

NOTE: This disposition is nonprecedential.

## United States Court of Appeals for the Federal Circuit

06-1584

WILLIAM C. FRAZIER, FRAZIER INDUSTRIES, INC.,  
and AIRBURST TECHNOLOGY, LLC,

Plaintiffs-Appellants,

v.

LAYNE CHRISTENSEN COMPANY  
and PROWELL TECHNOLOGIES, LTD.,

Defendants-Appellees.

Jane C. Schlicht, Cook & Franke, S.C., of Milwaukee, Wisconsin, argued for plaintiffs-appellants. With her on the brief was Jeffrey S. Sokol.

Robert T. Adams, Shook, Hardy & Bacon L.L.P., of Kansas City, Missouri, argued for defendants-appellees. Of counsel on the brief was Richard R. Johnson, Blackwell Sanders Peper Martin LLP, of Kansas City, Missouri.

Appealed from: United States District Court for the Western District of Wisconsin

Judge Barbara B. Crabb

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DECIDED: June 29, 2007

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Before SCHALL, BRYSON, and LINN, Circuit Judges.

BRYSON, Circuit Judge.

In this patent infringement action, the plaintiffs charge the defendants with infringing U.S. Patent No. 5,579,845 (“the ’845 patent”). The defendants respond that the asserted claims of the ’845 patent are invalid because they would have been obvious to a person of ordinary skill in the art at the time of invention. After a jury trial, the district court entered judgment as a matter of law (“JMOL”) that the asserted claims are invalid for obviousness. The district court also sanctioned both parties for discovery misconduct. On appeal, the plaintiffs attack the district court’s judgment that claims 2–7 and 20 of the ’845 patent are invalid and challenge the sanction orders. We affirm.

1. The plaintiffs first argue that the district court's JMOL order was erroneous because it failed to identify the specific prior art references that would compel any reasonable jury to find the disputed claims obvious. We disagree. The district court's opinion makes clear that it relied on specific prior art references in its analysis.

The first two pertinent limitations of claims 2–7 require lowering a gas gun into a water well bore and activating the gas gun to create percussive waves that remove impediments to water flow. The district court identified the prior art patent to Thomas Gipson as disclosing a method for stimulating production of an oil well by lowering a gas gun into a well and activating the gun to clean the well. The district court referred to the testimony of the defendants' expert, Dr. Dennis Williams, who testified that one of ordinary skill in the art of water well rehabilitation would be motivated to look to techniques for cleaning oil wells to find methods for cleaning water wells. The court noted that the patent examiner had done just that in finding the uncited Gipson patent when reviewing the application for the patent in suit.

The first two limitations of claim 20 are similar. They require lowering one of two devices—a gas gun with a deflector or an arc sparker—into a water well bore and activating the device to create percussive waves that remove impediments. The district court cited three pieces of prior art showing the use of an arc sparker in a water well to clean the well: (1) a prior art patent issued to Walter Stack that disclosed an arc sparker lowered into the bore of a water well to clean the well; (2) a prior art article by Michael Nissley that described firing an arc sparker inside a water well to clean the well; and (3) a prior art article by Dr. Williams that described using an arc sparker inside a water well to clean the well. The plaintiffs object that none of the cited prior art suggested using a

deflector on a gas gun. That argument fails for two independent reasons. First, claim 20 does not require a gas gun with a deflector. It requires either a gas gun with a deflector or an arc sparker. Because either will suffice, the obviousness of the claimed process using either device will render claim 20 invalid. The district court cited ample prior art showing the use of an arc sparker to clean a water well. Second, the plaintiffs' argument fails to deal with the expert testimony of Dr. Williams, who testified that at the time of the invention gas guns with deflectors were known and used in the art. The plaintiffs point to the testimony of named inventor John Jansen as creating a jury question on that issue, but Mr. Jansen's testimony did not meaningfully contradict Dr. Williams's testimony. Mr. Jansen testified only that he was not aware of the use of deflectors on gas guns prior to the time of invention; he did not testify that such deflectors were unknown in the art or that he was sufficiently conversant with the prior art that he would have been aware of any use of deflectors on gas guns.

The next limitation of claims 2–7 and 20 requires monitoring the impediment removal effect of the percussive waves using video equipment or calipers. A prior art article by Stuart Smith in Groundwater Age magazine stated that video cameras were ideal for use in water wells to monitor the success of water well rehabilitation and impediment removal. Indeed, the article stated that video cameras had a “natural link with well maintenance and rehabilitation.” The district court specifically cited the Smith article as showing the motivation to combine video monitoring with well rehabilitation techniques.

Claims 2–7 and 20 also require adjusting the percussive energy “to meet well performance characteristics.” The district court cited the Gipson patent as showing that

the chamber volume, operating pressure, and activation interval of a gas gun are adjustable, and the district court cited the Nissley article as disclosing a downhole arc sparker with adjustable arc strength and recharge time. The district court found that common sense would prompt a person of skill in the art to adjust an adjustable gas gun or arc sparker, and the plaintiffs do not seriously dispute that point.

The district court next turned to the claim term “well performance characteristics.” The district court understood that term as referring to whatever performance levels a well rehabilitator desires for a particular well. Thus, the court held that “well performance characteristics” adds nothing of substance to the claimed invention that could render it nonobvious. The plaintiffs now argue that the term “well performance characteristics” refers to the original performance levels of a well, and they contend that no prior art reference taught adjusting the percussive energy to penetrate ground formations and restore a well to its original performance levels.

We agree with the district court’s construction of the term. The specification does not define or even mention the term “well performance characteristics.” Rather, in each description of “the present invention,” the specification states only that the invention “stimulat[es]” or “enhances” or “improves” water production. ’845 patent, col. 2, line 38; col. 3, ll. 9–10. Although the specification states that an object of the invention is to rehabilitate a well to meet “specific performance characteristics,” the specification never states what those performance characteristics are. Id., col. 1, ll. 64–65. Indeed, the specification states that the percussive waves used to clean the well screen and surrounding ground formation are generated “as desired.” Id., col. 1, line 55. Furthermore, in testimony that the plaintiffs cite approvingly, Dr. Williams stated that to

rehabilitate a water well, “you want to get the well back to where it’s pumping water the way you want it.” And although the plaintiffs’ expert, Dr. Fletcher Driscoll, testified that the results of well rehabilitation should be compared to “the original benchmark,” presumably referring to original well performance levels, he did not testify that the term “well performance characteristics” conveys that idea to a person of skill in the art. We therefore sustain the district court’s construction of the term “well performance characteristics” and agree that a reasonable jury would have to find that increasing the performance of a water well to desired levels when rehabilitating the well is a self-evident description of the purpose of well rehabilitation.

To the extent the plaintiffs argue that their claimed invention would not have been obvious because they invented the idea of cleaning ground formation impediments around the well as a way to improve well performance, the prior art cited by the district court undermines their argument. The Nissley article states that percussive waves generated in a water well increase the output of the well by loosening and opening the ground stratum outside the perforations of the well screen. The Stack patent similarly states that low frequency, high amplitude percussive waves penetrate a substantial distance into the ground formation around a well and release the debris that restricts fluid flow. The link between well rehabilitation and cleaning the surrounding ground formations with percussive waves was thus plainly suggested by the specific prior art references cited by the district court.

Claims 2–7 recite adjusting two particular properties of the percussive waves: “the frequency and amplitude of the waveforms generated.” The plaintiffs argue that no specific reference discloses that limitation. The Gipson patent, however, discloses a

Bolt brand gas gun with adjustable “rise time of the pressure pulse” and “[c]hamber volumes . . . and operating pressures.” That reference thus specifically identifies the frequency and amplitude of percussive waves for adjustment. Gipson also discloses that the gas gun may be “periodically fired by activation . . . at given time intervals (such as every 5–20 seconds).” Thus, even if the term “frequency” is understood to refer to the duration between pulses, the Gipson patent specifically identifies that parameter for adjustment. Similarly, the Nissley article discloses a test in which the strength of an arc sparker was adjusted by changing electrode spacing. In addition, in the Nissley test the wave generation interval was adjusted by changing the speed at which the capacitors were filled to reach their discharge voltage. Thus, specific prior art references supported the district court’s obviousness holding as to the “frequency and amplitude” limitation.

Finally, we reject the plaintiffs’ suggestion that the prior art is distinguishable because it does not show an adjustment to the waveform generator made while the waveform generator is in the well bore. Ordinarily, the steps of a method claim need not be performed in the order in which they are recited. Interactive Gift Express, Inc. v. CompuServe, Inc., 256 F.3d 1323, 1343 (Fed. Cir. 2001). The plaintiffs do not point to anything in the patent that requires the “inserting” step to be performed before the “adjusting” step. Thus, there is no reason to treat the ’845 patent as departing from the normal rule, and the plaintiffs’ distinction of the prior art therefore has no effect on the validity of the claims. In any event, the Gipson patent discloses the use of an adjustable Bolt gas gun to clean a well, and the plaintiffs do not dispute that the frequency and amplitude of percussive waves generated by a Bolt gas gun are adjustable while the

gas gun is in the well bore. Accordingly, even if we were to understand the claims as the plaintiffs do, we would find no flaw in the district court's obviousness holding regarding the timing of percussive energy adjustment.

Finally, claims 3–7 cover methods in which one or more parameters of gas gun operation are varied within recited ranges. The Gipson prior art reference supports the district court's obviousness holding regarding those claims. That reference expressly discloses a Bolt gas gun that is adjustable with regard to discharge volumes, discharge pressures, and activation intervals within the ranges recited in claims 3–7. The district court specifically cited the testimony of Dr. Williams concerning the obviousness of claims 3–7 in light of the Gipson patent.

In sum, we reject the plaintiffs' argument that the district court failed to refer to specific prior art references in support of the JMOL of obviousness.

2. The plaintiffs next seize on a word usage issue in contending that the district court's opinion contains reversible error. The district court used the words "novel" and "novelty" in explaining why a reasonable jury would have to find the claimed processes obvious. The plaintiffs argue that the court's use of those terms indicates that the court based its obviousness ruling on the wrong legal standards and that the judgment should therefore be reversed. In context, however, it is clear that the district court understood the standards for determining obviousness. The court's discussion of "areas of novelty" simply identified the differences between prior art references and the claimed invention. And the court's statement that the combination of prior art references was not "novel" was merely a way of expressing the idea that no new insight was required to make the

needed combination of prior art references. The district court's choice of words to express that conclusion does not constitute reversible error.

3. The plaintiffs argue that the district court erred in excluding Dr. Driscoll's redirect examination testimony regarding obviousness. The court's ruling, however, had no effect on its judgment. The court stated that, even taking Dr. Driscoll's testimony into account, it would grant JMOL of invalidity for obviousness. As the court explained, it struck Dr. Driscoll's testimony to make clear that "if the court of appeals disagrees with my decision, the error in allowing the jury to consider Driscoll's testimony on re-direct examination would require a new trial."

4. The plaintiffs also argue that the district court erroneously assessed the level of ordinary skill in the art. The plaintiffs do not identify how that purported error undermines the district court's judgment, and we fail to perceive any such effect. In any event, the district court did not ignore the plaintiffs' evidence of the level of ordinary skill in the art. Dr. Driscoll stated that drilling consultants "sometimes . . . really need" a master's degree to be successful, and the district court appears to have accepted that testimony in defining the level of ordinary skill in the art.

5. The plaintiffs argue that the defendants' misconduct in not turning over documents subject to a discovery request in a timely fashion warrants a higher monetary sanction than the district court imposed. The plaintiffs also argue that the defendants' misconduct was more expansive than that found by the district court. The district court carefully considered the defendants' sanctionable conduct and found that the misconduct extended no further than the delay in initially producing documents. We find no good reason to take the extraordinary step of imposing further discovery

sanctions. Additionally, we find that the district court adequately computed the costs to the plaintiffs of the defendants' misconduct.

The district court also sanctioned the plaintiffs for the discovery misconduct of failing to appear at a deposition that the plaintiffs indicated they would take in person. The deponent ultimately did not attend the deposition. If the plaintiffs had not noticed an in-person deposition, the defendants would not have incurred the expense of sending an attorney to California to attend the deposition. The district court's award of the defendants' travel costs and fees was therefore proper.

We have considered the plaintiffs' remaining arguments and find them meritless.