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## United States Court of Appeals for the Federal Circuit

01-1377

BAKER HUGHES, INC.,  
and BAKER HUGHES OILFIELD OPERATIONS, INC.,

Plaintiffs-Appellees,

v.

DAVIS-LYNCH, INC.,

Defendant-Appellant.

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DECIDED: March 15, 2002

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Before CLEVINGER, RADER and BRYSON, Circuit Judges.

CLEVINGER, Circuit Judge.

Davis-Lynch, Inc., appeals from a decision of the United States District Court for the Southern District of Texas granting summary judgment for Baker Hughes, Inc., and Baker Hughes

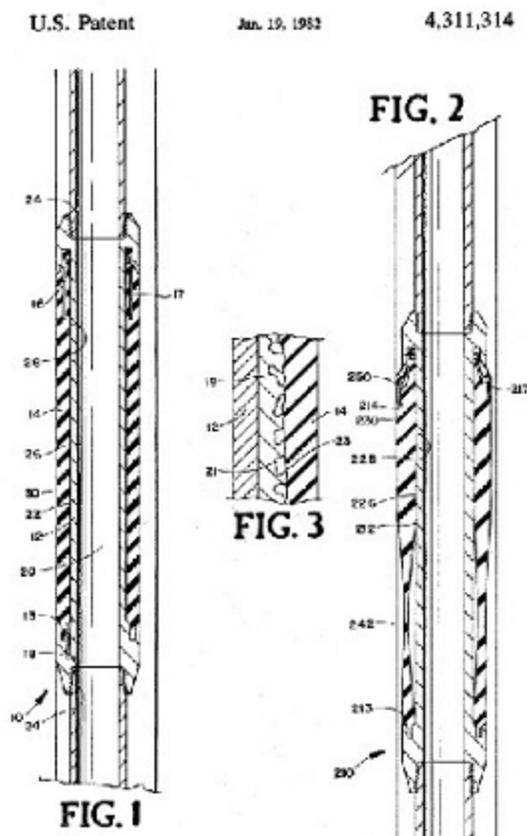
Oilfield Operations, Inc., denying Davis-Lynch's patent defenses of obviousness, on-sale bar, and claim indefiniteness. See Baker Hughes, Inc. v. Davis-Lynch, Inc., No. H-97-2905 (S.D. Tex. June 22, 2000) (memorandum order granting summary judgment). The district court's determination that the claims are not indefinite is correct, but the denial of Davis' obviousness and on-sale bar challenges is not. We thus affirm the district court's decision as to indefiniteness, but vacate the decision as to the obviousness and on-sale bar defenses, remanding these issues for trial.

I

Baker Hughes, Inc., and Baker Hughes Oilfield Operations, Inc. (collectively "Baker") have sued Davis-Lynch, Inc. ("Davis") on U.S. Patent No. 4,311,314 (the "'314 patent") directed to a "Well Packer."

During the drilling of oil and gas wells, it is often desirable to seal off the surrounding borehole from the pipe itself. This isolates the pipe from oil, gas, or water in the surrounding earth. As the '314 patent discloses, inflatable packers are well known in the art for accomplishing this function. '314 patent, col. 1, lines 5-21.

The '314 patent describes just such an inflatable packer. As Figure 1 of the '314 patent shows, it consists of a pipe (12), known in the art as a "mandrel," which fits down the borehole. An elastic sheath, or "sleeve," is attached to and surrounds the mandrel as it is installed. Once the mandrel reaches the bottom of the borehole, liquid cement flows down the center of the mandrel, exiting through passageway 18. Trapped between the surrounding sleeve and the outside of the mandrel, the liquid cement fills up the space between the mandrel and the borehole, expanding back up the length of the mandrel until the sleeve is completely compressed against the borehole wall. The cement sets, and the seal is made.



As Baker concedes, this technology is not new. However, operation of inflatable packers posed certain problems, particularly when installing longer lengths of pipe. As the mandrel slid down the borehole, the uninflated sleeve had a tendency to catch on the walls of the borehole. This often caused the sleeve to be pulled upwards, thus tearing it away from the mandrel and destroying its utility.

The '314 patent offers a solution to this problem. The patent claims an inflatable packer with a grit-like substance bonded to the outer surface of the mandrel, underneath the sleeve. This increases the coefficient of friction between the mandrel and the inside of the sleeve. As a result, when the outside of the sleeve contacts the borehole wall during installation, it is more likely that the sleeve will be pulled down with the mandrel rather than catching on the wall. As a result, the risk of tearing is reduced.

The '314 patent consists of one independent claim and two dependent claims. Only the first claim is relevant. It recites:

An inflatable packer for use within the borehole of an oil well comprising:

- 1) a centrally disposed tubular mandrel provided with end means for sealably attaching to a string of pipe;
- 2) a tubular sleeve formed from a suitable elastomer and positioned

around the mandrel, the mandrel extending out of the ends of the sleeve;

3) the ends of the sleeve being sealably attached to the periphery of the mandrel;

4) the sleeve having a first position wherein the sleeve inner surface is in contact with the outer surface of the mandrel;

5) means to inflate the sleeve so as to expand the sleeve to a second position so as to seal the sleeve against the borehole;

6) the outer surface of the mandrel in contact with the sleeve when the sleeve is in the first position, being provided with a coating of grit-like particles bonded to said outer surface to prevent the sleeve from sliding axially along the mandrel when the sleeve is in the first position.

'314 patent, col. 4, lines 19-35.

The '314 patent was filed November 20, 1980, and issued on January 19, 1982, with George Suman listed as the inventor. The patent was initially assigned to Completion Tool Company ("CTC"). CTC was acquired by Baker in 1995. Baker subsequently sued Davis for infringement of the '314 patent.

Before the district court, Davis moved for summary judgment of invalidity based on its obviousness, indefiniteness, and on-sale bar defenses. Baker cross-moved for summary judgment on the indefiniteness and on-sale bar issues, but not on obviousness. Baker also moved for partial summary judgment of infringement.

The court granted Baker's motion on the indefiniteness and on-sale bar issues, granted Baker partial summary judgment as to infringement, and denied Davis's motions on invalidity. The court's order is unclear, and the parties dispute, whether summary judgment was granted for Baker as to obviousness.

The parties subsequently signed a joint pretrial order designating damages and willfulness as the sole issues remaining for trial. The court held an eight-day trial, resulting in a finding of willful infringement and an award of \$1,267,232 in damages. The district court subsequently trebled the damages to \$3,801,696, awarded Baker \$630,026 in prejudgment interest and \$815,441 in attorney's fees and costs, for a total award of more than \$5 million.

Davis appeals the grant of summary judgment denying its obviousness, on-sale bar, and indefiniteness defenses. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

## II

Summary judgment is appropriate if there is no genuine issue of material fact. Fed. R. Civ. P. 56(c); Anderson v. Liberty Lobby, Inc. 477 U.S. 242, 247-48 (1986). We review the district court's decision to grant summary judgment de novo, drawing all reasonable inferences in favor of the nonmovant. Id. at 255.

### Claim Indefiniteness

Under 35 U.S.C. § 112 ¶ 6, a patentee may define structure generically through a means expression, provided that the specification discloses sufficient structure corresponding to that means. Failure to disclose adequate structure renders the patent invalid as indefinite under section 112 ¶ 2. Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1360-61, 54 USPQ2d 1308, 1313 (Fed. Cir. 2000). Whether a claim has indeed failed to disclose sufficient structure, and is thus indefinite, is a question of law which we review *de novo*. S3, Inc. v. nVidia Corp., 259 F.3d 1364, 1367, 59 USPQ2d 1745, 1746 (Fed. Cir. 2001); Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1455, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (*en banc*). We have specifically rejected the contention that this process involves underlying issues of fact. Exxon Research and Eng'g Co. v. United States, 265 F.3d 1371, 1376, 60 USPQ2d 1272, 1276-77 (Fed. Cir. 2001).

At issue is the means function of claim 1, which recites "a means to inflate the sleeve so as to expand the sleeve to a second position so as to seal the sleeve against the borehole." '314 patent, col. 4, lines 28-30. The specification discloses a "port 18 to provide for the communication of fluid from bore 20 of mandrel 12 into the annular space 22 formed between the mandrel and sleeve when the packer is inflated." *Id.* at col. 2, lines 54-57. The specification also generally refers to the invention as an "inflatable packer," and notes that "inflatable rubber sleeve type packers have been used for many years in relatively short lengths." *Id.* at col. 1, lines 16-17. No other structure is disclosed.

As the district court correctly noted, the specification's description of the port represents a significant disclosure of structure necessary for the purpose of inflating the sleeve. Indeed, without this port, inflation could not take place. However, the port is not sufficient structure in and of itself to accomplish the function of inflating the sleeve, as required by the claim. The district court's claim construction implicitly recognizes this by calling for the presence of a valve structure in addition to the disclosed port.

Under our caselaw interpreting section 112 ¶ 6, knowledge of one skilled in the art can be called upon to flesh out a particular structural reference in the specification for the purpose of meeting the statutory requirement of definiteness. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1382, 58 USPQ2d 1801, 1810-11 (Fed. Cir. 2001) (holding the specification's reference to "commercially available vacuum sensors" constituted sufficient structure, as one skilled in the art would have understood the reference); Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1382, 53 USPQ2d 1225, 1229-31 (Fed. Cir. 1999) (holding that the district court "should have determined whether sufficient structure was disclosed in the specification based on the understanding of one skilled in the art"); S3, 259 F.3d at 1370, 59 USPQ2d at 1749-50 (holding that the specification's reference to a "selector" sufficed as one skilled in the art would have understood the term).

It is not evident that the mere existence of the port indicates to one skilled in the art the remaining structure necessary to perform the "inflation means." For this reason, even under the legal principles discussed above, this bare disclosure might not suffice to bring in the required outside knowledge to flesh out the disclosure. However, the specification's continual references to an "inflatable packer" do. The claim's usage of the term "inflatable packer," a term well known in the art, informs one of ordinary skill in the art of the necessary accompanying structure to carry out the inflation means, specifically, the valve system. Indeed, Davis's expert and counsel conceded this point during deposition and oral argument,

respectively.

Since the specification discloses sufficient structure to meet the requirements of section 112 ¶ 2, the claim is not indefinite. The district court's grant of summary judgment in favor of Baker on this issue is affirmed.

### Obviousness

On appeal, Baker asserts that Davis waived the issue of obviousness by failing to designate it as an issue remaining for trial, as instructed by the judge in the memorandum and order disposing of the various motions. As Baker notes, under governing Fifth Circuit law, the failure of a party to include a claim or issue in a pretrial order constitutes waiver. Kona Tech. Corp. v. S. Pac. Transp. Co., 225 F.3d 595, 604 (5th Cir. 2000). Davis asserts that the court indeed did grant summary judgment as to obviousness.

The district court's opinion on this point is not perfectly clear. The order itself merely states that Davis' s motion for summary judgment on invalidity is denied, and adds that "it appears to the Court that the only remaining issue for trial is infringement under the doctrine of equivalents." Other language from court's opinion does appear to indicate that the court granted summary judgment on the obviousness claim, stating:

With respect to the [sic] Davis' claims of patent invalidity based on lack of enablement, indefiniteness, on sale bar, obviousness and laches, the Court has thoroughly reviewed the applicable law and the record. . . . The Court concludes that Baker is entitled to summary judgment as a matter of law on Davis' failure to prove the requisite elements of its defenses of lack of enablement, indefiniteness, on sale bar obviousness and laches.

The body of the district court's opinion does not clearly reveal whether the court granted summary judgment that the claims are not obvious. Pages 27-29 and 42-50 of the district court's opinion contain the relevant discussion, but it is unclear to what extent the court is reciting the arguments made by the parties as opposed to making factual determinations of its own.

However, the district court's April 17, 2001, order granting fees, costs, and enhanced damages does clearly state that:

on June 22, 2000, the Court entered a Memorandum and Order of Partial Summary Judgment. . . . That Order also denied Davis-Lynch's Motion for Summary Judgment on Invalidity and Laches, and granted Baker's Cross-Motion for Partial Summary Judgment, and held as a matter of law that the '314 patent claims were not invalid for indefiniteness or lack of enablement, that the patent claims were not invalid under the on sale bar, that the patent claims were not invalid for obviousness, and that laches does not apply." [Emphases added.]

Thus, as of April 17, 2001, the district court itself was of the impression that it had granted summary judgment against Davis as to obviousness. Indeed, Baker had the same view, as the language quoted above appears to come directly from Baker's proposed judgment. As a result, we think it appropriate to read the district court's opinion as granting summary judgment in favor of Baker that the claims were not obvious.

Such a determination cannot stand in light of the record. Both documentary evidence and expert testimony exist for the proposition that the use of "grit-like" material was known in the inflatable packer field for the purpose of reducing slippage. Although somewhat conclusory, the affidavit submitted by Davis's expert witness, Dr. Joel Hebert, does reference both U.S. Patent No. 3,085,627 and the Lymes literature. Both of these disclose the use of friction areas on the outside of a packer to avoid slippage in a borehole which is relatively smooth. Additionally, there is expert testimony that the use of friction to reduce slippage was well known in the field of packers. This is particularly relevant since, as the district court noted, Baker has conceded that it is precisely the use of friction-enhancing "grit-like" substances which renders the invention patentable. Thus, while the record evidence may not conclusively establish the obviousness of the '314 invention, it does suffice to raise a triable issue of material fact.

As a result, the district court's decision granting summary judgment in favor of Baker as to obviousness is vacated and remanded for trial.

#### On-Sale Bar

Before the district court, Davis introduced both expert testimony, the Ivy and Trefney affidavits, and documentary evidence in support of its contention that activities prior to the critical on-sale bar date of November 20, 1979, render the '314 patent invalid.

Davis has introduced sales reports, obtained from Baker during discovery, indicating CTC sales in December 1978, January 1979, and March 1979 to Kirby Exploration. Ivy, a former employee of Kirby, alleged sales during these months of CTC inflatable packers containing mandrels coated with "Ruff-Kote." These reports also indicate sales to Mesa Petroleum in October 1979. Trefney, a former employee of CTC, alleged that he assembled inflatable packers coated with "Ruff-cote" in October 1979 for sales to Mesa Petroleum.

Davis has also introduced a CTC document, dated 1994, which states that CTC contracted out the manufacture of its packers in 1977, "shortly thereafter" and "during this initial period of field installations" learned of design problems that included "rubber sliding up the mandrel during run in." The CTC solution was to "place a patented rough coating on the mandrel."

Davis has further submitted a document titled "Tool Company History," also obtained from Baker in discovery, which includes the phrases "serious problem with 'bunching' during running," "initial use of Ruff-Kote," and "develop Ruff-Kote procedures" in an entry for 1979. In Davis's deposition of Mr. Suman, the inventor of the '314 patent, Mr. Suman testified that he thought he might have made the document in 1984.

The district court determined that the above evidence was insufficient to withstand Baker's

motion for summary judgment. In particular, the district court found that the above evidence did not tend to show that the complete invention, embodying each of the claims of the '314 patent, was on-sale prior to the critical date. In addition, the district court found the two oral affidavits insufficiently corroborated, assigning them little if any weight. With respect to Davis's documentary evidence, the district court found it of limited probative value, noting that the sales reports did not indicate whether the products sold were packers, and that the "Tool Company History" document failed to indicate whether the claimed use occurred before the on-sale bar date, or whether a packer was even involved.

As the district court correctly noted, the on-sale bar inquiry is governed by our decisions in Ferag AG v. Quipp, Inc., 45 F.3d 1562, 33 USPQ2d 1512 (Fed. Cir. 1995) and Atlantic Thermoplastics Co. v. Faytex Corp., 970 F.2d 834, 23 USPQ2d 1481 (Fed. Cir. 1992). However, contrary to the district court's opinion, these cases do not limit the application of the on-sale bar to the use, sale, or offer for sale of a complete invention. Indeed, as stated in Ferag AG, the on-sale bar is triggered by the use, sale, or offer for sale of subject matter which "fully anticipated the claimed invention or would have rendered the claimed invention obvious by its addition to the prior art." Ferag AG, 45 F.3d at 1566, 33 USPQ2d at 1514 (quoting UMC Elec. Co. v. United States, 816 F.2d 647, 656, 2 USPQ2d 1465, 1472 (Fed. Cir. 1987)) (emphasis added); accord STX LLC v. Brine Inc., 211 F.3d 588, 590, 54 USPQ2d 1347, 1349 (Fed. Cir. 2000); Tec Air, Inc. v. Denso Mfg. Mich., Inc., 192 F.3d 1353, 1358, 52 USPQ2d 1294, 1296 (Fed. Cir. 1999).

Here, as the district court noted, Baker has conceded it is precisely the claim element reciting "grit-like particles" on the mandrel that made the invention claimed in the '314 patent patentable over the prior art. The Ivy and Trefney affidavits submitted by Davis allege that CTC inflatable packers were sold prior to the on-sale bar date with a mandrel coated with a gritty substance known as "Ruff-cote." They are thus eminently probative and should be given their full evidentiary weight.

The district court's second rationale for limiting the weight assigned to Davis's proffered affidavits hinges upon our caselaw requirement of corroboration. On appeal, Davis has attempted to portray the district court's opinion as improperly introducing a per se rule that two affidavits cannot corroborate each other. This, of course, would be incorrect under the "rule of reason" used to evaluate such evidence, as well as our explicit statements allowing for oral corroboration. Sandt Tech., Ltd. v. Resco Metal and Plastics Corp., 264 F.3d 1344, 1350-51, 60 USPQ2d 1091, 1094-95 (Fed. Cir. 2001). However, the district court's citation of the Supreme Court's decision in the The Barbed Wire Patent, 143 U.S. 275 (1892), and its assessment of all Davis's proffered documentary evidence lend themselves to the conclusion that the district court did not apply a per se rule. Rather, the district court indeed considered all of Davis's evidence, but determined that it failed the "rule of reason" test.

Our caselaw does favor the use of documentary evidence to corroborate oral testimony. Sandt, 264 F.3d at 1350-51, 60 USPQ2d at 1094. However, as "all pertinent evidence" is examined to determine whether the story is credible, circumstantial and oral evidence may also be employed. Id. Under Woodland Trust v. Flowertree Nursery, Inc., 148 F.3d 1368, 47 U.S.P.Q.2d 1363 (Fed. Cir. 1998), oral corroboration is evaluated for a number of factors, including the extent, details, and contradiction or impeachment of the witnesses' testimony. Id. at 1371, 47 USPQ2d at 1366.

Here, Davis has presented two affidavits from noninterested third parties that bear precisely on

the critical aspect of the '314 invention, the use of a grit-like substance on the mandrel of an inflatable packer. The dates on the sales reports correspond precisely with those alleged in the Ivy and Trefney affidavits, while the CTC document appears to detail the use of "Ruff-Kote" on the mandrel consistent with the affidavits. Moreover, Davis has introduced documentary evidence from the inventor himself purporting to show the use of "Ruff-Kote" during 1979. The fact that this document generally refers to the use of "Ruff-Kote" during that year, but does not indicate whether it took place in the last 40 days of that year—after the critical on-sale bar date of November 20, 1979—does not vitiate its use as corroborative evidence.

On appeal, Baker has attacked the documentary evidence as non-contemporaneous with the alleged events, thus attempting to downplay its probative value. Baker overstates the importance of this factor in this case. Here, the documentary evidence offered is not Davis's own documents, but rather those of CTC, Baker, and Suman. The risk of litigation-inspired fabrication is thus limited.

Considering all the pertinent evidence, we find that Davis has offered sufficient, corroborated evidence to create a triable issue of material fact as to whether the '314 patent has been rendered invalid by application of the on-sale bar. The district court's decision granting of summary judgment for Baker on this issue is therefore vacated.

#### CONCLUSION

The district court correctly determined that the claims of the '314 patent are not indefinite under section 112 ¶ 2. We thus affirm the entry of summary judgment for Baker on that issue. However, as the district court's decision to grant summary judgment for Baker on the obviousness and on-sale bar defenses was in error, we vacate the portions of the district court decision dealing with these issues and remand the case for further proceedings not inconsistent with our decision.

#### COSTS

No costs.