IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNIVERSITY OF ILLINOIS FOUNDATION, Plaintiff and Counterclaim Defendant, v. BLONDER-TONGUE LABORATORIES, INC., Defendant and Counterclaimant, v. JFD ELECTRONICS CORPORATION, Counterclaim Defendant.	CIVIL ACTION NO. 66 C 567

PLAINTIFF'S TRIAL MEMORANDUM

I ISSUES RAISED BY THE COMPLAINT

A. Introduction

Plaintiff contends that defendant Blonder-Tongue (BT) has infringed two patents relating to antennas. These patents, Isbell patent No. 3,210,767 and Mayes et al. patent No. Re. 25,740, cover antennas of novel types which have such a combination of desirable properties, including, specifically, uniform response over a wide band of frequencies and high efficiency, among others which will be discussed, that they constitute the best solutions to date of the strin-

gent problems involved in television reception, and particularly those of color television reception.

Television, in common with other methods of communication, requires that information be conveyed from one point to another. Television broadcasting, in particular, involves the sending of information via radio waves from a broadcasting station, usually in all directions, to a mass audience consisting of the individual owners of television receivers.

The television transmitter is usually located on top of a tall structure, such as a building or a tower, near the center of the population area. The television transmitter sends power in the form of radio waves through the earth's atmosphere, usually in all directions toward the television receivers in the area.

Within any given metropolitan television broadcast service region, the atmosphere contains many complex electrical disturbances in the form of radio frequency waves of various types, including those of the television transmitters operating in the area. In order to receive a particular television transmission, the owner of a television set must have available some means for the reception of a small portion of the electrical energy which arrives at his location in the form of radio frequency waves from a particular television

transmitter. This means of reception of the desired signal from the atmosphere is provided for in the form of a television receiving antenna. Depending on the circumstances, it is possible to use antennas having several different configurations. For example, in the case of television receivers located relatively close to the transmitter, the simple whip or "rabbit-ear" rod antenna mounted directly to the television receiver cabinet can be used. Provided that the receiver is sufficiently close to the transmitter, this type of antenna may give satisfactory performance, particularly with black and white television for which the requirements are relatively less stringent than those of color television transmission.

As the distance between the broadcasting station and the individual television receiver increases, however, the radio waves rapidly become weaker and weaker, and it is advantageous to use an antenna having a greater capability of energy extraction from the atmosphere than the simple whip or "rabbit-ear" configurations. The relative ability of one antenna to produce a signal (i.e., a radio frequency voltage) at a given location distant from the transmitting station in comparison with another antenna similarly located is a measure of the antenna's "gain," a technical term used in the industry in reference to an antenna's signal-producing

capabilities. Obviously, other considerations being equal, it is desirable in an antenna to have as high a gain as possible so as to insure that the receiver has a signal of sufficient size for proper reception.

Another consideration in the desirable properties of television antennas stems from the fact that television signals are capable of bouncing or reflecting from many types of man-made and natural obstructions, such as tall buildings and hills or mountains. It is, therefore, possible for a given location to receive, in addition to the primary signal coming directly from the television transmitter, a second signal from a different direction which arrives as the result of reflection from an obstruction. This second signal also produces a picture in the television receiver in the same manner that the original does but, because of the fact that it arrives a short time later than the original signal because of having covered a longer path, the second picture is slightly displaced and produces an undesirable "ghost" image. A solution to a problem of this type is to use an antenna capable of receiving signals only from the desired direction or directions while excluding all other signals which arrive from other directions. The ability of a television receiver to discriminate in this manner is a measure of the antenna's "directivity."

When most of the television transmitters which serve a given metropolitan area are located reasonably close to one another, a situation which is usual in many metropolitan areas, it is an obvious advantage that a television antenna have a unidirectional directivity, i.e., that it be capable of receiving signals only from the direction in which it is pointed while rejecting signals from the side or rear. The antennas of the patents in suit have this desirable unidirectional property.

Another property which is important in a television antenna, and indeed crucial for color reception, is its ability to receive signals equally well over a wide band of frequencies. Every user of a television set knows that television programs are received on one or more of twelve broadcasting channels known as VHF (Very High Frequency) channels 2 through 13. These channels were established shortly after World War II by the Federal Communications Commission on fixed frequency assignments which have been maintained ever since. More recently, additional UHF (Ultra High Frequency) channels 14 through 83 at higher frequency assignments were established and are coming into increasing use. Some of the defendant's antennas (e.g., Golden Dart) are designed to cover only the UHF channels, while others (e.g., Color Ranger) cover both the VHF and UHF channels. In the combination antennas, only the VHF section is accused to be infringing.

The channel assignments by the Federal Communications Commission in the VHF range provided for twelve channels, numbers 2 through 13, inclusive, which occupied frequencies in the radio spectrum from 54 megacycles through 216 megacycles, arranged in two bands, channels 2 through 6 occupying one band (54 through 88 megacycles), and channels 7-3 the other (174 through 216 megacycles), with FM radio using a portion of the gap between the bands. These channel assignments created problems in the antenna engineering art which presented extreme challenges to the television receiving antenna designers. Prior to this time, there had never existed another broadcast type service that required such a large ratio of highest frequency to lowest frequency. For example, the 54 megacycle to 216 megacycle range of channels 2 through 13 represents a ratio of frequencies of 4:1. This extreme frequency range presented such a difficult engineering problem to the antenna industry that it was necessary to use compromise techniques to provide satisfactory receiving antennas for television, since there was no available antenna design at that time which would cover such a broad range of frequencies.

It would have been theoretically possible, of course, to design and use an individual antenna for each channel. Such an attempted solution, however, presented a number of diffi-

culties. In addition to cost, size, and weight considerations, there were further difficulties resulting from the unpredictable effects stemming from interreaction of many antennas spaced close together. Still another difficulty was presented by the method to be used in connecting the individual antennas to the television set. Multiple transmission lines cannot be simply connected to the input of a television receiver without special matching sections known as signal splitters which are necessary to avoid a severe mismatch between the antenna and the receiver with consequent deterioration of performance.

In order to avoid, insofar as possible, the problem mentioned above, it was common to use a compromise antenna for the lower group of VHF channels (2 through 6) covering the frequencies from 54 to 88 megacycles and another compromise antenna to cover channels 7 through 13 in the range of 174 to 216 megacycles. The output from these two compromise antennas was then combined and fed to the receiver.

While this compromise method of operation was satisfactory for black and white television, the much more stringent requirements of color television rendered obsolete the practices then in use. The underlying difficulty which militates against the use of compromise antennas intended to receive an average frequency or one in the approximate middle

of the desired band stems from the fact that each television channel is not a single, fixed frequency, but rather a range of frequencies 6 megacycles wide. For optimum reception of the sound and picture information transmitted on a given channel, all of the frequencies within the band should be received by the antenna and supplied to the receiver in the same relative magnitude as sent by the broadcasting station. Thus, unless the television antenna has a uniform gain across the channel, it will vary the relative magnitude of the various frequencies it receives and thereby introduce distortion in the signal fed to the receiver. When all television broadcasting was black and white, the distortion caused by nonuniform reception across the band was of relatively little concern since it did not greatly affect the quality of the picture. With the advent of color television, however, this difficulty is a much more serious one since such frequency discrimination caused by the antenna can result in deterioration of the colors in the picture, a condition much more readily discernible.

The antennas of the Isbell and Mayes et al inventions provided solutions to the problem of satisfactory television reception, particularly of color television signals, in that one antenna could be made to cover the entire television broadcasting band, including the UHF channels, if desired, with a uniformly high gain across the entire band,

thereby eliminating color deterioration problems. In addition, the antennas require only one transmission line to the television set, eliminating matching problems and, in addition, have unidirectional directivity which can be used to eliminate ghosts and other unwanted reflections.

B. The Patents in Suit

The patents in suit, Isbell No. 3,210,767 and Mayes et al. Re. 25,740, cover antennas consisting of several straight electrically conducting rods (dipole halves) arranged in groups of two (dipoles), each dipole being fed by a two-conductor transmission line, with adjacent dipoles being connected to alternate sides of the feed line. In the Isbell invention, the dipoles are straight, while in the Mayes et al. invention the dipoles are V-shaped, the V's opening toward the front of the antenna. As described in each patent, there is a certain arrangement of dipole length and spacing which achieves the broadband response of which the antennas are capable.

C. Defendant's Infringing Activities

Defendant manufactures and sells antennas intended for television reception which embody the inventions of plaintiff's patents in suit. We will show that defendant's commercial products correspond literally to all of the claims

of the Isbell or Mayes et al. patents and constitute infringements thereof.

D. The Patent in Suit is Valid

1. Presumption of Validity

The patent statutes provide that a patent is presumed valid, and the burden of proof rests with the defendant to rebut this presumption. 35 U.S.C. § 282. In all patent cases, the Court must start with the presumption of validity which attaches to the grant. It is axiomatic that a patent, from the fact of its issuance, is presumed to be valid. University of Illinois Foundation v. Block Drug Co., 241 F.2d 6 (7 Cir., 1957).

This presumption is a positive factor which must be overcome by clear and convincing evidence by one who asserts invalidity. Artmoore Co. v. Dayless Mfg. Co., 208 F.2d 1 (7 Cir., 1953).

In a suit for infringement of a patent, it is not part of the plaintiff's case to negative a prior publication or prior use of the patented invention. These are matters of affirmative defense. The grant of a patent is prima facie evidence that the patentee is the first inventor of the device described in the patent and of its novelty, utility, and unobviousness. The issuance of the patent is enough to

show, until the contrary appears, that all the conditions on which patentability depends under the statutes have been met. The burden of proving that the standards for patentability have not been met is upon him who avers it, and this burden is a heavy one. Mumm v. Decker & Sons, 301 U.S. 168, 33 U.S.P.Q. 247.

2. Conditions of Patentability

The Supreme Court in a recent decision (Graham v. John Deere Co., 383 U.S. 1) reaffirmed the general rule that the patentability of an invention is dependent on its novelty, utility, and non-obviousness over the prior art. The patent in suit meets these conditions:

(a) Utility. The inventions covered by the Isbell and Mayes et al. patents are of obvious utility, as attested to by the sales of such antennas by defendant and other antenna manufacturers.

(b) Novelty. Although defendant has made contentions to the contrary, the fact is that no antennas corresponding to those covered by the patents in suit had been made or described in the literature prior to the inventions by Isbell and Mayes et al.

The references on which defendant may rely do not establish lack of novelty for the Isbell and Mayes et al.

inventions. No reference discloses an antenna corresponding element-for-element to those invented by Isbell and by Mayes et al.

(c) Obviousness. None of the references cited by defendant establishes that the Isbell or Mayes et al. inventions were obvious. At best, these references show only certain individual elements of the patented inventions, but in different combinations with other elements. There was no teaching or suggestion in the art as to how these elements should be combined to arrive at the patented inventions.

3. The Patents in Suit are Infringed

The literal correspondence of defendant's antennas with the structures covered by the claims of the patents in suit is for the most part too obvious to permit any serious controversy. Defendant's antennas contain a number of parallel dipole elements, which are either straight ("Golden Dart" and "Golden Arrow") or V-shaped (Color Ranger-3, 5, 7, 10, and 15), connected by a feeder which alternates in phase between connection to successive dipoles. The lengths of the dipoles and the spacings between dipoles are related in all cases literally in the manner called for by the claims of the patents in suit.

The only possible controversy relating to infringement concerns whether the dipoles in defendant's antennas are substantially coplanar within the scope of the claim language. We will show that this condition is met by defendant's products, but even if this were not true, defendant's products would still infringe the patent claims by application of the doctrine of equivalents, as set forth in Nordberg Mfg. Co. v. Woolery Machine Co., 79 F.2d 685, 692.

> "The test of infringement is whether the accused device does substantially the same work in substantially the same way and accomplishes the same result. One appropriating the principle and mode of operation of a patent, and obtaining its results by the same or equivalent means, may not avoid infringement by making a device different in form, even though it be more or less efficient than the patented device." (Emphasis added).

It is further axiomatic that substantial identity between an accused infringing product and the claims of the patent in suit does not have to be demonstrated to a mathematical certainty. This proposition was set forth in City of Grafton, W. Va., et al. v. Otis Elevator Co., 166 F.2d 816 (C.A. 4, 1948) as follows:

> "Rarely do we find an example of what might be called perfect infringement. No patent infringer would be so silly as to make and vend a device similar in every minute de-

tail to a patent. Infringement connotes, between the patent and the accused device, merely correspondence as to the substantial, dominant and essential elements. Any other view would make of a patent a foolish and fatuous thing."

II COUNTERCLAIM ISSUES

In its Counterclaim, B-T accuses plaintiff, together with JFD, of unfair competition, anti-trust violations, and infringement of its patent No. 3,259,904.

A. Unfair Competition and Anti-Trust

Defendant B-T bases its claims of unfair competition and anti-trust violation on a purported conspiracy based on a "commercial business arrangement" between plaintiff and JFD to carry out a campaign against the antenna industry threatening it with unjustified suit for patent infringement.

There is no basis in fact for any of defendant's contentions.

The only "business arrangement" of any kind which exists or has existed between plaintiff and JFD is a conventional patent license under which JFD pays royalties for use of plaintiff's inventions. The patent license also gives plaintiff the right to approve JFD's advertising references to the Foundation or to the University of Illinois. Beyond

exercising this right of approval, plaintiff played no part whatsoever in designing, manufacturing, promoting or selling any of JFD's products.

At no time did plaintiff accuse any antenna manufacturer of infringement of its patents without good and sufficient basis for the accusation. In every instance plaintiff's actions were based on the right of every patent owner to enforce his patents by legal action, if necessary, rather than in furtherance of a purported conspiracy to restrain competition. No such conspiracy ever existed.

B. Infringement of Patent 3,259,904

Plaintiff is not a commercial enterprise. It has no facilities for designing, manufacturing, or selling any commercial product. Specifically, plaintiff has never made, used, or sold any antenna, much less one coming within the scope of defendant's patent.

Blonder-Tongue's accusation of infringement of its patent is presumably based on the "commercial business arrangement" purportedly existing between plaintiff and JFD. As previously noted, however, the only "business arrangement" between plaintiff and JFD is that of licensor-licensee. Plaintiff played no part in designing, making, or selling JFD's products and accordingly cannot be held to have infringed defendant's patent, if such infringement exists.

III CONCLUSION

That the invention of the Isbell and Mayes et al. patents solved a problem which had long perplexed television antenna designers is clear, as demonstrated by the commercial success of antennas following the designs disclosed in these patents. Defendant has appropriated the substance of the Isbell and Mayes et al. inventions in its products while attempting to avoid infringement by staying just outside what it believes to be the literal language of the claims. The contribution to the art of the Isbell and Mayes et al. patents should be recognized by this Court by finding these patents to be valid and infringed by defendant.

As to the counter-claim issues, there is no merit in any of defendant's contentions. No conspiracy between plaintiff and JFD ever existed. The actions of plaintiff in enforcing its patents were fully justified and do not constitute unfair competition or anti-trust violations.

Plaintiff does not make, use, or sell any antennas, much less antennas covered by defendant's patent, and cannot therefore be held to have infringed this patent, regardless of its validity.

Respectfully submitted,

MERRIAM, MARSHALL, SHAPIRO & KLOSE

By Basil P. Mann

Basil P. Mann
One of Attorneys for Plaintiff
30 West Monroe Street
Chicago, Illinois 60603
Area Code 312 - 346-5750

DATE: April 25, 1967

ACKNOWLEDGMENT OF RECEIPT

It is hereby acknowledged that one copy of the foregoing "Plaintiff's Trial Memorandum" has been received by SILVERMAN & CASS, 105 West Adams Street, Chicago, Illinois, this ____ day of _____, 1967.

_____
Attorneys for Counterclaim Defendent JFD Electronics Corp.

ACKNOWLEDGMENT OF RECEIPT

It is hereby acknowledged that one copy of the foregoing "Plaintiff's Trial Memorandum" has been received by HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD, 20 North Wacker Drive, Chicago, Illinois, this ____ day of _____, 1967.

_____
Attorneys for Defendant Blonder-Tongue