United States District Court,
S.D. New York.

NEUTRIK AG, a Stock Company of Liechtenshtein, and Neutrik USA, Inc., a New Jersey Corporation,
Plaintiffs.
v.
SWITCHCRAFT, INC., an Illinois Corporation,
Defendant.

No. 99CIV11931 JSM

July 25, 2000.

Gerald Kiel, Mark Montague and Richard Ballerini, McAulay Nissen Goldberg Kiel & Hand, LLP, New York, Harry J. Levin, Levin & Cyphers, Toms River, NJ, for the plaintiff.

Neal H. Klausner, Davis & Gilbert, LLP, New York, Edward M. O'Toole, Marshall, O'Toole, Gerstein, Murray & Borun, Chicago, IL, for the defendant.

OPINION AND ORDER

MARTIN**, District J.**

The Founding Fathers gave Congress the mandate "[t]o 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." U.S. Const. art. I, s. 8, cl. 8. This seemingly simple directive has required Congress and the courts to develop a complex set of rules to balance the competing goals of encouraging invention while at the same time not unduly restricting competition. Often the application of those rules may seem unfair to those who have expended time and money to develop a new product. For example, one who has spent years developing a unique invention may be precluded from selling that invention because another individual perfected it slightly earlier. Similarly, one who has invented a useful product can be denied patent protection because, ignorant of the requirements of our patent laws, he made some use of the product more than a year before seeking patent protection. *See* Kinzenbaw v.. Deere & Co., 741 F.2d 383, 396-91 (Fed.Cir.1984).

In the case before the Court a similar apparent unfairness may be found. The plaintiff, who made a significant invention, will be denied full protection of the patent laws because in describing the invention to the Patent Office, the plaintiff limited the scope of the invention in a manner which permitted a competitor to "design around" the patent. While at first blush the result may seem unfair to the inventor, the law must strike a proper balance between the monopoly that the patent law provides as an incentive to inventors and the vigorous competition on which our economic system is based. *See* State Indus., Inc. v. A.O. Smith Corp., 751 F.2d 1226, 1236 (Fed.Cir.1985) ("One of the benefits of the patent system is its so-called

'negative incentive' to 'design around' a competitor's products, even when they are patented, thus bringing a steady flow of innovations to the marketplace.").

Neutrik AG and Neutrik USA, Inc. (collectively "Neutrik") bring this action against Switchcraft alleging patent infringement, trademark infringement, false designation of origin, unfair competition, trademark dilution, and trade dress infringement, as well as several parallel state law claims based on Switchcraft's sales of an electrical socket that fits the plug from Neutrik's patented plug-and-socket combination. Neutrik has moved for a preliminary injunction based solely on its claim of patent infringement. The motion is denied.

I. Facts

In 1993 Neutrik obtained U.S. Patent No. 5,205,749 (the " '749 patent") on an "ELECTRIC PLUG-AND-SOCKET CONNECTION" FN1 designed to overcome certain problems, such as current overload, that occur when traditional plugs and sockets are used in high-power applications. In traditional plug-and-socket combinations the two prongs of the plug slide onto the two prongs of the socket. As a result, the surface area of electrical contact is initially very small when the tips of the prongs meet and gradually increases as the prongs slide onto one another. When the plug is unplugged the prongs slide off one another, gradually decreasing the contact surface between them. As a result of this sliding action, for a brief moment during plugging or unplugging the current is being carried over a very small contact area at the tips of the prongs. If a connector is carrying a high-powered current that is "live" or "hot," the brief period when the current is carried over a small surface area can cause overloading. Such overloads are particularly undesirable in high-power sound systems.

FN1. In the patent application, what in layman's terms would be called the "plug" is referred to as the "plug-in counterpart connector" and what is commonly termed the "socket" is referred to as the "plug connector." The conventional terms plug and socket are used in this opinion.

Neutrik's patented plug-and-socket combination avoids overloading by eliminating the gradual increase and decrease of contact area. Neutrik's socket consists of a cup-shaped cylindrical plastic casing with a hollow circular plastic shaft in the center. There are two recesses that run along the outer surface of the shaft's length on opposite sides of the shaft and two recesses that run along the inner surface of the shaft's length on opposite sides. In each recess there is a metal electrical contact that runs along the length of the recess. And on each contact there are three contact vanes that extend out from the recess. Each contact vane extends from the base of the contact in a circumferential direction (i.e. around the circumference of the cylindrically shaped shaft). The distance between the contact vane and the contact base increases in a circumferential direction.

The Neutrik plug consists of a cylindrical cup-shaped casing with a solid shaft in the center. The plug cylinder slides inside the socket cylinder, and the solid plug shaft slides inside the hollow socket shaft. The inner surface of the socket's cylindrical casing has two parallel grooves that are on opposite sides of the inner surface of the cylinder and run from the closed end of the cylinder to the open end. These grooves correspond to two bumps or "noses" on the smaller hollow cylinder of the plug. Thus, the cylinder of the plug can only fit into the larger cylinder of the socket when the grooves of the socket and the noses of the plug are lined up.

Imbedded in the wall of the plug's hollow cylinder are two metal contact rods, which run the length of the cylinder on opposite sides, protrude partially from the plastic casing, and carry electrical current. Imbedded in opposite sides of the plug's solid center shaft there are also two metal contact rods, which run the length of the shaft and protrude partially from the plastic.

When the plug is inserted in the socket in the only position possible (that is, with the socket grooves and plug noses lined up), the metal contact rods of the plug and the metal contact vanes of the socket do not touch one another. Once the plug is inserted, however, it can be rotated clockwise. When it is thus rotated, the socket contact vanes and plug contact rods come into full contact all at once. Thus, the initial contact takes place over a relatively large surface area, making the patented plug-and-socket combination less prone to overloading.

Neutrik has been selling its patented line of plug-and-socket connecters for over a decade and has properly marked its product packaging with its patent number since the '749 patent was issued.

In 1999 Switchcraft began advertising and selling a line of sockets designed specifically to work with Neutrik plugs. Because it fits the Neutrik plug, the Switchcraft socket is nearly identical to the Neutrik socket. The only significant difference is in the design of the socket contacts. Each of Neutrik's contacts consist of a contact base and three contact vanes that extend from the base in a circumferential direction (i.e. around the circumference of the cylindrically shaped plug). The distance between the base and the vanes increases in a circumferential direction. The Switchcraft socket contact consists of a contact base and one contact vane that extends from the base in an axial direction (i.e. along an axis running through the middle of the cylindrically shaped socket). The distance between the Switchcraft contact vane and its base increases in an axial direction.

II. Discussion

Neutrik brings this motion for a preliminary injunction based solely on its claim that Switchcraft has infringed the '749 patent. To determine whether a preliminary injunction is warranted in a patent case, the Court must consider four factors: (1) whether the plaintiff has a reasonable likelihood of success on the merits; (2) whether the plaintiff will be irreparably harmed if the injunction is not granted; (3) whether the balance of hardships tips in the plaintiff's favor; and (4) the impact of the injunction on the public interest. *See* Hybritech, Inc. v. Abbott Labs., 849 F.2d 1446, 1451 (Fed.Cir.1988). No one factor is dispositive, and all the factors must be considered in light of the magnitude of the relief granted. *See id*. However, there is a presumption of irreparable harm if the plaintiff makes a clear showing of success on the merits. *See* Bio-Technology Gen. Corp. v. Genetech, Inc., 80 F.3d 1553, 1558 (Fed.Cir.1996). In this case there is no particular impact on the public interest, and the balance of hardships does not tip decidedly in favor of either the plaintiff or the defendant. Therefore, the plaintiff's likelihood of success on the merits is dispositive.

In order to succeed on the merits of its patent infringement claim Neutrik will have to establish both the validity of its patent and Switchcraft's infringement thereof. For the purposes of this preliminary injunction motion, Switchcraft concedes that the '749 patent is valid. The critical issue, then, is whether Neutrik is likely to succeed in showing that Switchcraft infringed. Based on the record before the Court, it does not seem likely that Neutrik will succeed.

Analysis of an alleged patent infringement entails two inquiries: (1) a determination of the scope of the patent claims, and (2) a determination of whether the claim encompasses the accused device. *See*

Mannesman Demag Corp. v. Engineered Metal Prods. Co., Inc., 793 F.2d 1279, 1282 (Fed.Cir.1986); Caterpillar Tractor Co. v. Berco S.P.A., 714 F.2d 1110, 1114 (Fed.Cir.1983).

A. Literal Infringement

Neutrik first argues that Switchcraft's plug has literally infringed its patent claims. To establish literal infringement a plaintiff must demonstrate that every limitation in a patent claim is literally met by the accused device. *See* Enercon GmbH v. International Trade Comm'n, 151 F.3d 1376, 1384 (Fed.Cir.1998). The '749 patent reads in relevant part:

In an electric plug-and-socket connection including a cylindrical plug connector and a cylindrical plug-in counterpart connector, each connector having an axis, each connector including contact supports and contacts, wherein the plug connector and the plug-in counterpart connector are coupleable by a bayonet-type coupling, the plug connector being cup-shaped and having a circumferential wall and a circumferential edge and a bottom remote from the edge, grooves being defined in the wall of the plug connector, the grooves having a first portion extending parallel to the axis of the connector and a second portion extending circumferentially adjacent the first portion, the second portion having a length which determines and angle of relative rotation between the plug connector and the counterpart connector, the counterpart connector is a rod of solid cross-section, the rod being received in an axially extending recess of the contact support, the rod projecting over its entire length radially beyond the contact support, wherein two imaginary diameter planes of the connector with the rod contact extending through the contact and the at least one nose are offset relative to each other by an angle which corresponds to the angle of relative rotation between the connectors, each of the other contacts being received in a recess of the other contact support of the plug connector, the other contact support having a wall, the recess being provided in the wall, the improvement comprising the other contacts in the other contact support each having at least one elastically deformable contact vane, the at least one contact vane extending in circumferential direction from the wall of the contact support and at a distance from the wall of the contact support which increases in a circumferential direction.

The final emphasized portion of the claim is at issue here. Switchcraft contends that there is no literal infringement because its socket does not include "at least one contact vane extending in a circumferential direction from the wall of the contact support and at a distance from the wall of the contact support which increases in a circumferential direction." The contact vanes in the Switchcraft plug extend from their supports in an axial direction, not a circumferential direction, and the distance between the vane and the support increases in an axial direction, not a circumferential direction.

Neutrik argues that Switchcraft's contact vane extends both circumferentially and axially and increases its distance from the support wall both circumferentially and axially and therefore infringes the '749 patent. At the tip of the Switchcraft vane there is a rounded bump a little smaller than a dry split pea. This bump is the actual point of electrical contact. Neutrik focuses narrowly on the bump and argues that because of the bump's round shape, the Switchcraft contact vane can be said to extend from the contact base in a circumferential direction as well as in an axial direction.

This argument stretches the claim language too far. "In construing a claim, claim terms are given their ordinary and accustomed meaning unless examination of the specification, prosecution history, and other claims indicates that the inventor intended otherwise." Transmatic, Inc. v. Gulton Indus. Inc., 53 F.3d 1270, 1277 (Fed.Cir.1995). Webster defines a "vane" as "a broad, thin, often curved surface fastened to a pivoted

or rotating body." *Webster's New Dictionary and Thesaurus* 1087 (1992). Examples include the blades on a windmill or the feather on an arrow shaft. *See id*. Here, the term "contact vane" mentioned in the patent clearly refers to the entire piece of metal that extends from the contact base, not just the bump at the tip. The contact vane in Switchcraft's device extends from its base in an axial direction. Just because a small portion of the vane has a round shape does not mean that the vane also extends circumferentially from its base.

Essentially, Neutrik is arguing that the phrase "contact vane extending in circumferential direction from the wall of the contact support" really means "contact vane *or any portion thereof* extending in circumferential direction from the wall of the contact support." Thus, according to Neutrik, the patent limitation is met if just a portion of the contact vane is extending in a circumferential direction. The bump on the Switchcraft contact vane is a portion of the contact vane, and because of its round shape, the bump can be said to extend in circumferential direction.

There are two problems with this argument. First, even if the claim language did read "contact vain or any portion thereof," there is no portion of the Switchcraft contact vane that is "extending in circumferential direction *from the wall of the contact support and at a distance from the wall of the contact support which increases in a circumferential direction*." The bump is not attached to the wall of the contact support and cannot be said to extend from it. Additionally, the distance between the bump and the wall of the contact support does not increase in a circumferential direction. If anything, the distance between the bump and the wall of the contact support increases in an axial direction because the bump is on the end of the axially extending contact vane. Therefore, even if the patent language meant "contact vane or any portion thereof" as Neutrik suggests, the Switchcraft socket does not meet this limitation.

Furthermore, the plain language of the patent does not read "contact vane or any portion thereof," and the plain language of the patent is what governs "unless examination of the specification, prosecution history, and other claims indicates that the inventor intended otherwise." Transmatic, 53 F.3d at 1277. There is nothing to indicate that Neutrik intended anything but the ordinary and accustomed meaning of the phrase "contact vane extending in circumferential direction from the wall of the contact support and at a distance from the wall of the contact support which increases in a circumferential direction." In fact, the prosecution history indicates that the specifications regarding circumferential direction were added to Neutrik's patent application to distinguish it from a patented device in the prior art that employed a contact vane almost identical to Switchcraft's. Neutrik's original version of Claim 13 at issue in this case reads in relevant part:

... the improvement comprising the other contacts in the other contact support each having at least one elastically deformable contact vane, the at least one contact vane extending from the wall of the contact support and at an increasing distance form the wall of the contact support.

This version of Claim 13 was rejected in view of prior art. In particular, the examiner pointed to Kissling, U.S. Patent No. 4,826,454. The Kissling patent was for a type of fuse holder that employed an elastically deformable contact vane extending from the wall of a contact support in an axial direction.

In response to the examiner's rejection citing the Kissling patent, Neutrik amended the relevant language:

... the improvement comprising the other contacts in the other contact support each having at least one elastically deformable contact vane, the at least one contact vane extending *in circumferential direction* from the wall of the contact support and at an increasing distance from the wall of the contact support.

Once again, however, the examiner rejected Claim 13 citing the Kissling patent. Finally, Neutrik made a second amendment to Claim 13:

... the improvement comprising the other contacts in the other contact support each having at least one elastically deformable contact vane, the at least one contact vane extending in circumferential direction from the wall of the contact support and at [an increasing] *a* distance from the wall of the contact support *which increases in circumferential direction*.

In its "Remarks" in support of the amendment, Neutrik cited specifically the fact that its device was sufficiently distinct from the Kissling patent because "the circumferentially extending contact vanes have a distance from the wall which increases in a circumferential direction."

Switchcraft's contact vane and the vane in the Kissling patent are almost identical. The Kissling vane, like Switchcraft's, has a rounded bump at the tip. Yet Neutrik now tries to argue that as a result of the rounded shape of the bump on Switchcraft's vane the vane extends circumferentially, and its distance from the contact base increases circumferentially. To the extent that the prosecution history for the '749 patent is useful in construing the plain language of the patent, that history works against Neutrik. The phrase "vane extending in circumferential direction" was not intended to apply to a vane, like the Switchcraft vane and the one in the Kissling patent, that extends axially and happens to have a rounded bump at the tip. If that were the case, the examiner would not have approved the '749 patent in light of the Kissling patent. The contact vane used in Switchcraft's socket simply does not extend circumferentially and therefore does not meet every limitation in the patent. On the factual record now before the Court, it is apparent that Neutrik will not succeed on the merits of its claim for literal infringement.

B. Infringement Under the Doctrine of Equivalents

The next issue is whether there has been infringement under the doctrine of equivalents. This doctrine requires that the accused device contain each element of the patent claim or its equivalent. *See* Overhead Door Corp. v. Chamberlain Group, Inc., 194 F.3d 1261, 1269 (Fed.Cir.1999). An element of the accused product is equivalent to a claim element if the differences between the two are "insubstantial" to one of ordinary skill in the art. Id. at 1269. The Federal Circuit has devised the "function-way-result" test to determine whether elements are equivalent, particularly when mechanical devices are at issue. *Id*. Under this test, an element is equivalent if it performs substantially the same function in substantially the same way to achieve substantially the same result. *See id*.

Neutrik contends that the Switchcraft contact vane is equivalent to Neutrik's contact vane under the function-way-result test and therefore infringes the '749 patent. According to Neutrik, it does not matter that the contact vane in the Switchcraft socket extends axially instead of circumferentially because it performs substantially the same function in substantially the same way to achieve substantially the same result as the Neutrik socket. After careful examination of the two sockets and observation of cutaway versions of the sockets as they connect with a Neutrik plug it seems that Neutrik is correct. Both sockets make an electrical connection with the Neutrik plug. Both use an elastically deformable contact vane that wipes onto the contact rod in the plug so that the full electrical connection takes place immediately. And both achieve the connection without the overloading that can occur when traditional plug and socket combinations are used in high-power sound applications.

Switchcraft argues first that while its socket may perform the same function and achieve the same result as

the Neutrik one, it does so in a different way. In fact, Switchcraft contends that this different way is an improvement on Neutrik's device. According to Switchcraft, Neutrik must use an expensive special alloy to make its contact vanes. By contrast, the Switchcraft contact vane, which extends axially from the contact base, does not require the use of a special alloy. Therefore, according to Switchcraft, its contact vane performs the same function just as effectively but more cheaply.

Neutrik disputes this assertion, arguing that the Switchcraft contact vane performs less effectively than the Neutrik one. Indeed Neutrik is probably correct in this regard since its use of contact vanes that extend in a circumferential direction permits the use of three contact vanes in each of the four contacts whereas Switchcraft's axially extending contact vane limits it to one contact vane for each contact. Thus, each Neutrik socket has twelve points at which the electrical connection is made while the Switchcraft socket only has four.

However, whether or not Switchcraft's contact vane is an improvement over Neutrik's is irrelevant. The relevant issue is whether it meets the function-way-result test for equivalency. As discussed above, it appears to the Court that it does. The key to the improvement described by the '749 patent, as the Court understands it, is the wiping action that occurs when the contact vane is depressed by the rod in the plug creating an immediate electrical contact over a relatively broad area. Both the Neutrik contact vanes and the Switchcraft contact vanes are elastically deformable and have the same springing action. Even though the Switchcraft contact vane extends axially rather than circumferentially, the distinct shape of the bump at the tip of the Switchcraft contact vane allows the plug's contact rod and the socket's contact vane to come together with the same wiping action that occurs when the Neutrik contact vanes and rods meet. Therefore, the Court finds that the Neutrik and Switchcraft devices perform substantially the same function in substantially the same way to achieve substantially the same result.

The doctrine of equivalents, however, is limited by the doctrine of prosecution history estoppel, which precludes a patent holder from obtaining a claim construction that would resurrect subject matter that was surrendered during the patent application in order to obtain the patent. *See* Hughes Aircraft Co. v. United States, 717 F.2d 1351, 1362 (Fed.Cir.1983).

Switchcraft argues that the application of the doctrine of equivalents in this case is limited by prosecution history estoppel because Neutrik clearly and unmistakably surrendered any claim to contact vanes that do not extend circumferentially when it amended its patent twice during the patent application process in order to emphasize that its contact vanes extend in a circumferential direction. Unmistakable assertions made by a patent applicant in support of patentability, whether or not required to secure allowance of the claim, may operate to preclude the patentee from asserting equivalency. *See* Bayer v. Elan Pharm. Research Corp., 212 F.3d 1241, 1252 (Fed.Cir.2000). In determining whether there has been a clear and unmistakable surrender of subject matter, the prosecution history as a whole must be examined under an objective standard. *See id*. The proper inquiry is "whether a competitor would reasonably believe that the applicant had surrendered the relevant subject matter." *See* Cybor Corp. v. FAS Technologies, Inc., 138 F.3d 1448, 1457 (Fed.Cir.1998). Thus, in the case before the Court, the relevant inquiry is whether, considering the prosecution history as a whole, a competitor would reasonably believe that Neutrik had surrendered contact vanes that only extend axially in its patent application.

Based on the amendments that Neutrik made to Claim 13 in response to the examiner's concerns about the Kissling patent, Neutrik did surrender any claim to contact vanes that do not extend circumferentially. Any competitor examining the prosecution history discussed above could reasonably believe that a contact vane

similar to the vane in the Kissling patent would not be covered by the '749 patent because Neutrik had to distinguish its device from the Kissling device specifically in order to gain approval.

Neutrik argues that the Kissling patent is irrelevant prior art because the Kissling device was a fuse, not a plug-and-socket combination. Having failed to make this argument during prosecution, however, Neutrik cannot rely on it now. *See* Bai v. L & L Wings, Inc., 160 F.3d 1350, 1356 (Fed.Cir.1998). Instead of disputing the relevancy of the Kissling patent when its claim was before the examiner, Neutrik chose to distinguish its device from the Kissling device by limiting the claimed contact vanes to those that extend circumferentially and increase their distance from the base in a circumferential direction. The circumferential limitations added to Claim 13 in the two amendments put competitors on notice that Neutrik was no longer claiming a proprietary interest in socket designs that employed an axially extending contact vane like Kissling's.

It was therefore reasonable for a competitor like Switchcraft to use the Kissling patent as a starting point in its legitimate effort to "design around" the Neutrik patent. *See* State Indus., Inc. v. A.O. Smith Corp., 751 F.2d 1226, 1236 (Fed.Cir.1985). In fact, Switchcraft's final design employs a contact vane almost identical to the one in the Kissling patent. Neutrik was very eager to distinguish its contact vane from the Kissling contact vane during the patent application process. It cannot now complain that Switchcraft took those distinctions to heart and followed the Kissling model, reasonably believing that such a course would steer it clear of the '749 patent.

Neutrik is therefore estopped from claiming infringement for a plug design like Switchcraft's, which employs a contact vane that does not extend circumferentially. At this stage there appears to be no infringement under the doctrine of equivalents.

III. Conclusion

As discussed above, there is little likelihood that Neutrik will succeed in proving its patent infringement claim on the merits. The motion for a preliminary injunction is therefore denied.

SO ORDERED.

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