

YOUNG DENTAL MANUFACTURING COMPANY INC v. Q3 SPECIAL PRODUCTS INC

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United States Court of Appeals, Federal Circuit.

YOUNG DENTAL MANUFACTURING COMPANY, INC., Plaintiff-Appellant,
v. Q3 SPECIAL PRODUCTS, INC., and David G. Kraenzle, Defendants-
Appellees.

No. 96-1298.

Decided: April 29, 1997

Before PLAGER, CLEVINGER, and RADER, Circuit Judges. Gregory E. Upchurch, Polster, Lieder, Woodruff & Lucchesi, L.C., St. Louis, MO, argued, for plaintiff-appellant. On the brief were J. Philip Polster and Jonathan P. Soifer. J. Bennett Clark, Senninger, Powers, Leavitt & Roedel, St. Louis, MO, argued, for defendants-appellees. With him on the brief was Rudolph A. Telscher, Jr.

Young Dental Manufacturing Company (Young) appeals the judgment of the United States District Court for the Eastern District of Missouri in favor of Q3 Special Products and David G. Kraenzle (collectively Q3). Young Dental Mfg. Co. v. Q3 Special Prods., Inc., No. 93-CV-2319 (E.D.Mo. Sept. 21, 1995) (as amended by Order entered Feb. 21, 1996). The court ruled on summary judgment that Q3's products do not literally infringe any patent claim asserted by Young. The court later upheld a jury verdict of noninfringement under the doctrine of equivalents and invalidity of all asserted claims for violation of the best mode requirement of 35 U.S.C. § 112 and for obviousness under 35 U.S.C. § 103. We affirm-in-part and reverse-in-part.

I

Young's asserted patents, U.S. Patent Nos. 5,156,547 and 5,423,679 (the '547 and '679 patents), disclose an improved disposable prophylaxis angle (DPA). A prophylaxis angle is the small hand-held device used by dentists to polish teeth. It holds a rubber cup, known as a prophylaxis cup, which the dentist dips into an abrasive paste and then holds against the patient's teeth as the cup rotates. Early prophylaxis angles were not disposable; they were made entirely of metal and had to be sterilized in an autoclave between uses. In the 1970s, plastic DPAs were introduced which could be pushed onto the end of a metal handpiece and locked onto the handpiece's drive shaft. These early DPAs did not replace metal DPAs, however, largely because they often ran roughly, fell apart, and overheated.

In November 1990, Ronald Bailey, an employee of Young, filed a patent application for an improved DPA and assigned the application to Young. The application matured into the

patents in suit. Fig. 1 of the '547 patent shows the components of Bailey's DPA in side cross-section.

The body 3 of the angle includes a sleeve 4, a neck 5, and a head 6 formed integrally with each other. The head is formed as a cylinder at right angles to the neck. The body and head have axial bores 7 and 9, respectively, into which are placed drive shaft 15 and driven shaft 29, respectively. To assemble the prophylactic angle, one inserts the drive shaft into the body bore from the distal end of the prophylactic angle through aperture 11. One then inserts the driven shaft into the head bore, where the drive gear 17 meshes with the driven gear 27. A snap cap 35 slides down into head bore 9 to lock the gears and shafts in place. At its front edge, the snap cap has a sheath 43 that covers the aperture and a latch 41 that locks the cap in place.

The '547 patent was the first to issue from Bailey's application. It claims the DPA and a method for assembling the DPA. The '547 patent was followed by the '679 patent, a divisional based on a continuation-in-part application of the '547 patent. Bailey copied the claims in the application for the '679 patent from an application for defendant Kraenzle's later-issued U.S. Patent No. 5,224,859 (the '859 patent) in an effort to provoke an interference between the two applications. The Patent Office refused to declare the interference after Kraenzle surrendered certain claims and amended others to make them patentably distinct from Bailey's claims.

Kraenzle worked as an engineer with Young from December 1990 until his resignation in March 1992. In April 1992, he designed the device accused here of infringing and in July 1992 filed the patent application that matured into the '859 patent. Kraenzle formed Q3 in July 1992 with Chris Carron, another former Young employee, and began selling the accused device in July 1993, the same month in which the '859 patent issued. Kraenzle is the president and majority shareholder of Q3. Figs. 2 through 4 of the '859 patent are representative of Q3's accused device.

As is shown, Q3's DPA includes a sleeve and neck, with a head mounted at the neck's end. The drive gear and driven gear are meshed at the end of the neck and a cap 9 rotates upward and snaps shut to hold the gears in place. The dispute in this case centers on whether cap 9 is part of the head when the cap is closed.

II

On November 1, 1993, Young sued Q3, Kraenzle, and Carron, alleging infringement of the '547 patent, misappropriation of trade secrets, constructive fraud, and breach of a confidentiality agreement. Young later added a count for infringement of the '679 patent and Carron was dismissed from the suit. Q3 counterclaimed for a declaration of noninfringement and invalidity. In response to cross-motions for summary judgment on infringement, the district court construed the claims but initially declined to rule on infringement. The court denied Young's motion for reconsideration and its request for a Markman hearing. The court then granted Q3's motion for summary judgment of no literal infringement.

Trial was held before a jury September 11-21, 1995. At the beginning of trial, Young moved to exclude certain exhibits, which were models representing a device disclosed in a prior art patent to one Thiedemann, on the ground that the models were incomplete and misleading. The court denied the motion and all renewed motions relating to the Thiedemann models. At the close of the evidence, Young objected to the submission of any jury instruction related to best mode on the ground that there was “no evidence to support the submission of a best mode defense.” Importantly, however, Young did not make a motion for judgment as a matter of law (JMOL) on any issue.

The jury returned a verdict in favor of Q3. The jury found noninfringement under the doctrine of equivalents for all asserted claims, and invalidity for obviousness and for failure to comply with the best mode requirement for all asserted claims. The jury also found that Young had not proven its trade secret misappropriation or breach of contract claims. The court denied Young's motion for a new trial and renewed motion for reconsideration of the motions for summary judgment. Young appeals the issues of infringement, obviousness, best mode, and admission of the Thiedemann models. We have jurisdiction to hear the appeal under 28 U.S.C. § 1295(a)(1) (1994).

III

We first consider, for both the '547 and '679 patents, the district court's grant of summary judgment of no literal infringement and the jury's finding of no infringement under the doctrine of equivalents. Summary judgment is permissible when there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. Fed.R.Civ.P. 56(c). Even when material facts are in dispute, however, summary adjudication may be appropriate if, with all factual inferences drawn in favor of the nonmovant, the movant would nonetheless be entitled to judgment as a matter of law. *Stark v. Advanced Magnetics, Inc.*, 29 F.3d 1570, 1572-73, 31 USPQ2d 1290, 1292 (Fed.Cir.1994). We review a grant of summary judgment de novo. *Mark I Mktg. Corp. v. R.R. Donnelley & Sons Co.*, 66 F.3d 285, 289, 36 USPQ2d 1095, 1098 (Fed.Cir.1995), cert. denied, 516 U.S. 1115, 116 S.Ct. 917, 133 L.Ed.2d 847 (1996).

An infringement analysis involves two steps. First, the claim scope is determined without regard for the accused device. See *General Mills, Inc. v. Hunt-Wesson, Inc.*, 103 F.3d 978, 981, 41 USPQ2d 1440, 1442 (Fed.Cir.1997). Second, the properly construed claim is compared with the accused device to determine whether all of the claim limitations are present either exactly or by a substantial equivalent. See *id.* We review the first step de novo, *id.*, and we typically review the second step for clear error if performed by the court and for substantial evidence if performed by a jury, *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1521, 35 USPQ2d 1641, 1647 (Fed.Cir.1995) (en banc), rev'd on other grounds, 520 U.S. 17, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997).

Young's failure to make a motion for JMOL substantially affects our review of the jury's findings. Where a party fails to make a motion for JMOL at the close of the evidence, the sufficiency of the evidence underlying presumed jury findings cannot be challenged through a renewed motion for JMOL or on appeal. *Jurgens v. McKasy*, 927 F.2d 1552, 1557, 18 USPQ2d 1031, 1035 (Fed.Cir.1991) (citing *Smith v. Ferrel*, 852 F.2d 1074, 1075 (8th Cir.1988) and *Hubbard v. White*, 755 F.2d 692, 695-96 (8th Cir.1985)).¹ Nonetheless, the party may challenge the judgment on the ground that the judge committed an error of law or abused his discretion, i.e., it may challenge the judge's legal conclusion on obviousness, the

judge's jury instructions, and any other issue that was the province of the court rather than the jury and to which it timely objected at trial. *Id.*, 927 F.2d 1552, 18 USPQ2d at 1035-36.

A

Young's challenge to the findings of noninfringement on the '547 patent centers on the court's construction of the following limitation from claim 1:²

a one-piece body having a sleeve part with an open rear end, a neck part, and a head part including a back adjacent said sleeve and a front, a first axial bore extending through the sleeve and neck part, a second axial bore in the head part, said first and second bores communicating with each other at an intersection and being at an angle with respect to each other, and receiving means at the front of said head part;

(disputed language emphasized). The claim terms “head” and “bore” are in dispute, with the meaning of the former dependent on the meaning given the latter. The district court defined “bore” as a structure that is “formed by a cylindrical wall extending from one side of the neck around to the other side of the neck.” The court stated that the bore's purpose “is to receive and enclose the driven gear.” The court thus ruled that the “head” was the entire enlarged area completely surrounding the bore at the end of the neck. After “hesitantly” agreeing to conduct a literal infringement analysis, the court determined that the head of Q3's DPA has a solid end structure (cap 9 in Fig. 3 of the '859 patent) and thus does not contain an aperture at the front end of the head, as required by the “receiving means” element of the claims.³ The court thus granted summary judgment of no literal infringement.

Young argues that “bore” is merely “a general term for a cavity or space in the head.” Young thus asserts that the bore does not need to be a full cylinder, and notes that the embodiment shown in Fig. 3 of the '547 patent (not shown here) does not have a fully cylindrical bore. Applying its interpretation to the accused device, Young asserts that because the bore in the head need not be fully cylindrical, the accused device's head is only the proximal part of the prophylactic angle's end portion (i.e., it does not include the cap 9). Young thus contends that the head has the required receiving means at its front, i.e., the hole indicated by 10 in Fig. 2 of the '859 patent.

We believe the district court's construction of the disputed claim limitation is a more natural reading of the claim language. The claim limitation calls for a head with a back adjacent the sleeve and a front, with an axial bore in the head. The plain English meaning of bore is “[a]n internal cylindrical cavity, as of a pipe or tube,” which is the definition applied by the district court. See Webster's New International Dictionary 255 (3d ed. 1968). The specification describes, and the patent figures show, a head that wraps around the driven gear and shaft, forming a cylindrical bore. For example, in the summary of the invention, Bailey states that “[t]he head has an axial bore therein,” and in the description of the preferred embodiment notes that “[the] head portion 6 is formed as a cylinder at right angles to the neck 5.” In the prosecution history, he proclaims: “All of these claims call for a one-piece body having both a bore for the drive gear and a bore for the driven gear in it, the body having the equivalent of the aperture 11 at the front of the head.” All of these sources indicate that the bore is a substantially cylindrical hole in the head, and not a small portion of a hole in a terminated head, as argued by Young. The claims, specification, and file history simply do not support Young's broad reading of the claims.

Looking to the accused device, cap 9 forms a cylindrical bore when closed and thus serves as the front half of the head. The cap does not contain an aperture or any structure similar to the receiving means disclosed in the '547 patent. Therefore, we affirm the district court's grant of summary judgment that Q3's accused device does not literally infringe.

B

Young also challenges the court's interpretation of claims in the '679 patent, focusing on the following limitation common to all asserted claims:

an elongated hollow body comprising a tubular handle and a tubular extension extending from the handle at one end thereof, the extension having a bore therethrough from the end thereof at the handle to its other end constituting its forward end, the extension having at its forward end a recessed forward end formation defining a forwardly opening recess.

(disputed language emphasized). The district court ruled that the patent equates “forward end formation” with “head” and that the phrase emphasized above “describes a requirement that there must be an aperture at the front of the head.” The court thus construed the claims of the '679 patent in the same way as those of the '547 patent, and accordingly granted summary judgment of no literal infringement.

We agree with the district court. Although limitations may not be read into the claims from the specification, claims are to be read in view of the specification of which they are a part. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979, 34 USPQ2d 1321, 1329 (Fed.Cir.1995) (in banc), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The specification that is relevant to claim construction is the specification of the patent in which the claims reside. Here, the district court's construction of the disputed claim language is wholly consistent with the specification of the '679 patent. Furthermore, in Bailey's “Request for Declaration of an Interference” with Kraenzle's application, Bailey stated, in an effort to avoid a finding that he had added new matter to his disclosure by copying Kraenzle's claims, that the disputed claim terms were merely “alternative names” for the elements disclosed in his application (i.e., the application that is common to the '547 patent). See *Ethicon Endo-Surgery, Inc. v. United States Surgical Corp.*, 93 F.3d 1572, 1580-81, 40 USPQ2d 1019, 1024-26 (Fed.Cir.1996) (relying on patentee's prosecution history to interpret claim where specification provided minimal guidance because claim had been drafted to provoke an interference with a patent owned by accused infringer). The district court correctly decided that the “forward end formation” of the '679 patent is the same as the “head” and that the accused device does not have an aperture in its head as required by the “forward opening recess” limitation. We therefore affirm the district court's grant of summary judgment that the accused device does not literally infringe.

The jury also found that Q3 did not infringe the claims of either patent under the doctrine of equivalents. Because Young did not make a motion for JMOL, it may not challenge on appeal the sufficiency of the evidence underlying presumed jury findings of fact. See *Jurgens*, 927 F.2d at 1557, 18 USPQ2d at 1035. Nonetheless, there is competent evidence in this case to indicate that Q3's accused product lacks entirely a necessary element of the claim (or structural equivalent thereof), thus avoiding infringement. See *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, --- U.S. ---, ---, 117 S.Ct. 1040, 1049, 137 L.Ed.2d 146 (1997). We therefore affirm the finding of noninfringement.

IV

Young next asserts that the district court should not have submitted the best mode issue to the jury. On this point, we agree with Young. Although our general standard of review in this case is limited because of Young's failure to move for judgment as a matter of law, Young preserved this particular issue when it objected to the district court's submission of the issue to the jury on the ground that there was no evidence to support the submission of a best mode defense. See *Jurgens*, 927 F.2d at 1557, 18 USPQ2d at 1035-36. We review the district court's actions to determine whether there was competent evidence supporting the court's submission of the best mode instruction to the jury. See *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 717, 223 USPQ 1264, 1271 (Fed.Cir.1984).

Section 112 requires that the specification "set forth the best mode contemplated by the inventor of carrying out his invention." 35 U.S.C. § 112 (1994). The purpose of this requirement is to restrain inventors from applying for a patent while at the same time concealing from the public preferred embodiments which the inventor has, in fact, conceived. *Wahl Instruments, Inc. v. Acvious, Inc.*, 950 F.2d 1575, 1579, 21 USPQ2d 1123, 1126 (Fed.Cir.1991). To establish invalidity for failure to disclose the best mode, the party seeking to invalidate the patent must present clear and convincing evidence that the inventor both knew of and concealed a better mode of carrying out the claimed invention than was set forth in the specification. *Transco Prods. Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 560, 32 USPQ2d 1077, 1084 (Fed.Cir.1994).

Two factual inquiries underlie the determination of whether a patent complies with the best mode requirement. Under the first inquiry, which is entirely subjective, one must ask whether, at the time the patent application was filed, the inventor knew of a mode of practicing the claimed invention that he considered to be better than any other. *United States Gypsum Co. v. National Gypsum Co.*, 74 F.3d 1209, 1212, 37 USPQ2d 1388, 1390 (Fed.Cir.1996). If the inventor had a best mode of practicing the claimed invention, one proceeds to the second inquiry. That inquiry involves determining whether the specification adequately disclosed what the inventor contemplated as the best mode so that those having ordinary skill in the art could practice it. *Id.* This latter inquiry is "largely an objective inquiry that depends upon the scope of the claimed invention and the level of skill in the art." *Id.* (quoting *Chemcast Corp. v. Arco Indus.*, 913 F.2d 923, 928, 16 USPQ2d 1033, 1037 (Fed.Cir.1990)).

The best mode requirement does not apply to "production details." *Wahl Instruments*, 950 F.2d at 1579-80, 21 USPQ2d at 1127. Our precedent has applied the term "production details" in two senses, only one of which truly refers to production details as such. See *Great N. Corp. v. Henry Molded Prods., Inc.*, 94 F.3d 1569, 1572, 39 USPQ2d 1997, 1999 (Fed.Cir.1996). In the first sense, i.e., that of "true" production details, we have referred to commercial considerations that do not relate to the quality or nature of the invention, such as equipment on hand or prior relationships with suppliers. *Id.* In the second sense, under the rubric of production details, we have referred to what more properly are considered routine details. Routine details are details that are apparent to one of ordinary skill in the art. See *Engel Indus., Inc. v. Lockformer Co.*, 946 F.2d 1528, 1532, 20 USPQ2d 1300, 1302-03 (Fed.Cir.1991). They are appropriately discussed separately from production details because routine details do relate to the quality or nature of the invention. Nevertheless, they need not be disclosed because, by definition, their disclosure is not required under the second inquiry of the best mode determination. In other words, to satisfy the second inquiry of the

best mode test, an inventor need only disclose information about the best mode that would not have been apparent to one of ordinary skill in the art. Because routine details are apparent to one of ordinary skill, they need not be disclosed.

The details that Q3 asserts are missing from the '547 and '679 patents are such routine details. Q3 first asserts that Bailey failed to disclose the gear ratio (11 to 12) between the drive gear and the driven gear in Bailey's DPA. The gear ratio does not escape scrutiny as a production detail because it relates to the quality and nature of the invention-i.e., it affects the stable operation of the DPA at high rotational speeds. However, there is no competent evidence of record indicating that one of skill in the art could not have readily selected a satisfactory gear ratio for this application based on the patent disclosure. Rather, the patent figures disclose the gear shapes and the general design of the gears, and the specification describes the structure of the gears. See *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1212, 18 USPQ2d 1016, 1026 (Fed.Cir.1991) ("What is required is an adequate disclosure of the best mode, not a guarantee that every aspect of the specification be precisely and universally reproducible."). We hold that there was no competent evidence to show that the disclosures of the '547 or '679 patent were inadequate to satisfy the best mode requirement.

Q3 also asserts that Bailey failed to disclose the grade of plastic used for the body (Lexan 141) and gears (Celcon M-90) of his preferred embodiment. In this regard, Bailey actually disclosed that he preferred that the parts be made from Lexan and Celcon; he merely failed to disclose the particular grades of these two plastics in his contemplated best mode. "A description of particular materials or sources or of a particular method or technique selected for manufacture may or may not be required as part of a best mode disclosure respecting a device." *Wahl Instruments*, 950 F.2d at 1579, 21 USPQ2d at 1127.

We do not find any competent evidence of record to show that such detailed disclosure was necessary in the '547 or '679 patent to inform one of skill in the art about the inventor's best mode. Rather, the evidence of record shows that, given the disclosure of the types of plastic, it would have been readily apparent to one of skill in the art to select the particular grade of plastic that would result in efficient DPA operation. In fact, Kraenzle also selected Lexan 141 and Celcon M-90 for use with his DPAs. He testified that he did so at the suggestion of his mold maker because the grades were "general purpose grades, which are right from the Lexan manual." In his '859 patent, Kraenzle, like Bailey, only disclosed the general types of plastics he used and not the particular grades. It thus seems rather curious for Q3 to argue here that disclosure of particular types of plastic are not routine details for purposes of Bailey's application when Kraenzle did not disclose such information in his own application.

Q3 asserts that Young's abandoned claim for trade secret misappropriation indicates that the particular plastic grades were treated by Young as not generally known to the public. If the particular grades were secrets held by Young, they were certainly not commercially valuable secrets in light of the industry's use of those grades as a general solution for this particular application. We therefore reverse with respect to the best mode issue.

V

Although Young preserved the issue of best mode on appeal with its objection to the court's jury instruction, it did not do so with respect to the question of obviousness of the '547 and '679 patents. As a result, Young may not challenge on appeal the sufficiency of the

evidence underlying presumed jury findings of fact regarding obviousness. See Jurgens, 927 F.2d at 1557, 18 USPQ2d at 1035. We have carefully reviewed the record on appeal. In light of the unassailability of the jury's presumed findings of fact, we cannot say that the court's legal conclusion of obviousness is erroneous.

VI

Young next asserts that the district court committed reversible error by admitting into evidence a model of the preferred embodiment from a prior art patent to one Thiedemann. Young contends the model lacked many parts necessary for the operation of the device.

On this point, the district court did not err. Demonstrative evidence such as the Thiedemann model may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence. Fed.R.Evid. 403. Such a determination is within the trial court's considerable discretion. *Westcott v. Crinklaw*, 68 F.3d 1073, 1077 (8th Cir.1995). Young does not allege that the model misrepresented the Thiedemann embodiment in any way other than oversimplifying it. Nor does Young allege that it did not have ample opportunity to cross-examine the witnesses that relied on the model in an effort to lessen the model's evidentiary weight. We therefore see no error in the trial court's discretionary decision.

In conclusion, we affirm the district court's summary judgment of no literal infringement, the jury's finding of noninfringement under the doctrine of equivalents, the legal conclusion of obviousness, and the court's admission of the Thiedemann model. We reverse with respect to the finding of a best mode violation.

No costs.

AFFIRMED-IN-PART and REVERSED-IN-PART.

FOOTNOTES

1. Jurgens involved a party's failure to move for a directed verdict and the district court's subsequent rejection of the party's motion for JNOV. In 1991, Rule 50 was amended, by which the phrase "judgment as a matter of law" replaced "directed verdict" and "renewed motion for judgment as a matter of law" replaced "motion for judgment n.o.v." The changes were semantic only and had no effect on the legal standards for each motion. See Fed.R.Civ.P. 50 advisory committee's note.

2. The other asserted claims each contain a similar limitation. All call for an aperture or receiving means at the front, or distal end, of the head.

3. The parties do not dispute the court's finding that the "receiving means" is the aperture 11, shown in Fig. 1 of the '547 patent, or structural equivalents thereof.

CLEVENGER, Circuit Judge.