Wardlaw v. Halliburton Co.

40 F.3d 1250 (1994) | Cited 0 times | Federal Circuit | October 31, 1994

UNPUBLISHED OPINION

RICH, Circuit Judge.

DECISION

Halliburton Company (Halliburton) appeals from the final Judgment entered March 1, 1993 and Orders entered March 4, 1993 and March 31, 1993 by the United States District Court for the Southern District of Texas, (Civil Action No. G-92-329), denying its motions for judgment as a matter of law (JMOL) of noninfringement notwithstanding the jury verdict and alternatively for a new trial. For the reasons discussed below, we reverse and vacate.

Discussion

Louis J. Wardlaw and Joe A. Young (Wardlaw) sued Halliburton alleging willful infringement of their U.S. Patent No. Re. 33,656 ('656 patent).[2] Following a one week trial, a jury found, by answers to interrogatories, that the '656 patent is valid (correctly stated, not proved invalid); that Halliburton's Type II plugs literally infringed claims 1 and 6; that Halliburton's Type III plugs literally infringed claims 1, 6, 7, 8, and 9; that Halliburton's infringement was willful; that Wardlaw is entitled to damages in the amount of $2,000,000 pursuant to 35 U.S.C. § 284. The district court entered judgment on the jury's findings, trebled the damages to $6,000,000 and, pursuant to 35 U.S.C. § 285, awarded attorney fees amounting to 40% of the trebled damages ($2,400,000) based on plaintiffs' contingent fee arrangement. Halliburton filed a motion for JMOL of noninfringement notwithstanding the jury verdict and an alternative motion for new trial. Both motions were denied by order, without memorandum, entered on March 31, 1993. Halliburton appeals.

The Patent in Suit

The '656 patent relates to downhole cementing tool assemblies used in oil well drilling for directing a slurry of cement and water for cementing the well casing in the well bore. The detailed structures of the float collar 22, cementing plug 26, and wiper plug 28 components, referred to collectively as the cementing tool assembly, are at issue here. This general combination of elements is old. Figs. 3-7, showing the cementing tool assembly of the '656 patent, are set forth below.

From the top of Fig. 3, the wiper plug 28 and cementing plug 26, respectively, as described in the '656

patent, are stated to be "fabricated of frangible material, typically some type of resilient material such as rubber." The bodies of the plugs have wiper bands 72, 60 which wipe the wet cement from inside of the casing as they advance down the well bore. The wiper bands are formed of the same resilient material comprising the bodies of the plugs and are integral therewith. The entire cementing tool assembly is made nonrotatable in the casing 36 due to interlocking teeth on all three elements, four being shown on each of the mating ends. When the cementing plug and wiper plug, with their interlocking teeth, are brought together with the stationary float collar (bottom), they form an interlocked nonrotatable composite that can easily be drilled out. The details of these teeth are recited in claims 7-9.

Another aspect of the Wardlaw invention is the provision within the plug bodies of embedded frangible internal cutters 62, shown in dotted lines in Figs. 3-5, and in elevation in Fig. 7, made of "elongate pieces of glass or other suitable frangible material," which are "embedded in the body and extend substantially its full length." These frangible internal cutters break upon compression of the plugs by the drilling tool to aid in the shredding of the plugs by the rotation of the drill after the cementing is completed. "Glass is a convenient and inexpensive material from which to form the cutters; however, it is understood that other types of easily breakable material which form cutting edges upon breaking may also be used." This aspect of the invention is the subject of claims 1 and 6. These two claims read:

1. A cementing apparatus for use in cementing a casing string in a well bore, comprising:

(a) a float collar incorporated in the casing string, said float collar including a passage extending therethrough;

(b) a cementing plug having a cylindrical body including an axial passage extending therethrough, said cementing plug body further including closure means extending across said axial passage;

(c) a wiper plug having a cylindrical body including wiper means extending about said wiper plug body for wiping the casing as said wiper plug is advanced through the casing;

(d) cooperative interlocking means located on said float collar, said cementing plug and said wiper plug for locking said cementing plug and said wiper plug to said float collar in a nonrotatable position; and

(e) wherein said cementing plug and said wiper plug including [sic, include] frangible internal cutters embedded in said cementing plug and said wiper plug.

6. The apparatus of claim 1 wherein said interlocking means comprises a plurality of radially extending teeth formed on the ends of said float collar, said cementing plug and said wiper plug profiled for interlocking engagement to form a nonrotatable assembly in the casing string.

As originally filed, claim 1 did not include the "frangible internal cutters " limitation (e). The Examiner rejected claim 1 under 35 U.S.C. § 103 as being unpatentable over prior art relating to interlocking teeth. Following the examiner's rejection, Wardlaw amended claim 1 by adding limitation (e) requiring "frangible internal cutters" and thus overcame the rejection. Subsequently, Wardlaw filed a reissue application that included a claim like the original claim 1 (without the frangible internal cutters limitation (e)). This claim was again rejected. Wardlaw's new reissue claims were allowed only when the "arched surface" limitation was added, found in claims 7-9 in suit.

The Alleged Infringement

Wardlaw asserted that Halliburton's Type I, Type II, and Type III assemblies infringe the '656 patent. The court granted Halliburton's pre-charge motion for judgment of as a matter of law that Type I did not infringe the '656 patent. On appeal, Halliburton argues that no reasonable jury could have found claims 1, 6, 7, 8, and 9, properly construed, to be infringed by its Type II or Type III cementing plugs. These assemblies are illustrated below.

Both assemblies consist of a rubber sheath with wipers surrounding a bakelite (hard phenolic plastic) insert with integral interlocking teeth (core).

On appeal of a judgment entered on a verdict after denial of a motion for JMOL, Halliburton must show 1) that a reasonable jury could not in light of the evidence before them have found the facts necessary to support the jury's verdict; or 2) that the facts properly found cannot in law support that verdict. Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 863, 26 USPQ2d 1767, 1772 (Fed. Cir. 1993). Under the first prong, fact findings are reviewed under the substantial evidence standard and require affirmance unless appellant shows that no reasonable juror could have reached such a result. Id. "The second prong of the [JMOL] standard requires the court to review the issues of law necessary to the verdict. An issue of law which inheres in the verdict is reviewed de novo by the district court." Read Corp. v. Portec, Inc., 970 F.2d 816, 821, 23 USPQ2d 1426, 1431 (Fed. Cir. 1992). On appeal, this court applies the JMOL standard anew. Id. Accordingly, the issue before us is whether the district court erred in its determination that a reasonable jury could have found claims 1, 6, 7, 8, and 9 of the '656 patent, properly construed, to be literally infringed by its Type II or Type III cementing plugs.

Determining whether the claims of a patent have been literally infringed is a two step process: first, the claims must be interpreted to determine their proper scope; thereafter, the claims as thus interpreted are applied to the accused device. Lemelson v. General Mills Inc., 968 F.2d 1202, 1206, 23 USPQ2d 1284, 1287 (Fed. Cir. 1992).

To determine the intended meaning of a claim, we look to the claim language in context of the specification and the prosecution history. C. R. Bard Inc. v. Advanced Cardiovascular Syst., 911 F.2d 670, 673, 15 USPQ2d 1540, 1543 (Fed. Cir. 1990). All limitations in a claim must be considered meaningful. See Perkin-Elmer Corp. v. Westinghouse Elec. Corp., 822 F.2d 1528, 1532-33, 3 USPQ2d

1321, 1324-25 (Fed. Cir. 1987). Terms in claims are to be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently. Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 USPQ 473, 477 (Fed. Cir. 1984). Claim interpretation remains a question of law for decision by the trial Judge on motion for [JMOL] and for this court on appeal. Senmed, Inc. v. Richard-Allan Medical Indus., 888 F.2d 815, 818, 12 USPQ2d 1508, 1511 (Fed. Cir. 1989).

Literal infringement requires that the accused device embody every limitation of the asserted claims. Hi-Life Products Inc. v. American Nat'l Water-Mattress Corp., 842 F.2d 323, 6 USPQ2d 1132 (Fed. Cir. 1988).[3]

From reviewing the record, it is apparent that the Judge did not interpret the claims, nor did he instruct the jury as to the meaning of the claims. The Judge merely read the claims to the jury. The interrogatory given to the jury for infringement was also silent on claim construction. Likewise, the Judge did not interpret the claims on review of the jury verdict for the JMOL motion. Therefore, the claims were never construed either by the court as a matter of law or by the jury in answering the interrogatories. They were asked no questions about the meaning of claim terminology.

Claims 1 and 6

The first limitation in dispute requires "frangible internal cutters"[4] in the plugs. We hold that, based on the evidence before it, and in viewing this evidence in light most favorable to Wardlaw, a jury could not reasonably find therefrom that Halliburton's Type II and Type III plugs contain any "frangible internal cutters" when that term is properly construed. Instead, the evidence of record shows that its plugs contain a heavy bakelite core that is strong enough to withstand the enormous forces placed on the plugs at the bottom of a well bore, such as the impact and pressure of the drilling mud and the drill string. Evidence shows that the bakelite can withstand one hundred to three hundred tons of force. Wardlaw argues the bakelite core breaks up and cuts the rubber. However, the fact is that the rotating drill bit grinds the bakelite core up. It is not mere compression that breaks up the bakelite as in the case of Wardlaw's glass inserts. On the contrary, the bakelite core with its integral teeth, must be sufficiently crush resistant, therefore not "easily breakable," to serve the purpose of keeping the plugs from rotating with the drilling tool as the assembly is drilled out.

In contrast, the '656 patent describes the operation of the cementing assembly with "frangible internal cutters" as follows:

A drill bit is thereafter lowered into the casing string and positioned above the wiper plug for continuing the drilling process. The weight of the drill bit and drill string extending from the surface compresses the resilient body of the cementing plug and the wiper plug. The frangible cutters break under compression forming many jagged edges which cut into the resilient body of the cementing plug and wiper plug. As the drill bit rotates, torque is transmitted through the wiper plug and

cementing plug. The twisting action aids the action of the frangible internal cutters in cutting the [resilient] bodies of the wiper and cementing plugs, and thereby quickly weakening the plugs. (emphasis ours).

Wardlaw argues that the frangible internal cutters are not broken by pure compression. It is asserted that the drill is rotating as it comes down, and that it is this rotation, along with the compression of the resilient plugs, that causes the frangible internal cutters to break up. The Wardlaw specification is to the contrary and indicates that the frangible internal cutters break up when the resilient plug is compressed by the weight of the drill string as it comes down on top of it.

In reviewing the evidence presented at trial in the light most favorable to Wardlaw, we conclude that the jury could not reasonably have found therefrom that claims 1 and 6, properly construed, read on Halliburton's Type II, or Type III plugs. Accordingly, Halliburton's Type II and Type III plugs do not literally infringe claims 1 and 6, contrary to the jury's answers to the interrogatories on infringement.

Claims 7-9

Claims 7-9 were all added to the original patent by the reissue. Claims 7 and 9 are quite long. Claim 8 is dependent on 7 and merely adds to 7 the added limitation of a rupturable diaphragm in the cementing plug, an old device. Their whole purpose, as the record shows, was to get claims that were not limited, as are claims 1 and 6, to the "frangible internal cutters." The device used to that end was to latch onto some other disclosed limitation which was not to be found in the prior art and that limitation was the following, which carried them to allowance on reissue:

a recess interiorly inserted around the body of said float collar, said recess defining a line having a curved juncture of an arched surface extending from an edge of the substantially perpendicular surface toward an adjacent surface, thereby defining a plurality of radially extending serrated projecting teeth; (emphasis ours).

This is exemplary of the "arched surface" limitation appearing more than once in each of claims 7 and 9 which Wardlaw attempts to find in Halliburton's Type III plug's interlocking teeth. To understand what the claim limitation is defining, see the Wardlaw patent drawings reproduced above and observe that they show four radially extending, vertical teeth 36 on the top of the float collar body (bottom element of Fig. 3) which teeth exist by reason of the recesses cut or formed in the body. These recesses can also be seen with a little imagination and a knowledge of patent drawing techniques in Figs. 4 and 5 which are top and bottom views of the cementing and wiper plugs, respectively. (See viewing lines 4-4 and 5-5 in Fig. 3.) The specification's supporting disclosure for this "arched surface" limitation is as follows:

The locking interface comprises a plurality of upstanding perpendicular surfaces extending radially from the center of the float collar 22. The surfaces 36 are formed by cutting into the body of the float

collar 22 and removing a portion thereof to form a recess, one edge of which is defined by a line 38. the [sic] line 38 defines a curved edge or juncture of an arched surface 40 which extends from an edge 42 of the perpendicular surface 36 toward the next adjacent surface 36, thereby defining a plurality of teeth extending radially from the center of the float collar 22. (emphasis ours).

This "locking interface" is described only once in connection with the float collar but it applies equally to the locking interfaces on the bottom of the wiper plug 28 (top element in Fig. 3) and both the top and bottom faces of the cementing plug 26 which are described as "substantially identical," and "complimentary" [sic] so they "nestle within one another."

The second limitation in dispute requires the interlocking teeth to have an "arched surface." After reviewing the evidence presented at trial in the light most favorable to Wardlaw, we conclude that a jury could not reasonably find therefrom that the interlocking teeth on Halliburton's Type III plugs have the "arched surface" limitation as required by claims 7 through 9. Plaintiff's (Wardlaw's) Trial Exhibit 108, set forth below, shows the assumed location of the location of the allegedly arched surfaces in Type III Halliburton plugs.

The teeth on Halliburton's Type II plug are shown in the photograph below.

From these pictures and the physical evidence before the jury, it is evident that both surfaces of the interlocking teeth are flat and not curved. After reviewing the evidence presented at trial, in the light most favorable to Wardlaw, we conclude that the jury could not reasonably have found therefrom that claims 7, 8, and 9, properly construed, read on Halliburton's Type III plugs. Accordingly, there is no literal infringement of claims 7, 8 and 9.

Conclusion

We reverse the district court's March 31, 1993 order denying Halliburton's motion for JMOL of noninfringement notwithstanding the jury verdict because the trial court erred in its determination that a reasonable jury could have found claims 1, 6, 7, 8, and 9 of the '656 patent, properly construed, to be literally infringed by its Type II and Type III cementing plugs. We hold no claim in suit is infringed.

Accordingly, the judgment entered on the jury's findings of infringement and its willfulness and consequent damages and the district court's awarding of enhanced damages and attorney fees is vacated.

Disposition

Reversed and Vacated

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1. Chief Judge Archer assumed the position of Chief Judge on March 18, 1994.

2. Wardlaw filed application No. 863,239 on May 14, 1986. U.S. Patent No. 4,711,300, entitled "Downhole Cementing Tool Assembly," issued therefrom on December 8, 1987. Reissue Patent '656 issued on August 6, 1991.

3. Discussion is limited to literal infringement because the district court held, as a matter of law, that the prosecution history estopped a finding of infringement under the doctrine of equivalents.

4. Throughout its brief, Wardlaw focuses only on the term "frangible," whereas the limitation as drafted and used in the specification is not so limited. The focus is properly on the entire phrase, "frangible internal cutters." We note that what Wardlaw intended by the word "frangible," standing alone, is unclear since they (or their patent solicitor) use it to describe the two very different materials rubber and glass.