United States District Court,
M.D. Pennsylvania.

DENTSPLY INTERNATIONAL INC. and Dentsply Research & Development Corp,
Plaintiffs.
v.
HU-FRIEDY MFG. CO., INC,
Defendant.

Nov. 23, 2004.

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MEMORANDUM

CONNER**, J.**

Presently before the court in this patent infringement action are the parties' contentions regarding the proper interpretation of claim terms. A claim construction hearing was held on September 28, 2004, and was preceded and proceeded by extensive briefing. The issues are now ripe for disposition, and the court will enter an order pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

I. ***Statement of Facts***

The patent *sub judice* covers a method of producing inserts "used in connection with certain ultrasonically activated [dental] cleaning tools." (Doc. 29, Ex. A). It was issued to an employee of plaintiffs, Dentsply International Inc. and Dentsply Research and Development Corp. (collectively "Dentsply"), in 2002 and assigned to Dentsply soon after. The patent describes a means of manufacturing a "tip" that, when attached to a pressurized fluid source, expels a small stream of liquid to facilitate dental cleaning. (Doc. 29, Ex. A).

The patent encompasses twenty-six claims, seven of which defendant, Hu-Friedy Manufacturing Company, Inc. ("Hu-Friedy"), is alleged to have infringed. (Doc. 1). The claims at issue are as follows:

1. A method of making an insert for an ultrasonically activated tooth cleaning tool, comprising:

bending a solid metal tip to form a bend at a location for an opening of a passageway, and then

drilling the passageway through said solid metal tip to form a tip having a passageway having a fluid discharge orifice at said bend.

2. A method of making a transducer activated tool tip, comprising,

providing a substantially linear tip body having a fluid inlet end and a fluid outlet end,

bending said tip body in a first direction so that a centerline through said fluid outlet end intersects a centerline through said fluid inlet end at an angle greater than 5 degrees, and

forming in said tip body a fluid passageway internal to said tip, having an inlet end and a outlet end, said outlet end of said tip having a longest cross-sectional dimension of less than 0.03 inch;

bending said tip body in a second direction so that a centerline through said fluid outlet end intersects a centerline through said fluid inlet end at an angle of substantially 0 degrees,

continuing to bend said tip body in said second direction so that said centerline through said fluid outlet end intersects said centerline through said fluid inlet end at an angle greater than 5 degrees.

....

7. A method of making an insert for an ultrasonically activated tooth cleaning tool, comprising:

bending a solid metal tip preform to form a bend at a location for an opening of a passageway, and then drilling the passageway through said solid metal tip preform to form a drilled tip having a passageway having a fluid discharge orifice at said bend.

....

8. The method of claim 7 wherein said fluid discharge orifice is on a discharge side of said tip, said tip has a opposite side, said opposite side is opposite to said discharge side and further comprising

bending said drilled tip whereby a first line tangential to said discharge side outer surface of a fluid Inlet end, and a second line tangential to said discharge side outer surface of an outlet end intersect to form an angle of less than 180 degrees facing outwardly from said discharge side outer surface.

9. The method of claim 7 wherein said drilled tip comprises a fluid inlet end, a subgingival outlet end, and a fluid passageway wall internal to said drilled tip, said fluid passageway wall ends at an edge providing a fluid discharge orifice formed in a discharge side of said tip, said fluid discharge orifice being in said discharge side, said tip having an opposite side, said opposite side being opposite to said discharge side, said opposite side having an outer surface which forms an angle of less than 180 degrees outwardly from said opposite side,

bending said tip whereby a first line tangential to said discharge side outer surface of said fluid inlet end, and a second line tangential to said discharge side outer surface of said subgingival outlet end intersect to form an angle of less than 180 degrees facing outwardly from said discharge side outer surface.

....

15. A preformed tip for making a transducer activated subgingival tool for contacting subgingival tooth surfaces and directing a fluid adjacent to said surfaces, said preformed tip comprising,

a substantially linear body portion having a fluid inlet end, a subgingival outlet end, and a substantially linear fluid passageway wall internal to said substantially linear body portion, said passageway wall extending from said inlet end along a substantially linear longitudinal center axis of said substantially linear body portion to a fluid discharge orifice formed in a discharge side of said preformed tip, said preformed tip having an opposite side, said opposite side being opposite to said discharge side, said opposite side having an outer surface, said opposite side outer surface bending away from said discharge side, said opposite side outer surface forming an angle of less than 180 degrees, said discharge side having an outer surface, said discharge side outer surface forming an angle of greater than 180 degrees.

....

21. The tip of claim 15 wherein said tip fluid passageway is angularly offset from the tip longitudinal center axis such that said fluid discharge orifice is formed in a lateral surface of said tip.

(Doc. 29, Ex. A). The patent also includes a detailed specifications section, containing descriptions and illustrations of various embodiments of the invention. (Doc. 29, Ex. A).

II. ***Discussion***

An inventor may assert ownership only over those designs encompassed within the claims section of the patent. *See* 35 U.S.C. s. 112; Pfaff v. Wells Elecs., Inc., 525 U.S. 55, 63, 119 S.Ct. 304, 142 L.Ed.2d 261 (1998). The proper construction of claims is a question of law. 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). It requires the court to determine the "plain meaning" of the claim terms as they would be understood by one "skilled in the art." FN1 Arlington Indus., Inc. v. Bridgeport Fittings, Inc., 290 F.Supp.2d 508, 519 (M.D.Pa.2003). This meaning should be discerned, if possible, from the language of the patent and its prosecution history. *See* Home Diagnostics, Inc. v. Lifescan, Inc., 381 F.3d 1352, 1355-56 (Fed.Cir.2004); Novartis Pharm. Corp. v. Abbott Labs., 375 F.3d 1328, 1334-35 (Fed.Cir.2004). Only if these sources do not yield a clear definition should the court explore other extrinsic sources, such as dictionaries and expert testimony, to resolve the meaning of an ambiguous term.FN2 *See* Home Diagnostics, 381 F.3d at 1355-56.

FN1. A limited exception to the "plain meaning" rule applies when a claim is in "step-plus-function" format. *See* 35 U.S.C. s. 112 para. 6; O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582-84 (Fed.Cir.1997). This exception-which restricts the scope of claims to the methods described in the specifications-applies only when the patentee uses the phrase "step for" in describing the method or when the claim limitation does not describe any "act" by which the method is to be performed. *See id.* In this case, the claims at issue neither use the phrase "step for" nor fail to describe implementing "acts" for the method. Each claim covers a method for "making" a tip and provides the particular "acts" that must be employed to achieve that end. Under controlling Federal Circuit precedent, the claims are not in step-plus-function form, and Hu-Friedy's contention to the contrary is meritless. *Accord* Masco Corp. v. United States, 303 F.3d 1316, 1326-28 (Fed.Cir.2002).

FN2. Whether and when district courts should resort to dictionaries and other reference materials is an issue not yet resolved by the Federal Circuit. *See* Phillips v. AWH Corp., 376 F.3d 1382 (Fed.Cir.2004) (per curiam) (granting rehearing en banc to consider whether dictionaries should serve as primary source for construction of claim terms). The most recent decisions of the court of appeals have retreated from citing dictionary definitions as a primary source for claim construction, *see, e.g.,* Home Diagnostics, 381 F.3d at 1355-56, a practice that had been championed in prior opinions, *see, e.g.,* Tex. Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1202 (Fed.Cir.2002), *cert. denied,* 538 U.S. 1058, 123 S.Ct. 2230, 155 L.Ed.2d 1108 (2003). This court will follow the current trend, focusing on the claims and specifications, but would reach the same conclusions even if dictionary definitions were relied upon as the primary foundation for construction of the claims.

Six phrases of the patent are in dispute: "tip," "drilling," "fluid inlet/outlet end," "substantially linear body portion," "angularly offset from the tip longitudinal center axis," and "drilling the passageway through." (Docs.32, 34). The court will examine them *seriatim*.

A. "*Tip*"

The term "tip" is used in all claims at issue to describe a metal shaft into which a fluid passageway is bored. (Doc. 29, Ex. A). Dentsply argues that the term should be construed as "the end of a pointed or projecting object." (Docs.34, 55). Hu-Friedy contends that "tip" means "a separate elongated attachment to be fitted to the connecting body." (Docs.41, 45, 55).

The language of the claims support Hu-Friedy's position that the "tip" is a separate component. The claims repeatedly refer to "a solid metal tip," denoting an independent piece. By requiring that a passageway be drilled lengthwise "through" the tip, the claims implicitly contemplate that the tip be a distinct, identifiable component. (Doc. 29, Ex. A). Certain claims describe the "tip" as "having a fluid inlet end and a fluid outlet end." (Doc. 29, Ex. A). That the "tip" is described as having two ends necessarily implies that it is not an "end" itself, as Dentsply argues, but is a separate piece.

This construction is confirmed by the specifications section of the patent. The figures all show the "tip" as an independent component, and the descriptions refer to the tip as an independent component. The preferred embodiment of the invention identifies the tip as a separate attachment that is connected to a hand-piece. (Doc. 29, Ex. A). The tip is not merely a region of a larger device; it is a separate and independent component.

Dictionaries support this interpretation. They define "tip" as "a piece or an attachment" and "a small piece." AMERICAN HERITAGE COLLEGE DICTIONARY 1443 (4th ed.2002); MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 1233 (10th ed.2002). In accordance with the intrinsic evidence, and consistent with extrinsic resources, the court will construe "tip" as "a separate elongated attachment to be fitted to the connecting body."

B. "*Drilling*"

"Drilling" is used in the patent to describe the process by which a passageway through the tip is formed. (Doc. 29, Ex. A). Dentsply argues that drilling means "bor[ing] or driv[ing] a hole in." (Docs.34, 55). Hu-Friedy contends that the term should be construed as "using a drill to mechanically cut [sic] a hole by

rotating abrasion." (Docs.42, 46). Hu-Friedy asserts that "drilling" must be differentiated from "electric discharge machining," known as "EDM," a process by which an electric pulse is used to bore a hole through metal. (Docs.42, 46, 55).

The language of the claims and specifications supports a broader interpretation of "drilling," to include any type of boring. Although the claims differentiate between drilling and EDM, they suggest that the latter is a subset of the former. The first claim of the patent, with the broadest coverage, provides for the "drilling" of a passageway through the tip. A subsequent claim provides for a more limited version of the invention in which the passageway is formed through EDM. (Doc. 29, Ex. A). That EDM is used for the same purpose as drilling and appears in a more limited version of the claim strongly suggests that EDM is merely one type of drilling.

This conclusion is buttressed by language in the specifications. The specifications state that the fluid passageway may be formed by "a number of techniques[,] including drilling and boring." Although listed separately, "drilling" and "boring" are later used interchangeably. The section describes the use of a lathe as alternatively a "boring" and a "drilling" process. (Doc. 29, Ex. A). Other language similarly equates the two terms. Thus, by identifying EDM as "a preferred boring method," the specifications also identify EDM as "a preferred [drilling] method."

The broad construction of "drilling" is confirmed by reference sources. Dictionaries define "to drill" as "to make a hole with" and a "drill" as "[a]n implement ... for boring holes in hard materials." *E.g.,* AMERICAN HERITAGE COLLEGE DICTIONARY 429 (4th ed.2002). The interpretation proposed by Dentsply is supported by intrinsic and extrinsic evidence. Accordingly, the court will construe "drilling" as "bor[ing] or driv[ing] a hole in."

C. "*Fluid Inlet/Outlet End*"

The phrases "fluid inlet end" and "fluid outlet end" are used in the patent to describe the ends of the tip through which fluid enters and exits. (Doc. 29, Ex. A). Dentsply argues that these phrases refer to the most proximal and distal "point[s]" on the tip. (Docs.34, 55). Hu-Friedy contends that the phrases refer to two regions of the tip: the fluid inlet end is the region from the discharge orifice to the proximal point of the tip; the fluid outlet end is the region from the discharge orifice to the distal point.FN3 (Docs.44, 47, 55).

FN3. The discharge orifice is the drilled opening, located near the bend in the tip, out of which fluid flows. (Doc. 29, Ex. A).

The latter interpretation, that inlet and outlet ends refers to regions of the tip, is required by the claim language. The claims instruct that the tip body, with a "fluid inlet end and a fluid outlet end," should be bent so that "a centerline through said fluid outlet end intersects a centerline through said fluid inlet end at an angle greater than 5 degrees." (Doc. 29, Ex. A). These claims contemplate that lines be drawn through the inlet and outlet ends. Each line requires, at the least, two points. AMERICAN HERITAGE COLLEGE DICTIONARY 804 (4th ed.2002). Thus, contrary to Dentsply's proposed construction, each "end" must consist of more than one point. The claim language requires that "end" be interpreted as a region of the tip.

The specifications confirm this construction. They identify the "fluid outlet end" as a region of the tip. The figures illustrate the "fluid inlet end" as the portion of the tip from the discharge orifice to the proximal

point and the "fluid outlet end" as the portion from the discharge orifice to the distal point. To interpret "end" as a point of the tip-as proposed by Dentsply-would contradict these embodiments of the invention. *See* Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc., 340 F.3d 1298, 1308 (Fed.Cir.2003) ("[A] claim construction that excludes a preferred embodiment ... 'is rarely, if ever correct and would require highly persuasive evidentiary support." ') (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed.Cir.1996)).

Reference materials also support interpreting "end" as a region, rather than as a point. They define "end" as the "last part lengthwise" of an object and the "extremity of something that has length." AMERICAN HERITAGE COLLEGE DICTIONARY 462 (4th ed.2002); MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 380 (10th ed.2002). These definitions are consistent with the use of the term in the claims and specifications of the patent. Accordingly, the court will construe "fluid inlet end" as the region extending from the discharge orifice to proximal point of the tip and "fluid outlet end" as the region extending from the discharge orifice to the distal point of the tip.

D. "*Substantially Linear Body Portion*"

"Substantially linear body portion" is used in several claims at issue. (Doc. 29, Ex. A). Dentsply argues that "body portion" refers only to a part of the overall "tip." (Docs.34, 55). Hu-Friedy contends that the phrase should be construed as synonymous with "tip." (Docs.52, 55).

The claim language clearly supports Hu-Friedy's position. The claims describe the "body portion" as "having a fluid inlet end[and] a subgingival outlet end." (Doc. 29, Ex. A). "Fluid inlet end" refers to the region extending from the discharge orifice to the proximal point of the tip.FN4 "Subgingival outlet end" means the region of the tip extending from the discharge orifice to the distal point of the tip.FN5 These two "ends" encompass the entire "tip." By describing "body portion" as also encompassing both of these ends, the claims link the phrases "body portion" and "tip."

FN4. *See supra* Part II.C.

FN5. The parties agree on this construction. (Doc. 50).

Other claims confirm that "body portion" and "tip" are equivalent. Several claims instruct that the tip should be bent to form an angle with the "longitudinal center axis" of the "body portion." Other claims describing the same process provide that the tip should be bent to form an angle with the "longitudinal center axis" of the "tip." These claims clearly equate "body portion" and "tip," and others similarly match "body portion" with "tip body." The claims use these phrases interchangeably and they should receive a similar construction.

This interpretation is further bolstered by the specifications section. The patent does not differentiate between "tip," "tip body," and "body portion" in describing the preferred embodiments of the device. Instead, the specifications repeatedly use the terms "tip" and "body" to refer to the same metal piece, which is bent and drilled to form the finished invention.

This construction also finds support in dictionaries. "Tip," "body," and "portion" all refer to an object that

encompasses a certain spatial region. FN6 AMERICAN HERITAGE COLLEGE DICTIONARY 1443 (4th ed.2002); MERRIAM-WEBSTER'S COLLEGIATE DICTIONARYYYY 1233 (10th ed.2002). Interpreting them synonymously fits with the patentee's language and reference definitions. The court will construe "substantially linear body portion" as "a tip extending in a substantially straight line."

FN6. *See also supra* Part II.A.

E. "*Angularly Offset from the Tip Longitudinal Center Axis*"

The phrase "angularly offset from the tip longitudinal center axis," is used only in one dependent claim of the patent: "[S]aid tip fluid passageway is angularly offset from the tip longitudinal center axis such that said fluid discharge orifice is formed in a lateral surface of said tip." (Doc. 29, Ex. A). Dentsply argues that this claim refers to a "fluid passageway displaced from the longitudinal center axis such that an angle is formed with the longitudinal center axis." (Docs.34, 55). Hu-Friedy proposes a more restrictive definition, construing the phrase to mean a "fluid passageway beginning at the center axis of the fluid inlet end and then proceeding towards the discharge orifice at an angle therefrom." (Docs.51, 55).

The claims support the broader construction advanced by Dentsply. The independent claims indicate that the fluid passageway is "linear" and runs substantially parallel to the center axis of the tip body. It ends at a discharge orifice formed at the bend of the tip, on the "discharge side." The disputed phrase appears in a dependent claim and provides an additional limitation. It instructs that the passageway may be skewed to run at a slight angle from the center axis of the tip body. (Doc. 29, Ex. A). The discharge orifice of this passage is formed in a "lateral surface," at a point prior to the bend in the tip.

Nothing in this claim requires that the passageway begin at the center axis point or "proceed[ ] towards the discharge orifice." The claim does not indicate where the passageway must begin or end, but requires only that the discharge point be on a "lateral side." Although several figures in the specifications are consistent with Hu-Friedy's interpretation, nothing in the patent indicates that other methods also encompassed within the claims are excluded. (Doc. 29, Ex. A). Absent a clear indication that the inventor intended to restrict the scope of the patent, the court will not import these limitations into the claims. Arlington Indus., 290 F.Supp.2d at 526 ("[T]hat the inventor chose to illustrate the embodiment of certain claims but not others does not alter the scope of the unillustrated claims.").

Nor do reference sources require the more limited definition proposed by Hu-Friedy. Dictionaries define an "offset" as a "linear or angular displacement." *E.g.,* AMERICAN HERITAGE COLLEGE DICTIONARY 805 (4th ed.2002). None of these definitions require that, to be "offset," two lines must commence at a common point. The court will construe "angularly offset from the tip longitudinal center axis" as "displaced from the longitudinal center axis such that an angle is formed with the longitudinal center axis."

F. "*Drilling the Passageway Through*" and "*Forming in Said Tip Body*"

These phrases appear in several claims of the patent related to the method of producing the fluid passageway within the tip body. (Doc. 29, Ex. A). Dentsply argues that neither phrase requires a directional limitation. (Docs.34, 55). Hu-Friedy asserts that both contemplate the drilling or forming of the passageway "in the direction from the fluid inlet end to the bend of the tip." (Docs.49, 55).

Dentsply's proposed construction is supported by the claims and specifications. The claims themselves

provide only that the passageway is to be "drilled" or "formed," without indicating from which direction the process should begin. The specifications state that the passageway *could* be formed by drilling from the fluid inlet end, but do not connote an intention to exclude other methods of drilling. Indeed, one of the claims instructs that the tip should be bent "to form ... a location for an *opening* of a passageway," suggesting that the drilling process may start at the bend of the tip, where the discharge orifice is located. (Doc. 29, Ex. A (emphasis added)).

Hu-Friedy's attempt to interpose a directional limitation in the claims is contrary to law. Specifications may be read to limit otherwise broad claim terms only when the patentee clearly demonstrates such an intent. E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1367-69 (Fed.Cir.2003). The specifications cited by Hu-Friedy contain no such indication. They all describe only one embodiment of the device, without suggesting that the description should serve as a limitation. To the contrary, the patent clearly states that the specifications are not intended to limit the "scope [of the invention] as set forth in the ... claims." (Doc. 29, Ex. A). The court will construe the phrases "drilling the passageway through" and "forming in said tip body" as incorporating no directional limitation.

III. ***Conclusion***

The court will construe the disputed claims as set forth in this decision. An appropriate order will issue.

ORDER

AND NOW, this 23rd day of November, 2004, upon consideration of the parties' contentions regarding the proper construction of claim terms, and for the reasons in the accompanying memorandum, it is hereby ORDERED that the claim terms shall be construed as described in the accompanying memorandum.

M.D.Pa.,2004.
Dentsply Intern. Inc. v. Hu-Friedy Mfg. Co., Inc.