United States Court of Appeals for the Federal Circuit

05-1136

VARCO, L.P.,

Plaintiff-Appellant,

v.

PASON SYSTEMS USA CORP.,

Defendant-Appellee.

Guy E. Matthews, The Matthews Firm, of Houston, Texas, argued for plaintiff-appellant. With him on the brief was Robert M. Bowick.

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Appealed from: United States District Court for the District of Colorado

Senior Judge Richard P. Matsch

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v.

PASON SYSTEMS USA CORP.,

Defendant-Appellee.

DECIDED: February 1, 2006

Before CLEVENGER, RADER, and DYK, Circuit Judges.

RADER, Circuit Judge.

Varco, L.P. (Varco) owns U.S. Patent No. 5,474,142 (the '142 patent), which claims an automatic drilling system[1] that controls the release of a drill string in response to a combination of four parameters (e.g., bit weight, drilling fluid pressure, drill string

[1] The district court, parties, and '142 patent use the terms "automatic driller" and "automatic drilling system" interchangeably to refer to the same type of device. Thus, for purposes of this opinion, the two terms are similarly to be construed as referring to the same type of device.

torque, and drill string RPM). '142 patent, col. 1, ll. 4-10. On December 22, 2003, Wildcat Services, L.P. (Wildcat), Varco's predecessor in interest, sued Pason Systems USA Corp. (Pason) in the United States District Court for the District of Colorado for infringement of claims 1, 9, 11, and 14 of the '142 patent and moved for a preliminary injunction.[2] Varco, L.P. v. Pason Sys. USA Corp., 03-M-2579, slip op. at 1-2 (D. Col. 2004) (Preliminary Injunction Order).

Before the district court ruled on Varco's preliminary injunction motion, however, the United States Patent and Trademark Office ordered reexamination of claims 1 and 11 of the '142 patent. Id., slip op. at 2. Varco and Pason thereafter agreed to proceed on claim 14 alone. Id. After a hearing, the district court concluded that Varco did not show a likelihood of success as to infringement of two steps in claim 14. Id., slip op. at 14-15. Because the district court erred in construing claim 14 as being limited to selecting signals by a two step manual process and as being limited to relaying by pneumatically operated valves, this court vacates and remands.

I.

The '142 patent claims methods and apparatuses for automatically regulating the release of a drill string on a drilling rig. '142 patent, col. 24, l. 37-col. 28, l. 56. Figure 1 presents an example of the claimed invention. In that Figure, the drilling rig includes a drill bit 23 driven by a mud motor 85 at the end of a suspended drill string 21:

[2] After Varco acquired the '142 patent from Wildcat, the district court substituted Varco as plaintiff in the litigation. Wildcat is not a party to the present appeal. This opinion refers to both Varco and Wildcat as "Varco."

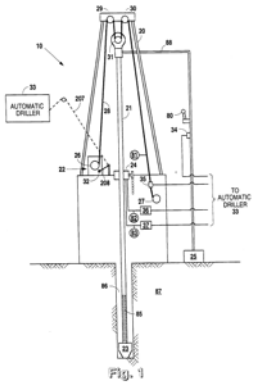

Fig. 1

Automatic regulation in the ’142 patent generally refers to automatically controlling the rate at which the drill bit 23 penetrates into a formation, also known as the rate of penetration (ROP). As shown in Figure 1, the invention regulates the ROP with a brake 32, which controllably releases cable 28 which carries the drill string 21. Ideally, the drill rig maintains the ROP at an optimal rate to penetrate through a given formation as quickly as possible while remaining within the tolerances of the drilling rig. Preliminary Injunction Order, slip op. at 3; see also ’142 patent, col. 4, ll. 15-18. However, in practice, the ROP fluctuates based on a number of factors. Thus, drilling systems are designed to be adjustable to keep the ROP as close as possible to the optimal rate. Preliminary Injunction Order, slip op. at 3.

Varco asserts that it first developed an automatic drilling system that uses multiple parameters to regulate the release of the drill string. Prior art drillers allegedly used weight on bit (WOB) as the sole parameter. The ’142 patent, in fact, claims methods and apparatuses that use multiple parameters to regulate the release of the drill string. See ’142 patent, col. 24, ll. 37-58 (claim 1); col. 26, l. 32-col. 27, l. 3 (claim 9); col. 27, ll. 45-56 (claim 11); col. 28, ll. 23-38 (claim 14). In regard to claim 14, the sole claim presently at issue, the parties dispute the meaning of two terms:

> 14. A method for automatically regulating the release of the drill string of a drilling rig drill, comprising the steps of:
> measuring drilling fluid pressure and bit weight;
> producing a first signal in response to changes in drilling fluid pressure, said first signal representing the changes in drilling fluid pressure;
> producing a second signal in response to changes in bit weight, said second signal representing the changes in bit weight;
> selecting any one of said first signal, said second signal, and both said first and said second signals to control the release of said drill string; and
> relaying said selected signal or signals to a drill string controller which regulates the release said drill string in response to said selected signal or signals.

'142 patent, col. 28, ll. 34-38 (emphasis added).

The district court construed the selecting step as:

> [A] process involving two manual adjustments to an automatic drilling device: the operator's manually switching on or off the valve selectors corresponding to those regulators chosen to control the drilling, and setting optimal levels of fluid pressure and bit weight.

Preliminary Injunction Order, slip op. at 11. The district court arrived at this definition based, in part, on the specification's disclosure of an automatic driller 33 with regulators 200-203 that receive drilling signals developed by sensors 34-37. '142 patent, col. 7, ll. 16-23. The regulators 200-203 are connected to valves 236-239, respectively, to output a pneumatic control signal to air motor 204 which in turn controls brake 32. '142 patent, col. 7, ll. 27-31. In the preferred embodiment, valve selectors 232-235 control the regulators 200-203 that actually control the drilling operation. '142 patent, col. 7, ll. 49-50. In other words, the valve selectors 232-235 switch on or off such that a desired group of parameters corresponding to regulators 200-203 perform the automatic control on the automatic drilling system. The district court interpreted the specification to require manual operation of valve selectors 232-235. Accordingly, the district court

limited "selecting" in claim 14 to manual operation of valve selectors by a drilling rig operator. Preliminary Injunction Order, slip op. at 7-8, 11.

The district court also relied on a portion of the specification that "describes a manual calibration process that must be performed to set each regulator to deliver a selected amount of air pressure to maintain optimal drilling fluid pressure within the drill string." Id., slip op. at 8 (citing '142 patent, col. 8, l. 62-col. 10, l. 3; col. 12, l. 11-col. 13, l. 18). During this calibration process, a drilling rig operator manually adjusts a screw 214 to move a nozzle 216 relative to a flapper 213 in a given regulator. '142 patent, col. 8, l. 62-col. 9, l. 4. Because the specification states that selected regulators 200-203 must be manually calibrated before use, the district court concluded the selecting step in claim 14 further requires manual calibration of the selected regulators 200-203 in addition to manual operation of the valve selectors 232-235.

Finally, the district court determined that, during prosecution, the applicant confirmed the selecting step encompasses only a process involving manual operation of valve selectors and manual calibration of selected regulators. Preliminary Injunction Order, slip op. at 8-11. Specifically, during prosecution, the Examiner rejected the pending claims under 35 U.S.C. § 112, ¶ 1, because the Examiner believed the specification did not explain the resolution of conflicts between parameters (e.g., bit weight, drilling pressure, etc.). The applicant responded with an explanation that an operator can resolve any conflicts among the four disclosed parameters by selecting one as the primary control and then using the remaining parameters as secondary or back-up controls. The primary control regulates the release of the drill string unless a secondary control reaches an undesirable level at which point it overrides the primary

and regulates the release of the drill string. To prevent an undesirable override, a drilling rig operator adjusts the threshold at which override occurs to a point where only undesirable conditions will trigger intervention. Because this discussion focused on a manual calibration process to set the thresholds, the district court concluded it was consistent with a construction requiring manual operation of the valve selectors 232-235 and manual calibration of regulators 200-203 in the selecting step. Id., slip op. at 8-11.

Having construed the selecting step as requiring manual operation of valve selectors and manual calibration of regulators, the district court then considered whether Pason's system performs a corresponding step. Id., slip op. at 14. The district court noted that in Pason's system an operator chooses drilling parameters electronically via a computer display interface. Id. Because electronic selection of drilling parameters does not involve manual operation of valve selectors or manual calibration of regulators, the district court concluded that Varco did not prove a likelihood of infringement. Id. The district court did not, however, evaluate whether Varco proved a likelihood of infringement of this element under the doctrine of equivalents (DOE).

The district court then construed the "relaying" step in claim 14. The district court construed "relaying" to mean "transmitting a signal by means of pneumatically operated valves." Id., slip op. at 12. The district court arrived at this definition based on the specification's disclosure of valves 236-239 that operate as "relays" to supply compressed air to air motor 204 from regulators 200-203. '142 patent, col. 7, ll. 35-37. The district court interpreted this disclosure as defining "relaying" in a manner that requires the use of pneumatically operated valves. Preliminary Injunction Order, slip op.

at 11-13. Turning then to Pason's system, the district court concluded that Varco was unlikely to prove infringement of this claim element because Pason did not use pneumatically operated valves. Id., slip op. at 15. Again, the district court did not evaluate whether Varco proved a likelihood of infringement under the doctrine of equivalents.

Finally, the district court acknowledged Pason's affirmative defense of invalidity under 35 U.S.C. §§ 102(b) and/or 103(a) based on U.S. Patent No. 3,233,163 (the '163 patent) and other prior art. Id., slip op. at 17. Without a likelihood of success on the infringement issue, the district court declined to address the prior art issues. Id.

II.

"The grant of a preliminary injunction under 35 U.S.C. § 283 is within the discretion of the district court. This court reviews a preliminary injunction decision for an abuse of discretion." Gillette Co. v. Energizer Holdings, Inc., 405 F.3d 1367, 1370 (Fed. Cir. 2005) (citing Novo Nordisk of N. Am., Inc. v. Genentech, Inc., 77 F.3d 1364, 1367 (Fed. Cir. 1996)). This court reviews claim construction without deference. Cybor Corp. v. FAS Techs. Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc); Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995), aff'd, 517 U.S. 370 (1996).

As recently outlined in this court's Phillips decision, "[i]t is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1115 (Fed. Cir. 2004)). The claim terms "'are generally given their

ordinary and customary meaning.'" Id. (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." Id. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id. "In examining the specification for proper context, however, this court will not at any time import limitations from the specification into the claims." CollegeNet, Inc. v. ApplyYourself, Inc., 418 F.3d 1225, 1231 (Fed. Cir. 2005) (citing Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1326 (Fed. Cir. 2002)). Applying these principles to claim 14, this court concludes the trial court's construction was unduly narrow.

III.

The claim language itself suggests a broader reading of claim 14. In the selecting step, the relevant language reads:

> 14. A method for automatically regulating the release of the drill string of a drilling rig drill, comprising the steps of:
> . . . .
> selecting any one of said first signal, said second signal, and both said first and said second signals to control the release of said drill string;
> . . . .

'142 patent, col. 28, ll. 34-35 (emphasis added).

The preamble recites that the method steps are to be performed automatically by the drilling rig. This language suggests that the selecting step is not limited to manual operation of valve selectors and/or manual calibration of regulators as construed by the district court. See Catalina Mktg. Int'l v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305

(Fed. Cir. 1999)) ("In general, a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim."); Innova/Pure Water, 381 F.3d at 1118 ("Language in a preamble limits a claim where it breathes life and meaning into the claim . . . but not where it merely recites a purpose or intended use of the invention.") (internal citations omitted). Hence, the language of claim 14 (particularly the preamble) does not support the district court's construction of this step.

In addition, the specification does not limit the selecting step to the manual operation of valve selectors or the manual calibration of regulators. Rather, the specification discloses an initial setup procedure in which an operator, using valve selectors 232-235, manually chooses the regulators 200-203 that will control the drilling operation once underway. See '142 patent, col. 7, l. 49-col. 8, l. 6; col. 23, ll. 6-12. The specification also discloses a manual calibration process, a subset of the initial setup procedure, for those regulators 200-203 selected using valve selectors 232-235. See '142 patent, col. 8, l. 51-col. 10, l. 3; col. 23, ll. 12-23. To clarify this setup procedure, the specification explicitly states that this initial setup occurs "before the [selected] regulator . . . will automatically regulate" the release of the drill string. '142 patent, col. 8, ll. 57-61 (emphasis added). The district court relied on this portion of the specification to support its requirement of manual operation. To the contrary, this portion of the specification sets forth an initial setup or calibration step that precedes the claimed selecting step. In effect, the district court erred by reading the initial setup or calibration step into the claimed selecting step.

Notably, the specification also describes a conflict resolution process automatically performed by the drilling rig after the initial setup or calibration; i.e., once the drilling rig is up and running. See '142 patent, col. 24, ll. 4-26. Because the valves 236-239 are connected in series, see '142 patent, Figure 2, the valve 236-239 with the largest signal generally provides the signal conveyed to the air motor 204, which ultimately controls the brake 32. With two or more parameters in use (i.e., when the drill rig operator "selects" two or more parameters, such as bit weight and drilling pressure), conflicts will occur between the controlling parameters (e.g., a first parameter may suggest the drill string should be released whereas a second parameter may suggest the drill string should be held steady).

This conflict resolution process led to the 35 U.S.C. § 112, ¶ 1 rejection during prosecution, because the Examiner did not understand the drilling system's method for resolving conflicts between the "primary" and "secondary" controls. The Examiner questioned the conflict resolution method:

> It is the examiner's view that at the least, applicant has failed to provide a logical explanation with respect to how such conflicts can be resolved. Because it is well known in the art that among other things, the relationship between rate of penetration and the drilling parameters . . . one can not simply isolate one parameter from the others . . . Specifically the operational procedures illustrated in [the specification] fail to teach . . . how and when the secondary control overrides the primary control. Examiner also could not understand why among the four control parameters, the rpm and the torque regulators can be switched off, since as best understood, all these four parameters need to be taken into consideration and should be properly balanced.

In response, the applicant explained to the Examiner that an operator, as part of the initial setup procedure, can adjust the level for override of the primary control, thus ensuring that only undesirable conditions will trigger intervention. With this initial adjustment in place, the drilling system then automatically selects between the primary

and secondary controls during operation. Thus, the prosecution history confirms that selecting in claim 14 does not encompass the initial setup or calibration of the drilling system, but rather the conflict resolution process between primary and secondary controls during operation.

Finally, one potential reading of dependent claim 15 implicitly suggests "selecting" in the context of the initial setup or calibration of the automatic driller differs from "selecting" in the context of claim 14. See '142 patent, col. 2, ll. 20-24 ("relay selectors which . . . permit an operator . . . to select which one of or which combination of the regulators are to control the drilling operation."). Specifically, claim 15 provides two signals, a signal representing drill string torque and a signal representing drill string RMP, in addition to the two signals required by claim 14. Compare '142 patent, col. 28, ll. 34-38, with col. 28, ll. 39-57. Because claim 15 adds signals to the control process and the addition / subtraction process is described in the specification as occurring during the initial setup / calibration of the automatic driller, "selecting" in claim 14 must refer to the conflict resolution process that occurs between controlling parameters. Otherwise, the provision of additional signals in claim 15 would be subsumed within the "selecting" step already recited in the claims.

In sum, claim 14 does not suggest that the selecting step requires a two-part manual process as interpreted by the district court. Moreover, the specification and prosecution history confirm that the two-part manual process relied upon by the district court is distinct from the claimed selecting step. Thus, the district court's interpretation of the selecting step was unduly narrow.

Turning now to the relaying step, claim 14 reads as follows:

> 14. A method for automatically regulating the release of the drill string of a drilling rig drill, comprising the steps of:
> . . . .
> relaying said selected signal or signals to a drill string controller which regulates the release said drill string in response to said selected signal or signals.

'142 patent, col. 28, ll. 34-38 (emphasis added).

As outlined above, nothing in the claim language requires or even suggests the use of pneumatically operated valves in performing the relaying step. Rather, the only discussion of pneumatically operated valves in the intrinsic record comes from the specification: "In the preferred embodiment, valves 236-239 are pneumatic valves that operate as relays to supply compressed air to air motor 204." '142 patent, col. 7, ll. 35-37. This disclosure and corresponding Figures do not limit the invention as a whole to the use of pneumatically operated valves; rather they merely list such valves as but one example of relays operable in the present invention. See C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 864 (Fed. Cir. 2004) ("Statements that describe the invention as a whole, rather than statements that describe only preferred embodiments, are more likely to support a limiting definition of a claim term.") (citing Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1347 (Fed. Cir. 1998)); SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d 1278, 1286 (Fed. Cir. 2005) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations.") (quoting Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed. Cir. 1988)); Gillette, 405 F.3d at 1374 ("This court has cautioned against limiting the claimed invention to preferred embodiments or specific examples in the specification.") (quoting Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n, 805 F.2d 1558, 1563 (Fed. Cir. 1986)); Gart v. Logitech, Inc., 254 F.3d 1334, 1342 (Fed. Cir. 2001) (noting that

"drawings [depicting the preferred embodiment] are not meant to represent 'the' invention or to limit the scope of coverage defined by the words used in the claims themselves."); see also '142 patent, col. 24, ll. 27-35 (stating the present invention is not limited to the preferred embodiment).

Moreover, the specification's disclosure of valves that "operate as relays" implicitly suggests that "relay" has a broader meaning than simply the preferred pneumatically operated valves. To illustrate, the applicant could have used terminology such as "relays are pneumatically operated valves" that expressly disavows alternative structures. As written, however, the specification contemplates that other structures may "operate as relays" in addition to the preferred pneumatically operated valves. Hence, the intrinsic record does not support the district court's interpretation of the relaying step.

Finally, the extrinsic evidence in this case confirms that the relaying step is not limited to pneumatically operated valves. For example, Pason's expert, presumably one of ordinary skill in the art, testified that "relaying" in claim 14 was not limited to the use of pneumatically operated valves:

> Court: It's not your opinion, is it, that claims 11 and 14 are limited to a pneumatic control system –
> Expert: No. Well – no. It's not limited to a pneumatic control system as the way they're written, that's true.

In addition, Pason's counsel at oral argument similarly conceded that relaying in claim 14 should not be limited to pneumatically operated valves. Hence, there is no support, either in the intrinsic or extrinsic record, for the district court's interpretation of the relaying step. Thus, as with the selecting step, the district court's interpretation of the relaying step is unduly narrow.

IV.

For the aforementioned reasons, this court concludes the district court's interpretation of both the selecting step and the relaying step was unduly restrictive. Because the district court's flawed claim construction directly led to its denial of the preliminary injunction motion, this court vacates the denial and remands the case back to the district court for further proceedings. On remand, the district court may consider the proper interpretation of claim 14, the validity challenges to claim 14 under § 102 and § 103, and infringement of claim 14 by Pason's system. Because this case seems to present an instance of after-arising technology (e.g., improvements on prior innovations), the district court may find it appropriate to consider infringement under the doctrine of equivalents. See Datascope Corp. v. SMEC, Inc., 776 F.2d 320, 3226 (Fed. Cir. 1985) ("'an embellishment' made possible by technological advances may not permit an accused device to escape 'the web of infringement'"); Am. Hosp. Supply Corp. v. Travenol Labs., Inc., 745 F.2d 1, 9 (Fed. Cir. 1984) ("An appropriate range of equivalents may extend to post-invention advances in the art in an appropriate case."); Hughes Aircraft Co. v. United States, 86 F.3d 1566, 1584 (Fed. Cir. 1996), remanded, 520 U.S. 1183 (1997), aff'd, 140 F.3d 1470, reh'g denied, 148 F.3d 1384 (Fed. Cir. 1998), cert. denied, 525 U.S. 1117 (1999) (holding that an inventor is not required to predict all future developments which enable the practice of his invention); SuperGuide Corp. v. DirecTV Enter., Inc., 358 F.3d 870, 880 (Fed. Cir. 2004) (quoting SRI Int'l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc)) ("The law 'does not require that an applicant describe in his specification every conceivable and possible future embodiment of his invention.'"); Smithkline Beecham Corp. v. Excel

Pharm., Inc., 356 F.3d 1357, 1364 (Fed. Cir. 2004) (commenting that the "quintessential example of an enforceable equivalent" is after arising technology); Glaxo Wellcome, Inc. v. Impax Lab. Inc., 356 F.3d 1348, 1354 (Fed. Cir. 2004) (also commenting that the "quintessential example of an enforceable equivalent" is after arising technology).

COSTS

Each party shall bear their own costs.

VACATED and REMANDED