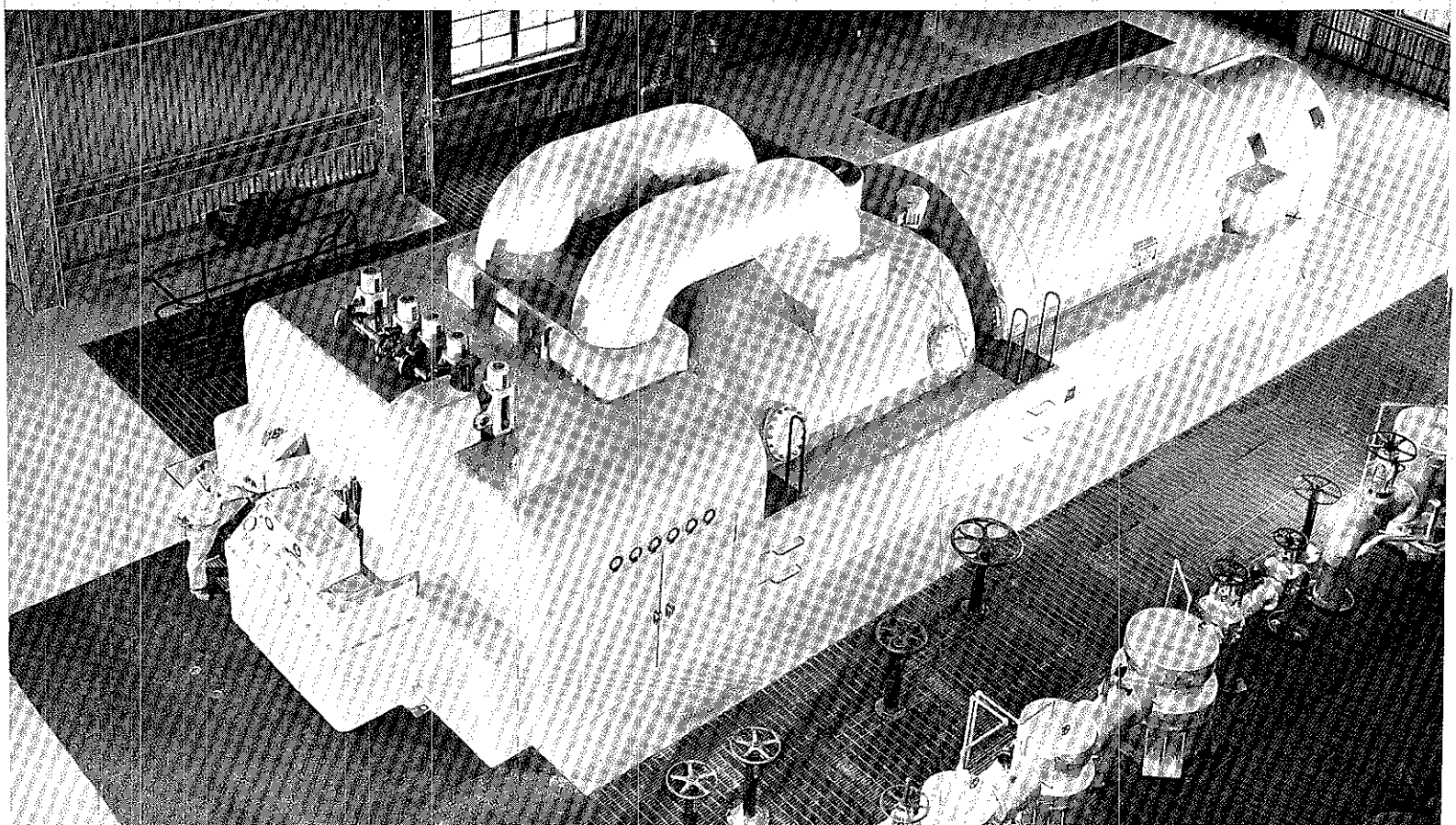
Sometimes each class will contain a single idea, but more often the inventor will devise alternate devices, methods, machines, and designs. Indeed, one of the problems facing inventors is to choose, among alternates, the invention on which to concentrate. Promising alternate inventions may be retained to fall back on in case of disappointment in the results of the preferred invention, and these alternates should be patented if possible so that they will be available when needed. Those that do not appear promising naturally drop out of sight as dead branches fall from a tree.

Related inventions, like human beings, have family trees, but their patterns need not have the uniformity resulting from genealogical silviculture. The inventor starts from a desired result as the ground in which the tree is to grow. The resulting growth may be a single device, sometimes preceded by the method of obtaining the desired result. If the device is further looked upon as being the product of a machine, the tree may sprout a method of making the device and the machine for making the device by that method. Finally, ornamental designs for the device and the machine may provide ornamental even though somewhat unbotanical foliage.

As sketched in Fig. 6, the tree may have more than one trunk, and each trunk may have many branches when variations are provided for the different preferred inventions. Successive improvements of the different inventions may increase the number of branches indefinitely. To carry the comparison further, the tree will often carry the seeds from which a motley array of mighty giants and scrubby dwarfs will later grow.

The growth of the invention tree often progresses regularly from the root to the crown, but it is quite possible to make it start from the top or even from the middle. This may be an irrational way to grow a tree, but after all this is an age of wonders!

Smoothly powerful is the proper descriptive phrase for this 40,000 kw 3600 rpm steam turbine generator, typical of AIEE-ASME preferred standard units. It has a number of patented features. In particular, the turbine contains a welded-in nozzle chest, U.S. Patent No. 2,218,788 to H. P. Dahlstrand. The hydrogen cooled generator has gas tight shaft seals, U.S. Patent No. 2,265,953 to S. H. Mortensen and W. F. King.



will consider only patented inventions, he pursues the safe middle way, avoiding the possible greater heights of success and lower depths of failure of unpatented inventions. A manufacturer, by providing laboratory facilities for experimentation and trial of an invention prior to patenting, may open broader views thereof or side-lights thereon having more commercial importance than the main invention. By providing competent patent counsel, skilled especially in the art to which the invention pertains, a manufacturer may obtain a patent of a commercial value considerably greater than a patent for the same invention procured by patent counsel unfamiliar with the particular art or commercial situation.

Refusal of a manufacturer to consider unpatented inventions may have undesirable repercussions from the sales policy and internal harmony standpoints. Improvements are sometimes made by customers or potential customers who often submit their invention to the manufacturer. Such submission may be made through the contact men of the manufacturer, that is, the salesmen or engineers. An arbitrary refusal by the manufacturer to consider any and all unpatented inventions creates no good will between administrative and sales departments or between company and customer.

A manufacturer must consider the possible trusteeship which he has in inventions submitted to him. If a manufacturer agrees to obtain patent protection for an invention and then negligently handles the prosecution of the application to the detriment of the inventor's rights, the inventor might be entitled to recover damages suffered through the breach of trust. It is believed any such breach would be provable only if flagrant; that ordinary diligence on the part of the manufacturer would be sufficient under the trusteeship.

• Confidential relationship

A confidential relationship arises between a manufacturer and an inventor submitting an invention. The manufacturer owes the inventor a duty not to disclose the invention generally to others. In equity, if an owner of real property stands silent while another "sells" such property to a third person, the owner is estopped from later claiming the property as against such third person. If an inventor submits an invention to a manufacturer for consideration and the manufacturer has a similar anticipating invention, and the manufacturer stands silent as to his own invention, he may be estopped from later asserting that his invention was prior. This is especially true if patents on the manufacturer's invention would dominate the inventor's invention.

It is believed that the "confidential relationship" under which an inventor discloses an invention to a corporation by disclosing it to an employee thereof would not prohibit such employee from disclosing the invention to the corporation patent counsel and engineers for examination as to its merits from patent and engineering standpoints. Further, arrangement should be made so that patent counsel would not be prohibited from disclosing the invention to associates or confidential agents for the purpose of examination as to its patent merits.

• Discovery of prior art

Under ordinary conditions, the right of a manufacturer to use prior art devices should not be prejudiced by a disclosure to him of an invention. But take, for example, the case where a manufacturer may make rubber dishes for a molded dessert. An inventor submits in good faith as his invention the forming in the rubber of the reverse of the company monogram so that it would appear correctly on the dessert. The manufacturer had not thought of the idea but upon search finds reversed monograms in molding receptacles generally to be old. Is he equitably entitled to use the idea on his dessert dishes without compensation to the one who directed his attention thereto?

• To minimize misunderstandings

Misunderstandings between inventor and manufacturer to whom an invention is submitted could be minimized by the following precautions:

1. Inventors should, if possible, protect their rights prior to submitting an invention by
   (a) actual reduction to practice (successfully operated full size embodiment);
   (b) constructive reduction to practice (filing a patent application);
   or if unable to do either (a) or (b) by
   (c) obtaining proof of disclosure to others, (signed, dated, and witnessed sketches and written description).
2. Agreement before disclosure regarding the manufacturer's right to disclose for search purposes and regarding manufacturer's right to use prior art fully teaching the invention.
3. If there is a conflict with the inventions of the manufacturer, the matter of further consideration should be deferred until the inventor has his patent.
4. An equitable policy of compensation for "suggestions" such as the dessert mold type above, where but for the suggestion, the manufacturer would have remained uninformed of the "new" idea.

It is believed the above would increase the invention birth rate and the nourishment available in the form of commercial production. Infant inventions would become more healthy and have a better chance of living to useful maturity.

may be enjoined from using it because of the breach of trust committed by the employee. Such redress can be obtained, not because of any intenton of Congress to favor secret inventions, but because of the general principle of common law that one having committed a wrong — a breach of trust in this instance — cannot be permitted to profit thereby.

Rather than favoring secret inventions, the Constitution implicitly condemns them in laying the foundation for the patent system, which has as one of its objects to bring about the public disclosure of inventions. The secretive inventor is left by the statute to his own devices. He is acting contrary to public policy, and the Supreme Court has repeatedly taken special care to hurl its loudest thunder in his direction. In one case, it was held that:

> "The inventor who designedly, and with the view of applying it indefinitely and exclusively for his own profit, withholds his invention from the public, comes not within the policy or objects of the Constitution or Acts of Congress. He does not promote, and, if aided in his design, would impede, the progress of science and the useful arts. And with a very bad grace could he appeal for favor or protection to that society which, if he had not injured, he certainly had neither benefited nor intended to benefit."

Commercial use in factory may be secret or public

There is thus no doubt as to the precarious protection of the inventor who, having practiced his invention commercially in his own plant for several years, sees a competitor use the same invention and tries to stop him by taking out a patent thereon. In general, the Patent Office will assume that, as represented by the inventor under oath, the invention has not been in so-called public use for more than a year (formerly two years were permissible) before the date of his application. If the patent is granted, the infringing competitor sued thereunder may allege that the patent is invalid, because the patentee himself put the invention in "public use" for such length of time as to bar the grant to him — or to anybody else — of a valid patent thereon.

The natural reply of the patentee to such defense is that he practiced his invention, albeit commercially, behind closed doors and hence not in public. But such commercial use of an invention can be so secret as to be known only to the inventor himself, and again it may be known to many members of the public. The circumstances of each case must be considered separately to determine which uses might be held public, and which secret. And it is difficult to draw a sharp line between secret and public uses when the circumstances of different adjudicated cases, like the hues of the rainbow, merge into one another by imperceptible degrees.

Patent valid over prior secret use by assignee

For example, the patent on the machine illustrated in Fig. 1 was held valid although the inventor's assignee had used the machine commercially for more than two years before the patent was applied for. The machine was accessible only to the few workmen assigned to use it, who were, however, not pledged to secrecy. On the basis of the evidence submitted, the court held that:

> "When the number of these is limited to as few as are necessary to practice it at all, when customers and the public generally are excluded, and adequate precautions are taken to prevent dispersion of the knowledge until at least two years before application is made, it seems to us enough, whether a formal pledge of secrecy be exacted or not. . . . When, as here, adequate means are taken to confine all information as closely as is consistent with any exploitation at all, and when, so far as appears, they are successful, the knowledge of the necessary workmen not explicitly pledged to secrecy does not make the use public."

Patent invalidated by prior public use by patentee

Less fortunate was another inventor, whose patent on the machine illustrated in Fig. 2 was held invalid. He used his machine for several years in his factory, to which the general public did not have access. There

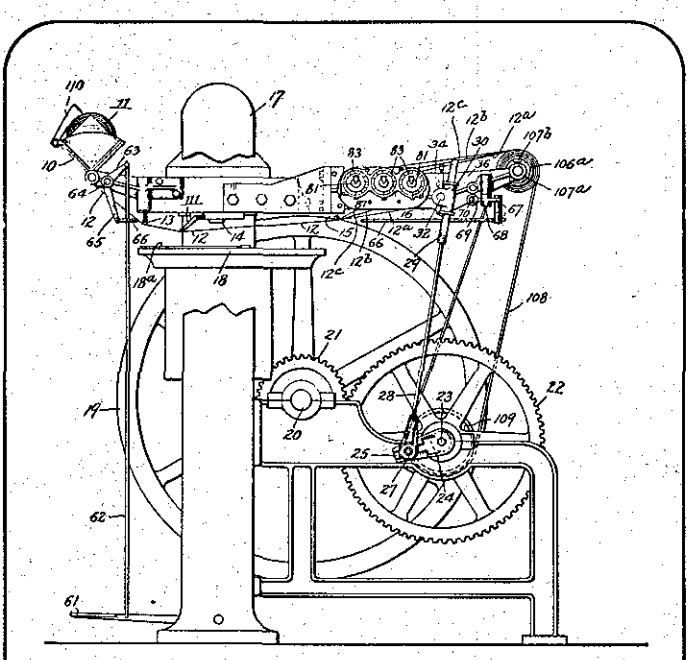


Fig. 1 — W. F. Grupe's stamping machine with automatic feeder for the strips of gilt paper used in printing titles on book covers and in decorating other articles. The patent was held valid in 1928 although the machine had been used commercially in secret over two years before the patent was applied for in 1924.

When it is doubtful whether several patents all apply to a particular article, everything is to be gained by listing them all. For this purpose, and also for simplifying the procedure of marking a wide variety of articles, many manufacturers use blanket patent plates, such as the plate shown in Fig. 8, to be fastened to all articles coming under any of the patents listed.

Marking patent pending

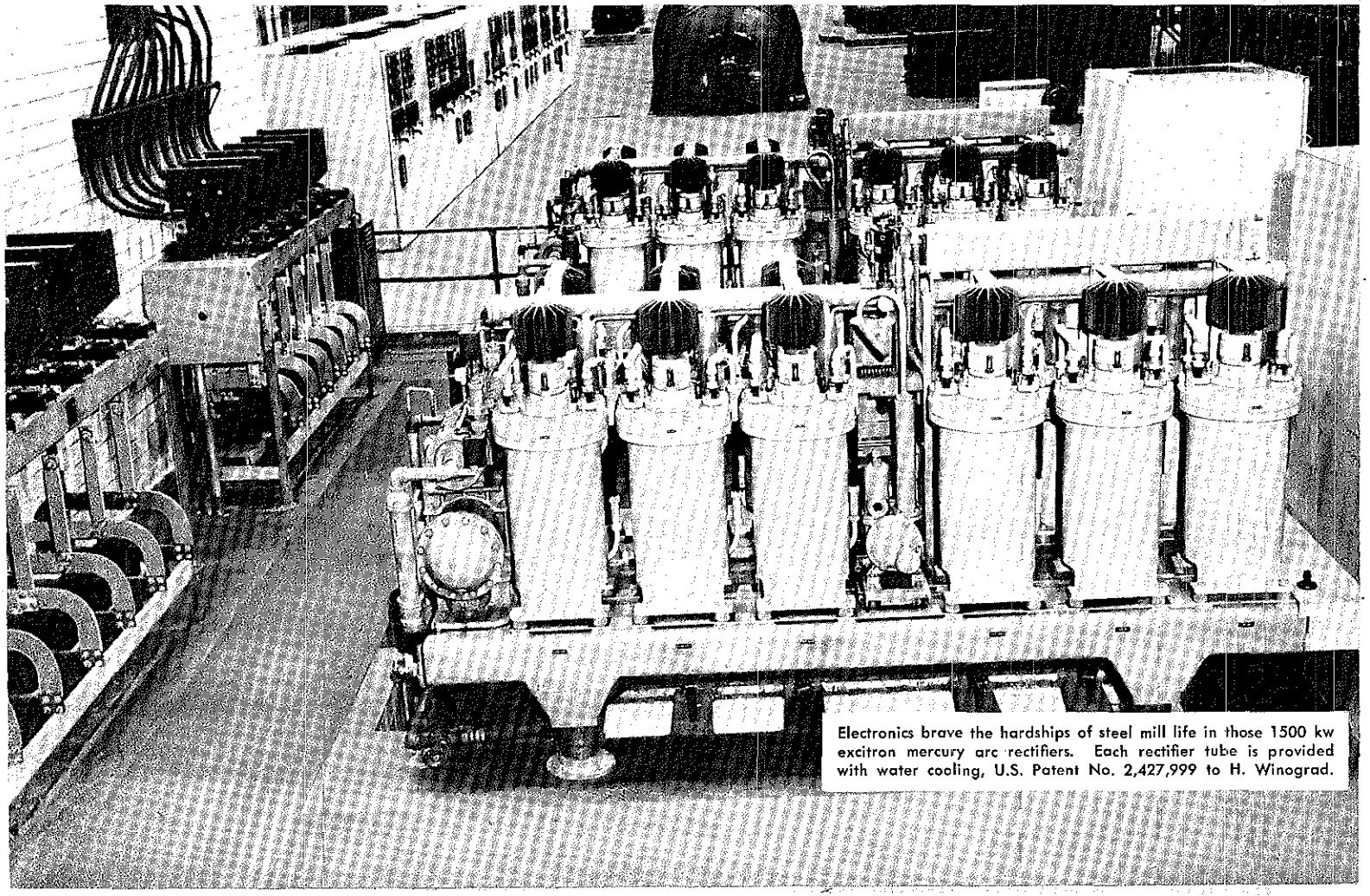
The much abused Pat. Pending, which is not the name of an Irish inventor, is often used as a bugaboo to frighten prospective imitators of unpatented articles but is of doubtful standing. The equivalent marking "Patent applied for" on the inkstand shown in Fig. 9 was disposed of in court in 1915 with the remark that it was not in strict accordance with the language of the statute. On the other hand, another court held more recently that loose-leaf books on which a patent application was pending should have been so marked. Such conclusion was probably unreasonable, but until the Supreme Court so decides it will be safer to mark articles on which a patent is pending.

Every one of patented articles must be marked

One requirement which some patentees have failed to observe is that a definite attempt must be made to mark every one of the patented articles, no matter how few or how numerous they may be. Accidental failure to mark a few articles out of hundreds of thousands may be excused. But the exclusive licensee of the patent on a machine for making finned radiator tubing was found to have shirked his duty for having, in a room barred to the public, three unmarked machines located next to two machines that were properly marked.

Also, any party bringing suit against an infringer is held responsible for seeing that patented articles made by his licensees be marked as if he had manufactured them himself. This requirement probably came as a surprise to the owners of the patent on the once popular radio receiver circuit shown in Fig. 10, who were denied recovery in 1937 because their licensees had marked only two-thirds of the radio sets made under the patent.

Regardless of circumstances, and although there is no immediate or degrading penalty for failing to mark a patented article, the cost of marking it must be considered as a good investment if recovery for patent infringement is important. Although the value of marking may not be apparent at the time and the inclination may be to apply it casually, the headaches of negligent patentees are evidence that patent marking is often one of those little things that count, and should be done well.



Electronics brave the hardships of steel mill life in those 1500 kw excitron mercury arc rectifiers. Each rectifier tube is provided with water cooling, U.S. Patent No. 2,427,999 to H. Winograd.