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AMHIL ENTERPRISES LTD., Plaintiff-Appellant, v. WAWA, INC., dba WAWA FOOD MARKET, Defendant, and M&N PLASTICS, INC. and IVONIS MAZZAROLO, Defendants-Appellees.

95-1258

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

81 F.3d 1554; 1996 U.S. App. LEXIS 8653; 38 U.S.P.Q.2D (BNA) 1471

April 18, 1996, DECIDED

PRIOR HISTORY: [**1] Appealed from: U.S. District Court for the District of Maryland (Baltimore). Senior Judge Hargrove.

DISPOSITION: AFFIRMED

LexisNexis (TM) HEADNOTES- Core Concepts:

COUNSEL: Maurice U. Cahn, Beveridge, DeGrandi, Weilacher & Young, of Washington, D.C., argued for plaintiff-appellant. Of counsel were Richard G. Young and William F. Rauchholz.

Thomas N. Young, Young, MacFarlane & Wood, P.C., of Troy, Michigan, argued for defendants-appellees. With him on the brief was Donna L. Berry. Of counsel was Andrew M. Grove.

JUDGES: Before RICH, NEWMAN, and BRYSON, Circuit Judges.

OPINIONBY: RICH

OPINION: [*1556] RICH, *Circuit Judge*.

Amhil Enterprises Ltd. (Amhil) appeals from two judgments of the U.S. District Court for the District of Maryland in *Civil Action No. HAR-93-1349. Amhil Enters. Ltd. v. Wawa Inc., 1994 U.S. Dist. LEXIS 19560, 34 U.S.P.Q.2D (BNA) 1640 (D. Md. 1994)* [hereinafter *Amhil I*]; *Amhil Enters. Ltd. v. Wawa Inc., 1995 U.S. Dist. LEXIS 3689, 34 U.S.P.Q.2D (BNA) 1645 (D. Md. 1995)* [hereinafter *Amhil II*]. In *Amhil I*, the district court granted defendant Ivonis Mazzarolo's (Mazzarolo's) motion to dismiss the complaint as to him for lack of personal jurisdiction. In *Amhil II*, the court granted defendant M&N Plastics, Inc.'s (M&N's) motion for summary judgment of noninfringement of Amhil's U.S. [**2] Patent No. 4,421,244 ('244 patent), both literally and under the

doctrine of equivalents. Amhil had previously dismissed its infringement claim against the other defendant, Wawa, Inc., d/b/a Wawa Food Market, (Wawa) by stipulation and order dated 4 March 1994. In that same stipulation, M&N conceded that it was properly before the district court. We affirm *Amhil II* and do not reach *Amhil I*, which is mooted by our affirmance of *Amhil II*.

I

Background

Amhil, a Canadian corporation, is the assignee of the '244 patent, which is entitled "Plastic Lids for Containers" and which lists Hubert Van Melle as the inventor. Figs. 1, 3, and 4 of the '244 patent are reproduced below as figures 1, 2, and 3, respectively. The patent describes a thin, flexible, plastic container lid used, for example, in convenience stores and fast-food establishments to cover beverage containers. The patent professes that the lids are an improvement over prior lids because, in manufacture, they facilitate fabrication by improving the stripability from the mold, in shipping and storage, they require a smaller volume than prior lids [*1557] required, and, in use, they have enhanced rim-gripping ability [**3] for a secure hold.

[SEE ILLUSTRATIONS IN ORIGINAL].

Amhil filed suit against three defendants alleging infringement of its '244 patent: Wawa, M&N, and Mazzarolo. Wawa, a New Jersey corporation, is primarily a middle Atlantic regional convenience store chain with several stores located in Maryland. Wawa was providing one type of allegedly infringing cup lids to its customers to cover beverages purchased in Wawa stores. M&N, a Florida corporation, manufactures the allegedly infringing cup lids used by Wawa. Two partial cross-sectional drawings of M&N accused lids are depicted below in figure 4. Mazzarolo is a Canadian citizen who resides in Vaudreuil, Quebec, Canada. He is a majority shareholder (75%), the only officer, and the sole director of M&N; the

"M" in M&N stands for Mazzarolo.

[SEE ILLUSTRATION IN ORIGINAL].

Amhil has appealed the judgment dismissing Mazzarolo (*Amhil I*), and the no-literal-infringement portion of the summary judgment of noninfringement by the only remaining defendant after the dismissal, M&N (*Amhil II*).

II

Amhil II: Summary Judgment of Noninfringement

A. Standard of Review

We first determine whether the district court [**4] properly granted M&N's motion for summary judgment of noninfringement.

Summary judgment is appropriate when "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." *Fed. R. Civ. P. 56(c)*; *Celotex Corp. v. Catrett*, 477 U.S. 317, 322, 106 S. Ct. 2548, 2552, 91 L. Ed. 2d 265 (1986). We undertake plenary review of a grant of summary judgment. *Keystone Retaining Wall Sys., Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1449, 27 U.S.P.Q.2D (BNA) 1297, 1301 (*Fed. Cir.* 1993).

Tone Bros., Inc. v. Sysco Corp., 28 F.3d 1192, 1196, 31 U.S.P.Q.2D (BNA) 1321, 1326 (*Fed. Cir.* 1994), cert. denied, 131 L. Ed. 2d 214, 115 S. Ct. 1356 (1995). A district court should approach a motion for summary judgment on the fact issue of infringement with great care. *Palumbo v. Don-Joy Co.*, 762 F.2d 969, 974, 226 U.S.P.Q. (BNA) 5, 7 (*Fed. Cir.* 1985), overruled on other grounds by *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976-79, 34 U.S.P.Q.2D (BNA) 1321, 1327-29 (*Fed. Cir.*) (in banc), cert. granted, 116 S. Ct. 40 (1995). Summary judgment [**5] may, however, properly be decided as a matter of law when no genuine issue of material fact exists and no expert testimony [*1558] is required to explain the nature of the patented invention or the accused product or to assist in their comparison. See, e.g., *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 36, 3 U.S.P.Q. (BNA) 40, 42, 74 L. Ed. 147, 50 S. Ct. 9 (1929); *Singer Mfg. Co. v. Cramer*, 192 U.S. 265, 275, 48 L. Ed. 437, 24 S. Ct. 291 (1904).

B. District Court's Decision

The district court granted, without a hearing, M&N's motion for summary judgment of noninfringement. In its motion, M&N asserted that the '244 patent did not cover its lids because the accused lids do not have a "cavity" that opens "downwardly and inwardly" or "outwardly extending projections," each having a "substantially vertical face" with "substantially vertical side edges" and "substantially vertical side walls."

The district court properly applied a two-step infringement analysis: it first construed independent claim 1 and then decided whether claim 1, when properly construed, covered the accused M&N lids. See *Markman*, 52 F.3d at 976, 34 U.S.P.Q.2D (BNA) at 1326 (citations omitted). According to Amhil, the district court misconstrued the claim, misapplied the [**6] misinterpreted claim, disregarded evidence before it, and improperly drew inferences in favor of M&N, the moving party.

As to the district court's claim construction, Amhil first asserts that the district court improperly restricted the scope of the claims in suit, making an erroneous "inside fit" distinction. Amhil next asserts that the patented lids are used for both hot and cold cups, and there is no hot/cold distinction in the patent or in the claims at issue as found by the district court. Thus, according to Amhil, the district court improperly limited the claims to "cold" cups. Third, Amhil argues that the district court improperly found that the patented lids lack flexibility, which is contrary to the specification and claims. Fourth, Amhil contends that the district court erroneously interpreted the "substantially vertical" limitation to mean vertical per se. Finally, Amhil asserts that the district court improperly limited the claims to a particular shape.

In support of the district court, M&N argues that the "outwardly extending projections" of the accused lids do not have a "substantially vertical face with substantially vertical side edges and substantially vertical side [**7] walls." M&N further argues that the accused lids do not have a cavity that opens "downwardly and inwardly" as required by claim 1. Finally, M&N contends that the district court correctly concluded that M&N does not infringe, either literally or under the doctrine of equivalents.

C. Claim Construction

"Because claim construction is a matter of law, the construction given the claims is reviewed *de novo* on appeal." *Markman*, 52 F.3d at 979, 34 U.S.P.Q.2D (BNA) at 1329. Claim 1, the only independent claim in the '244 patent and the only claim at issue here, *Amhil II*, 34 U.S.P.Q.2D (BNA) at 1647, reads as follows (material in parentheses and brackets added) (emphasis added to contested language):

1. A lid (10) for containers (12), made of thin, flexible plastic, for mounting on and receiving the bead (14) of a container (12), comprising:

a central panel (16);

a cavity (20) extending around the periphery of the lid (10) and *opening downwardly and inwardly* to receive the bead (14) of a container (12) to which said lid (10) is fitted;

means (22,24) connecting said cavity (20) to said central panel (16);

a skirt portion (26) extending downwardly from said cavity (20); **[**8]**

said skirt portion (26) having a plurality of *outwardly extending projections* (28), each having a *substantially vertical face* (100 n1) with *substantially vertical side edges* (102), and *substantially vertical side walls* (30) extending inwardly from said face (100);

the portions (32) of said skirt (26) that are between said outwardly extending projections **[*1559]** (28) extending inwardly to a waist portion (34) hving [sic, having] a plurality of interruptions (104), one at each projection (28), and forming an undercut defining said cavity (20) in said waist portion (34) [sic, said lid (10)];

said outwardly extending projections (28) and said waist portion (34) [sic, said portions (32)—*see* col. 4, ll. 33–36 and figures 1–3 above] all terminating in their lower extremities at a downwardly and outwardly sloped lower band portion (36);

and said outwardly extending projections (28) terminating in their upper extremities at a respective upper, band portion (42) extending inwardly and upwardly from the upper edge [edge between each portion (42) and projection (28)] of each said respective vertical face (100) and terminating at said cavity **[**9]** (20) in an upper undercut (44) which is higher and less inwardly extending than the undercut of said waist portion (34), and which defines the peripheral cavity [part of entire cavity (20)] over said outwardly extending projections (28).

M&N and Amhil focus their claim construction arguments on two primary issues:

(1) whether the "cavity" (*compare* element 20 in figures 2 and 3 above, which are figures from the '244 patent, *with* element 20 in figure 4 above, which depicts the accused M&N lid) of the accused lids opens "downwardly and inwardly" as required by the third paragraph of claim 1, and

(2) whether the "outwardly extending projections" of the accused lids have "substantially vertical" faces (*compare* element 100 in figures 1–3 above, which are figures from the '244 patent, *with* element 100 in figure 4 and the portion labeled "Face" in figure 8 below, which depict the accused M&N lid), side edges, and side walls as required by the sixth paragraph of claim 1.

n1 The '244 patent does not contain reference numbers for the faces, the side edges, or the interruptions. We have added reference numbers 100, 102, and 104 to figures 1–3 above to refer to the faces, the side edges, and the interruptions, respectively.

[10]**

Looking at issue (2), we note that the sixth paragraph of claim 1 requires the skirt portion to comprise a plurality of "outwardly extending projections," each having a "substantially vertical face" with "substantially vertical side edges," and "substantially vertical side walls." It is clear from the specification that the adverb "outwardly" means in a direction from inside the container to outside the container and perpendicular to the container's longitudinal axis. The parties hotly contest how to define the effect of the "substantially vertical" limitation as it relates to the faces, side edges, and side walls on the outwardly extending projections.

It is apparent that the faces 100 of the outwardly extending projections 28 in the preferred embodiment of the '244 patent are vertical. This may be seen, for example, in figures 2 and 3 above and is also evident from the description of the side edges 102 in the preferred embodiment as being vertical. A preferred embodiment, however, is just that, and the scope of a patentee's claims is not necessarily or automatically limited to the preferred embodiment. The entire specification, including all of the claims, the prosecution history, **[**11]** and the prior art may all affect the interpretation ultimately placed on claim language.

We first review the entire specification, including all of the claims. In the specification, the patentee used "sub-

stantially vertical" and "vertical" interchangeably when describing the faces of the projections. Even within claim 1, the patentee used "substantially vertical face" interchangeably with "vertical face." Compare P 6 ("substantially vertical face") with P 9 ("vertical face"). The entire specification thus leaves its reader with the impression that "substantially vertical" and "vertical" mean essentially the same thing in the '244 patent, at least as to the faces.

We next review the prosecution history of the '244 patent to ascertain the true meaning or effect in the claims of the adverb "substantially" in the claim limitation "substantially vertical faces." The prosecution history, in addition to being used while considering the factual issue of infringement and whether prosecution history estoppel places any limitations on what infringes a claim, should also be used when considering the legal issue of proper claim construction. *SSIH Equip. S.A. v. United States Int'l Trade* [*1560] *Comm'n*, 718 F.2d 365, 376, 218 U.S.P.Q. (BNA) 678, 688, 1 Fed. Cir. (T) 90, 102 (1983) (prosecution [*1560] history "is always relevant to a proper interpretation of a claim") (citing *Astra-Sjuco A.B. v. United States Int'l Trade Comm'n*, 67 C.C.P.A. 128, 629 F.2d 682, 686, 207 U.S.P.Q. (BNA) 1, 5 (CCPA 1980); *Autogiro Co. of Am. v. United States*, 181 Ct. Cl. 55, 384 F.2d 391, 395-99, 155 U.S.P.Q. (BNA) 697, 701-04 (Ct. Cl. 1967)). An examination of the prosecution history is particularly important where, as in the instant case, the claimed invention is in a crowded art.

During prosecution of the application for the '244 patent ('244 application), the examiner, *inter alia*, rejected the claims under 35 U.S.C. § 103 as unpatentable over U.S. Patent No. 4,194,645 (Zabner '645) in view of U.S. Patent No. 3,353,708 (Davis '708). Fig. 3 of Zabner '645 is reproduced below as figure 5. Figs. 1 and 4 of Davis '708 are reproduced below as figure 6. According to the examiner, "to modify [Zabner '645] by providing portion 44 as discontinuous portions with a substantially vertical face, side edges and side walls would be obvious in view of [Davis '708]." Portion 44 of Zabner '645 corresponds to face 100 in the '244 patent. The examiner thus opined [*1513] that the lid described in Zabner '645 closely approximated the lid claimed in the '244 application, the main difference between the two being the claimed substantially vertical faces, side edges, and side walls.

[*1561] [SEE ILLUSTRATIONS IN ORIGINAL].

In response to the § 103 rejection, the patentee asserted that, unlike Zabner '645, the lid claimed in the '244 application had projections with substantially vertical faces and side edges, making the '244 lid easy to strip from the mold, while providing a much deeper undercut.

Since the patentee distinguished Zabner '645 based in part on the slope of the projection faces, "substantially vertical" may be properly interpreted as not including lids with sloping faces like those of Zabner '645. In this regard, one should also note the sloped faces of the Mahaffy '036 lid depicted in figure 7 below.

[SEE ILLUSTRATION IN ORIGINAL]. [*1562]

We also note that, during prosecution of the '244 application, the patentee again used "substantially vertical" and "vertical" interchangeably when describing the faces of the projections. For example, in his response to the first office action, the patentee alternated, first referring to the faces as "substantially [*1514] vertical" then "vertical" then "substantially vertical" then "vertical" then "substantially vertical." This provides a further indication that the patentee thought of his substantially vertical faces as essentially vertical.

Finally, it is apparent from our review of the prior art of record that lids of the general construction claimed in the '244 patent were common in the industry. Several prior art lids depict outwardly extending projections with variously sloped outward faces as may be seen in the figures from some prior art lid patents reproduced in the attached appendix. In order for claim 1 of the '244 patent to "avoid" these prior art lids, "substantially vertical face" must be construed as the same as or very close to "vertical face." See *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 U.S.P.Q. (BNA) 929, 932 (Fed. Cir. 1984) ("claims should be so construed, if possible, as to sustain their validity").

We conclude from our review of the district court's opinion and from our *de novo* review of the entire specification, the prosecution history, and the prior art that claim 1 does not permit Amhil to exclude from the marketplace lids having protrusions with sloping [*1515] faces like the faces shown, for example, in Zabner '645 and Mahaffy '036. In particular, we interpret claim 1 to include only lids wherein the outwardly extending projections have well-defined faces that deviate only slightly, if at all, from the vertical. Any other construction of claim 1 would render it invalid.

D. Literal Infringement

Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device, i.e., when the properly construed claim reads on the accused device exactly. *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580, 12 U.S.P.Q.2D (BNA) 1382, 1386 (Fed. Cir. 1989) (citing cases). Whether the properly construed claim in issue reads on the devices accused of infringing is a question of fact, which we review for clear error.

Hilton Davis Chem. Co. v. Warner-Jenkinson Co., 62 F.3d 1512, 1520, 35 U.S.P.Q.2D (BNA) 1641, 1647 (Fed. Cir. 1995) (in banc) ("Infringement, whether literal or under the doctrine of equivalents, is a question of fact.") (citing *Winans v. Denmead*, 56 U.S. (15 How.) 330, 338, 14 L. Ed. 717 (1853); *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1125, 227 U.S.P.Q. (BNA) 577, 589 (Fed. Cir. 1985) (in banc)), cert. granted, [*16] 116 S. Ct. 1014 (1996). "A finding is 'clearly erroneous' when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *United States v. United States Gypsum Co.*, 333 U.S. 364, 395, 76 U.S.P.Q. (BNA) 430, 443, 92 L. Ed. 746, 68 S. Ct. 525 (1948).

We agree with the district court's observation that "the 'outwardly extending projections' on the accused lids slope upwardly and inwardly towards the peripheral cavity." *Amhil II*, 34 U.S.P.Q. (BNA) at 1648. The faces of the projections thus slope upwardly and inwardly. "Substantially vertical faces" are not present, therefore, in the M&N lids as we have construed that claim limitation above. A comparison of figure 5 above with figure 8 below supports this. Figure 8 depicts the composite rendering of two scale tracings of the accused M&N lid. Except for the "face" label that we added, this drawing was attached to Van Melle's declaration filed in opposition to M&N's motion for summary judgment. Figure 5 depicts the Zabner '645 lid, wherein portion 44 corresponds to the "face" in figure 8. It is apparent that the slopes of these "faces" are very similar. Consequently, on the [*17] entire evidence, we are not left with a definite and firm conviction that the district court committed a mistake in finding that M&N's lids do not literally infringe the '244 patent. The district court's finding of no literal infringement is not clearly erroneous and is affirmed.

[*1563] [SEE ILLUSTRATION IN ORIGINAL].

In light of this holding, we find it unnecessary to determine whether the accused M&N lids comprise "substantially vertical side edges" or "substantially vertical side walls." Similarly, we find it unnecessary to analyze whether the accused M&N lids comprise the disputed "downwardly and inwardly" opening cavity extending around the periphery of the lid. We also find it unnecessary to reach Amhil's assertions that the district court improperly read a cold-use limitation into the claims, that the district court improperly distinguished the accused lids because they employ a plug-fit or inside-fit design, or that the district court improperly found that the accused lids are formed from material that lacks flexibility.

E. Infringement Under the Doctrine of Equivalents

After deciding that there was no literal infringement of the '244 patent, the district court correctly [*18] went on to decide whether there was infringement under the doctrine of equivalents. See *Hilton Davis*, 62 F.3d at 1522, 35 U.S.P.Q.2D (BNA) at 1648 ("The trial judge does not have discretion to choose whether to apply the doctrine of equivalents when the record shows no literal infringement."). Like literal infringement, infringement under the doctrine of equivalents is an issue of fact. *Id.* at 1521, 35 U.S.P.Q.2D (BNA) at 1647.

Nowhere in its opening brief did appellant Amhil mention infringement under the doctrine of equivalents. Amhil's only mention of the doctrine of equivalents appears in one paragraph on the penultimate page of its reply brief. A reply brief, which should "reply to the brief of the appellee," see *Fed. R. App. P. 28(c)*, is not the appropriate place to raise, for the first time, an issue for appellate review. We hold, therefore, that Amhil has waived its right to appeal that portion of the district court's grant of summary judgment of noninfringement under the doctrine of equivalents. See *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 800, [*1564] 17 U.S.P.Q.2D (BNA) 1097, 1103 (Fed. Cir. 1990) ("an issue not raised by an appellant in its opening brief . . . is waived"). [*19]

III

Amhil I: Personal Jurisdiction Over Mazzarolo

As a result of our holdings above, that the M&N lids do not infringe the '244 patent, we need not decide whether the district court, in *Amhil I*, properly granted Mazzarolo's motion to dismiss the complaint as to him for lack of personal jurisdiction.

IV

Conclusion

For the above reasons, we affirm *Amhil II*'s summary judgment of no infringement. The appeal in *Amhil I* and the issue of personal jurisdiction over Mazzarolo are now moot.

Each party shall bear its own costs.

AFFIRMED

[*1565] Appendix

Selected Prior Art Lid Patents

[SEE ILLUSTRATIONS IN ORIGINAL].

(Fig. 1 of U.S. Pat. No. 4,421,244 to Van Melle)

Figure 1

(Fig. 3 of U.S. Pat. No. 4,421,244 to Van Melle)

Figure 2	(Figs. 1 and 3 of U.S. Pat. No. 2,922,563 to Aldington)
(Fig. 4 of U.S. Pat. No. 4,421,244 to Van Melle)	Figure 9
Figure 3	(Figs. 1 and 2 of U.S. Pat. No. 3,065,875 to Negoro)
(Partial Cross-sectional Drawings of M&N Accused Lids)	Figure 10
Figure 4	(Figs. 1 and 3 of U.S. Pat. No. 3,583,596 to Brewer)
(Fig. 3 of U.S. Pat. Nbo. 4,194,645 to Zabner)	Figure 11
Figure 5	(Figs. 2 and 5 of U.S. Pat. No. 4,051,951 to Smith)
(Figs. 1 and 4 of U.S. Pat. No. 3,353,708 to Davis)	Figure 12
Figure 6	(Figs. 2, 3, and 4 of U.S. Pat. No. 4,275,815 to Davis)
(Figs. 1 and 8 of U.S. Pat. No. 3,883,036 to Mahaffy et al.)	Figure 13
Figure 7	(Composite Scale Tracings of M&N's Lid)
(Fig. 5 of U.S. Pat. No. 2,913,139 to Freeman)	Figure 14
Figure [**20] 8	100 100 100 102 102 102 104 104 104 20 20 20 14
	14 14 26 26 26 44 44 42 42 42