United States District Court,
N.D. Illinois.

AQUA-AEROBIC SYSTEMS, INC,
Plaintiff.
v.
AERATORS, INC., and Frank Nocifora,
Defendants.

June 4, 1998.

Toni Lee Bonney, Gary A. Ahrens, Elizabeth H. Schoettly, Michael, Best & Friedrich, Milwaukee, WI, for plaintiff or petitioner.

Charles S. Oslakovic, Leydig, Voit & Mayer, Ltd., Rockford, IL, for defendant or respondent.

MEMORANDUM OPINION AND ORDER

REINHARD**, J.**

Plaintiff, Aqua Aerobic Systems, Inc., filed a complaint alleging patent infringement against defendants, Aerators, Inc. and Frank Nocifora. Plaintiff filed three motions for summary judgment, one for claim interpretation, one for infringement and one for wilful infringement. Defendants filed a cross-motion for summary judgment for non-infringement. Jurisdiction is premised on 28 U.S.C. s. 1338(a), and venue is proper under 28 U.S.C. 5. 1400(b).

BACKGROUND

Plaintiff manufactures and sells wastewater treatment equipment, including a down flow mixer known as the "Aqua-Lator DDM Mixer." Plaintiff's mixer is designed to mix the contents of a body of water by moving liquid through an operating propeller in order to circulate the liquids and keep the solids therein suspended. The general design of plaintiff's mixer consists of a motor mounted on a flotation device with a propeller that extends down into the liquid below the float. Plaintiff holds United States Patent No. 4,422,771 (the '771 patent) on its mixer. Plaintiff asserts that defendants manufacture and sell a downflow mixer that infringes claims 1, 3, 10, 11, 13, 20 and 21 of the '771 patent.

Claim 1 of the '771 patent contains, among others, the following limitations: (1) a "wall means extending between the shaft stabilizer means and the upper casing across said upright passage for preventing passage of atmospheric air through the upright passage to the propeller," and (2) a "mechanical shaft seal means between the shaft stabilizer means and the extended shaft portion at a location above the anti-deflection bearing means for preventing the flow of atmospheric air through said shaft enclosure to the anti-deflection bearing means and propeller."

The '771 patent specification states, in pertinent part, that "[t]he mounting plate 38 extends across the float passage between the shaft stabilizer tube and the float to form a seal to prevent the entrance of air through the float passage." The specification further provides that "[t]he mounting plate 38 is made imperforate except for the central opening 38a and it is sealed to the float as by a suitable resilient sealing compound indicated at 38b in Fig. 3. The plate 38 thus forms a wall between the upper casing 11 and the stabilizer tube 44 that effectively prevents the passage of atmospheric air through the casing passage to the propeller." The specification also describes an additional seal as follows:

In order to further enhance the sealing action of the mechanical rotary seal, and to minimize the loss of lubricant, a lip-type seal 60 is advantageously provided.... The lip-type seal directly surrounds a shaft and forms a running seal therewith to inhibit entrance of air and to minimize flow of lubricant along the shaft.

The specification also states that "[i]t is the object of the present invention to overcome the problems of bearing failure and excessive vibration encountered in the prior downflow mixing apparatus." The specification further explains that "the applicant found that air would enter around the propeller shaft and produce cavitation at the propeller, which cavitation is believed to be the primary cause of the excessive vibration encountered in the prior mixer." The specification goes on to state that "[s]ealing the stabilizer tube against the flow of air to the anti-deflection bearing prevents drying of the anti-deflection bearing due to the flow of air there passed." Lastly, consistent with claim 1, the specification states:

The mounting plate 38 is made imperforate except for the central opening 38a and it is sealed to the float as by a suitable resilient sealing compound indicated at 38b in FIG. 3. The plate 38 thus forms a wall between the upper casing 11 and the stabilizer tube 44 that effectively prevents passage of atmospheric air through the casing to the propeller. A mechanical shaft seal 51 is used to provide a gas tight seal between the shaft stabilizer tube 38a and the extended shaft portion of the motor shaft at a location above the anti-deflection bearing to prevent the flow of atmospheric air through the stabilizer tube in the anti-deflection bearing and propeller.... The mechanical rotary shaft seal 51 effectively prevents the flow of atmospheric air through the stabilizer tube 44 past the anti-deflection bearing 48 and to the propeller 36.

During the prosecution of the '771 patent, the applicant argued in response to a rejection by the examiner that:

Preventing the passage of atmospheric air through the upright passage to the propeller and further providing a mechanical shaft seal between the shaft stabilizer and the shaft at a location above the anti-deflection bearing means, has been found essential to avoid cavitation at the propeller. It has been found that even a small opening that allows the entrance of air in either of these areas can produce high cavitation and rapid eroding damage to the propeller as well as high vibration.

The applicant further argued during the prosecution:

It is submitted that it would not be obvious from these references to additionally provide a mechanical shaft seal between the shaft stabilizer and the shaft at a location above the anti-deflection bearing for the dual purpose of preventing the flow of atmospheric air through the shaft enclosure to the anti-deflection bearing and also to prevent flow of atmospheric air through the shaft enclosure to the propeller. In this regard it is pointed out that, since the anti-deflection bearing is not in continuous running contact with the shaft, it does not require a continuous supply of lubricating water, but it should not be allowed to become dry and subject to rapid abrasion by the shaft when the shaft is deflected into contact with the anti-deflection bearing. The

mechanical shaft seal above the anti-deflection bearing prevents drying of the anti-deflection bearing by the flow of atmospheric air and also, in conjunction with the seal means between the shaft stabilizer means and upper casing, prevents the flow of atmospheric air to the intake of the propeller.

Defendants' mixer uses a single, spring loaded lip seal at the top of its shaft enclosure for the purpose of preventing water from flowing up through the shaft enclosure and into the motor bearings when the propeller is operated in reverse. The lip seal used in defendants' mixer is capable of blocking flow in only one direction, and air will pass between the lip seal and the shaft if the lip seal is installed so as to prevent the passage of liquid from below. The lip seal is in fact installed on defendants' mixer so as to prevent water from coming up the shaft. Defendants' mixer does not use a rotary seal, a face seal or any seal having a stationary and rotary component like that described in the '771 patent specification. Additionally, in defendants' mixer, the joint between the motor mount and the float consists of metal-to-metal contact with no use of any sealant.

CONTENTIONS

Regarding interpretation of the claim language at issue, plaintiff contends that the claims should be interpreted not to require the prevention of all air from passing through to the propeller and deflection bearing, but rather, the prevention of enough air to prevent cavitation of the propeller and drying of the bearing. Alternatively, plaintiff argues that even if the claim language is interpreted to call for the prevention of all air, defendants' mixer infringes the '771 patent under the doctrine of equivalents because it effectively accomplishes the purpose of the '771 claims, to prevent a sufficient flow of air to prevent cavitation and drying of the bearing. Plaintiff also asserts wilful infringement on the part of defendants.

Defendants, in turn, urge an interpretation of the claim language that requires the prevention of all air and contends that its mixer, which does not prevent the flow of air in any appreciable way, does not literally infringe the '771 patent. Defendants also respond that its mixer does not infringe under the doctrine of equivalents and that Frank Nocifora cannot be held individually liable.

DISCUSSION

Summary judgment is appropriate when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law. Wright Med. Tech., Inc. v. Osteonics Corp., 122 F.3d 1440, 1443 (Fed.Cir.1997). Summary judgment may be granted when no reasonable jury could return a verdict for the non-moving party. *Id*. In assessing the propriety of summary judgment, the court views the evidence in the light most favorable to the opposing party, with doubts resolved in favor of the opponent. *Id*.

1. *Literal Infringement*

A literal patent infringement analysis involves two steps: (1) the proper construction of the asserted claim and (2) a determination as to whether the accused method or product infringes the asserted claim as properly construed. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581-82 (Fed.Cir.1996). To prove infringement, a plaintiff must show that the accused device includes every limitation of the claim or an equivalent of each limitation not literally met. Wright Med. Tech., Inc. v. Osteonics, 122 F.3d 1440, 1443-44 (Fed.Cir.1977); Wiener v. NEC Elec., Inc., 102 F.3d 534, 539 (Fed.Cir.1996). Claim construction is a question of law. *Id*. at 1582 (citing Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995 (en banc)), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996)).

In interpreting a claim, the court should look to the intrinsic evidence of record first. Vitronics, 90 F.3d at 1582. Such evidence consists of the patent, including the claims, the specification and the prosecution history. *Id*. The court looks first to the language of the claim itself. *Id*. Although words in a claim are generally given their ordinary and customary meaning, a patentee may use terms in a manner other than their ordinary meaning, provided the special definition is clearly stated in the specification or file history. *Id*.

The court must always review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning. Vitronics, 90 F.3d at 1582. The specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication. *Id*. The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. *Id*. The specification is highly relevant to, and usually dispositive of, the claim construction analysis and is the single best guide to the meaning of a disputed term. *Id*.

The court may also consider the prosecution history of the patent, if part of the record. Vitronics, 90 F.3d at 1582. The history contains the complete record of all proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. *Id*. As such, the prosecution history can be significant in determining the meaning of a claim. *Id*.

In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. Vitronics, 90 F.3d at 1583. Where the intrinsic evidence alone is sufficient to interpret the claim, reliance on extrinsic evidence is improper. *Id*. The claims, specification and file history, rather than extrinsic evidence, constitute the public record of a patentee's claim, a record on which the public is entitled to rely. *Id*. Put another way, competitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention, and, thus, design around the claimed invention. *Id*. Allowing the public record to be altered or changed by extrinsic evidence, such as expert testimony, would make this right meaningless. *Id*.

In the present case, the key claim language at issue is a "wall means ... for preventing passage of atmospheric air" and a "mechanical shaft seal means ... for preventing the flow of atmospheric air." The critical claim construction issue is the meaning of these phrases. Key to the court's interpretation is the fact that the same language is not used in describing both seal means. Both means use the term "prevent," which in common parlance means to stop or keep back. Thus, the court interprets the term prevent to mean a total stoppage. That does not end the inquiry, however, as the claims go on to refer to what is to be stopped or prevented. This is where the claim language diverges.

In the wall means limitation the language states that it is to prevent the "passage" of atmospheric air. The shaft seal means, on the other hand, states that it is to prevent the "flow" of atmospheric air. The terms "flow" and "passage" do not share the same meaning. Flow is commonly understood to mean movement that is smooth, continuous and uninterrupted, whereas passage means to pass from one place to another. As such, in the context of the claims at issue, the court interprets the wall means to call for a virtual elimination of any air from passing through the seal. On the other hand, the shaft seal means requires a disruption of any smooth, continuous air travel, which could include something less than a virtual stoppage.

This interpretation is further supported by the specification in this case. As to the wall means, the specification describes a mounting plate and sealing compound that "effectively prevents passage of

atmospheric air." The inclusion of a suitable sealant demonstrates a desire for an airtight seal. The use of the word "effectively" does not detract from this conclusion. Effective means to produce a desired effect. Adding the word "effectively" simply reinforces the need for an airtight seal.

Regarding the shaft seal means, the specification states that such seal is to be used to "provide a gas tight seal." Gastight means impervious to gas. Gas, in turn, is defined as a gaseous mixture other than atmospheric air. Thus, gastight does not necessarily mean airtight. FN1 Accordingly, the specification is consistent with the interpretation of the claim that allows for some air to pass through the shaft seal means.

FN1. Airtight is defined as impermeable to air or nearly so.

The prosecution history sheds additional light on this interpretation. In response to an initial rejection of the patent, the applicant argued that "[p]reventing the passage of atmospheric air through the upright passage to the propeller and *further* providing a mechanical shaft seal ... has been found essential to avoid cavitation at the propeller." This reflects an understanding by the applicant that the wall means only was designed to prevent the passage of air. In a later argument, the applicant submitted that it would not be obvious from the prior act to "additionally provide a mechanical shaft seal ... for the dual purpose of preventing the flow of atmospheric air through the shaft enclosure to the anti-deflection bearing and also to prevent flow of atmospheric air through the shaft enclosure to the propeller." This reinforces the court's view that the shaft seal was not intended to prevent virtually all air from passing through.

Thus, it is evident from reading the claim language, the specification and the relevant prosecution history that the wall means was intended to create an airtight seal while the shaft seal means was intended to allow some amount of air through. The critical question remains, however, as to how much air is some air in the context of the shaft seal claims.

Plaintiff contends that any amount of air is acceptable so long as it does not allow for cavitation of the propeller and drying of the anti-deflection bearing. It is apparent from a reading of the specification and prosecution history, however, that plaintiff's claims contemplate a minuscule or negligible amount of air to pass through the shaft seal. While some amount of air greater than that may not cause cavitation or bearing drying, so long as it is more than a minuscule or negligible amount, it does not run afoul of the claims at issue.

Plaintiff places heavy reliance on the case of Read Corp. v. Portec, Inc., 970 F.2d 816 (Fed.Cir.1992), in arguing that the term "prevent" in the claims must be interpreted to mean preventing sufficient amounts of air to achieve the function attributed to it in the specification, that is, to eliminate excess vibration of the propeller and drying of the anti-deflection bearing. The court is unpersuaded by the *Portec* case, however, as there the claim limitation described the short end of the device as closed and the long end of the device as "completely" open. *Id*. at 823. Thus, the court in *Portec* concluded that "closed" did not mean completely closed. *Id*. Accordingly, a jury could reasonably find that the accused device literally infringed so long as its short end was sufficiently closed to the ground to effect its intended purpose of separating the soil types during the scooping process. *Id*.

In this case, the claim language, specification and history do not leave the question of how much air is allowable open-ended as was the case in *Portec*. Here, the court has already interpreted the claims to require the allowance of only a minuscule or negligible amount of air. FN2 Anything greater will not

literally infringe the patent.

FN2. Having so interpreted the claims as to the wall seal means and the shaft seal means, the court denies plaintiff's motion for summary judgment as to claim interpretation.

Having interpreted the claims language pertaining to the wall seal means and the shaft seal means, the court must now determine whether there is any evidence sufficient for a reasonable jury to find defendants, device to literally infringe the '771 patent. As to the wall seal means, the undisputed evidence shows that defendants' device, which merely uses a lip seal installed to block the upward flow of water not the downward passage of air, could not be found to literally infringe the claims pertaining to the wall seal means which is required to prevent virtually all air from passing. As for the shaft seal means, the undisputed evidence shows that a great deal more air passes through defendants' device than a mere minuscule or negligible amount as required by the '771 patent. FN3 The court concludes that no reasonable jury could find for plaintiff based on the foregoing claim construction and the undisputed evidence, and, therefore, grants summary judgment in favor of defendant on plaintiff's literal infringement claim.

FN3. The court notes that it would not have to reach this conclusion because of its determination that defendant's device does not literally include a wall means seal. *See* Wiener, 102 F.3d at 539.

2. *Infringement under doctrine of equivalents*

Plaintiff alternatively contends that defendants' mixer infringes the '771 patent under the doctrine of equivalents. Specifically, plaintiff maintains that if its claims require that its seals be virtually airtight then defendants' seals means, which allows such a small amount of air as to prevent excess cavitation and drying would be equivalent to plaintiff's wall means and shaft seal means.

Infringement under the doctrine of equivalents must be established on a limitation-by-limitation basis. Dawn Equip. Co. v.. Kentucky Farms, Inc., No. 97-1042, 1998 WL 148860, at (Fed.Cir. Mar.24, 1998) (citing Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 117 S.Ct. 1040, 1049, 137 L.Ed.2d 146 (1997)). Thus, the accused device must be shown to include an equivalent for each literally absent claim limitation. *Id*. In cases involving mechanical inventions, such as the one here, the function-way-result test is best suited for determining equivalence. *Id*. at *5. Under the function-way-result test, the trier of fact considers whether the element of the accused device at issue performs substantially the same function, in substantially the same way, to achieve substantially the same result, as the limitation at issue in the claim. *Id*.

In appropriate circumstances, the court should give serious consideration to granting summary judgment under the doctrine of equivalents. Dawn Equip., 140 F.3d 1009, 1998 WL 148860, at *7. In fact, the court is obliged to do so where the evidence is such that no reasonable jury could determine the two elements to be equivalent. *Id*.

In the present case, there is no evidence to show that defendants' device in any way is substantially equivalent to the wall seal means set forth in the '771 patent. While there is evidence that defendants' mixer does not cavitate, there is no evidence to show that it accomplishes this result in substantially the same way plaintiff's mixer does. In fact, the evidence suggests that it is accomplished some other way. Defendants'

mixer clearly allows a substantial amount of air to pass during operation. Whatever the reason defendants' mixer avoids cavitation, it is apparent reduction of air passage or flow is not the reason. Therefore, plaintiff's motion for summary judgment of infringement is denied, and defendants' motion for summary judgment of non-infringement is granted. FN4

FN4. Plaintiff only raises the doctrine of equivalents to the extent the court interprets its claims to require airtight seals. Thus, the court does not address the doctrine of equivalents issue in the context of the shaft seal means which the court concluded does not require an airtight seal.

Having ruled in favor of defendant and against plaintiff on the issue of infringement, the court denies plaintiff's motion for summary judgment on the issue of wilful infringement as moot and need not address the issue of Nocifora's individual liability.

CONCLUSION

For the foregoing reasons, the court denies plaintiff's motions for summary judgment as to claim interpretation, infringement and wilful infringement, grants defendants' motion for summary judgment as to non-infringement and dismisses this cause in its entirety.

N.D.Ill.,1998.
Aqua-Aerobic Systems, Inc. v. Aerators, Inc.

Produced by Sans Paper, LLC.