NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

2008-1164, -1193

RESPIRONICS, INC. and RIC INVESTMENTS, LLC,

Plaintiffs-Appellants,

v.

INVACARE CORP.,

Defendant-Cross Appellant.

W. Thomas McGough, Jr. Reed Smith LLP, of Pittsburgh, Pennsylvania, argued for plaintiffs-appellants. With him on the brief were Gene A. Tabachnick and Joshua S. Bish.

Charles B. Lyon, Calfee, Halter & Griswold LLP, of Cleveland, Ohio, argued for defendant-cross appellant. With him on the brief were John T. Wiedemann, Nenad Pejic, Georgia E. Yanchar, and Jennifer B. Wick. Of counsel on the brief was Eric G. Soller, Pietragallo, Bosick & Gordon, of Pittsburgh, Pennsylvania.

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

Judge Gary L. Lancaster

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RESPIRONICS, INC. and RIC INVESTMENTS, LLC,

Plaintiffs-Appellants,

v.

INVACARE CORP.,

Defendant-Cross Appellant.

Appeal from the United States District Court for the Western District of Pennsylvania in case no. 04-CV-0336, Judge Gary L. Lancaster.

DECIDED: December 16, 2008

Before SCHALL, CLEVENGER, and LINN, Circuit Judges.

LINN, Circuit Judge.

Respironics, Inc. and RIC Investments, LLC (collectively "Respironics") appeal from a final judgment of noninfringement by Invacare, Inc. ("Invacare") of Respironics's U.S. Patents No. 5,148,802 ("the '802 patent"), No. 5,433,193 ("the '193 patent"), and No. 6,105,575 ("the '575 patent"). Invacare cross-appeals from the final judgment of literal infringement of U.S. Patent No. 6,609,517 ("the '517 patent") and also cross-appeals from the final judgment that all four patents-in-suit are not invalid. Respironics v. Invacare, No. 04-CV-0336 (W.D. Pa. Jan. 7, 2008) ("Judgment"). Because the district court correctly construed the claims of the '802 and '193 patents and found them not infringed, we affirm the judgment with respect to those two patents. Because the district

court erred in construing the term "shape" in the '575 patent and erred in granting summary judgment of no anticipation of the '575 and '517 patents, we vacate the grant of summary judgment of noninfringement of the '575 patent, reverse the grant of summary judgment of validity of the '575 and '517 patents, and remand.

I. BACKGROUND

Respironics's four patents-in-suit are directed to the treatment of obstructive sleep apnea ("OSA"). A common method for treating OSA is the use of a continuous positive airway pressure ("CPAP") device to supply a constant pressure of air to the patient to keep the patient's airway open. To ease patient discomfort, Respironics developed and patented a variety of apparatuses and methods that detect when the patient is exhaling and then lower the pressure of incoming air provided during exhalation.

The first two patents—'802 and '193—are directed to "Bi-level" therapy. Unlike CPAP, which supplies only one pressure, Bi-level therapy delivers a higher pressure during inhalation and a lower pressure during exhalation. These higher and lower pressures are referred to as inhalation positive airway pressure ("IPAP") and exhalation positive airway pressure ("EPAP"), respectively. See '802 patent col.6 ll.45-59; '193 patent col.6 ll.53-67. The third and fourth patents—'575 and '517—are directed to a more sophisticated therapy called proportional positive airway pressure ("PPAP") therapy. See '575 patent col.6 ll.3-4; '517 patent col.6 ll.3-4. Instead of supplying only one pressure during a given exhalation, PPAP therapy provides varying pressures during exhalation. It can do so in one of two ways: (1) in accordance with a predetermined pressure profile, which has a shape that is set independent of the

patient's breathing efforts; or (2) in proportion to the patient's breathing, such that the supplied pressure varies with how deeply the patient is breathing. In general, the appealed claims of the '575 patent are directed to the former, "predetermined" embodiment, and the appealed claims of the '517 patent are directed to the latter, "proportional" embodiment.

Respironics sued Invacare for patent infringement. Respironics's final infringement contention was that Invacare's commercialization of a product ("the Commercial Device") infringed the '802, '193, and '575 patents; and that Invacare's demonstration of a prototype device ("the Tradeshow Device") infringed the '517 patent. Following a Markman hearing, the district court issued a claim construction order in which it construed various contested terms of the patents. Respironics v. Invacare, No. 04-CV-0336 (W.D. Pa. Aug. 30, 2006) ("Claim Construction Order"). On cross-motions for summary judgment, the district court ruled in favor of Respironics that all four patents are not invalid as a matter of law and, in particular, that the '575 and '517 patents are not anticipated by a publication authored by Dr. Magdy Younes. Respironics v. Invacare, 511 F. Supp. 2d 587 (W.D. Pa. Apr. 26, 2007). The district court also granted summary judgment in favor of Invacare that the Commercial Device does not infringe the '802, '193, and '575 patents. Id. at 604. However, the district court identified one key factual dispute precluding summary judgment as to infringement of the '517 patent: "whether the V_{scale} factor in the Unloading Equation converts the valve position measurements into flow rate signals." Id. A trial was conducted to resolve that question. Answering in the affimative, a jury concluded that the Tradeshow Device literally infringed claims 29, 30, and 32 of the '517 patent. Following post-verdict

briefing, the district court denied Invacare's motion for judgment as a matter of law ("JMOL") and denied Respironics's motion for a permanent injunction. Respironics v. Invacare, No. 04-CV-0336 (W.D. Pa. Jan. 7, 2008) ("JMOL Opinion"). The district court entered judgment in accordance with both the summary judgment order and the jury's verdict, and further stayed the bifurcated damages portion of the case pending resolution of any appeal. Judgment at 1.

Respironics appealed from the judgment on issues relating to noninfringement of the '802, '193, and '575 patents. Invacare cross-appealed on issues relating to infringement of the '517 patent and validity of the '575 and '517 patents. Because the judgment "is final as to all issues except for a determination of damages, we have jurisdiction under 28 U.S.C. § 1292(c)(2)." Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Solutions, P.C., 482 F.3d 1347, 1353 (Fed. Cir. 2007).

II. DISCUSSION

A. Infringement

"The determination of infringement is a two-step process, wherein the court first construes the claims and then determines whether every claim limitation, or its equivalent, is found in the accused device." Roche Palo Alto LLC v. Apotex, Inc., 531 F.3d 1372, 1377 (Fed. Cir. 2008). Claim construction is a question of law, which we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). Infringement is a question of fact, which we review for substantial evidence when tried to a jury, Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1332 (Fed. Cir. 2008), but which we review without deference when decided on summary judgment,

Bd. of Regents of the Univ. of Texas Sys. v. BENQ Am. Corp., 533 F.3d 1362, 1367 (Fed. Cir. 2008).

1. Commercial Device

We first address whether the district court properly concluded, on summary judgment, that the Commercial Device did not infringe the '802, '193, and '575 patents.

a. Claim Construction of "selected higher and lower pressure magnitudes"

Respironics challenges the district court's construction of the term "selected higher and lower pressure magnitudes" in method claims 3 and 24 of the '802 patent and method claims 9, 44, and 53 of the '193 patent. The district court construed this term identically for all claims, and the parties do not urge different constructions for different claims. Claim 3 of the '802 patent recites, with disputed term emphasized:

> A method of medical treatment for a patient comprising the steps of:
>
> [1] providing a flow of breathing gas from a source for delivery to the airway of such a patient at selected higher and lower pressure magnitudes at least as great as ambient atmospheric pressure;
>
> [2] continually detecting the instantaneous flow rate of said breathing gas flowing between said source and the airway of such a patient;
>
> [3] continually processing selected parameters including said instantaneous flow rate to provide a reference indicia corresponding to an average flow rate of breathing gas flowing between said source and said patient; and
>
> [4] utilizing said instantaneous flow rate and said reference indicia to select one of said higher and said lower pressure magnitudes for said flow of breathing gas to be applied in the airway of such a patient.

(bracketed numbers added).

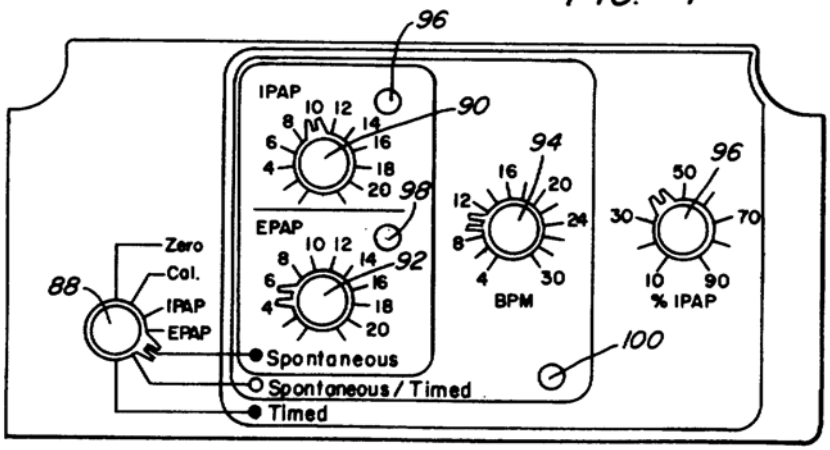
The district court construed the term "selected higher and lower pressure magnitudes" in step one to require the pressure magnitudes to be "chosen prior to

operation of the computer circuitry that is used to determine whether the patient is inhaling or exhaling." Claim Construction Order at 16 (emphasis added). Respironics argues that this construction impermissibly imports a temporal limitation into the claims. It argues that the method steps are not set forth in any chronological sequence and, accordingly, the pressure magnitudes need not be selected at any particular time in the sequence. Invacare defends the district court's construction, arguing that the word "select" appears twice in the claims: in the past tense "selected" in step one, and in the present tense "to select" in step four. These two occurences of the word "select," coupled with step four's refererence back to "said" magnitudes in step one, convinces Invacare that the magnitudes in step one are selected before any of steps two, three, or four are performed.

The claim language itself provides little insight as to when the pressure magnitudes in step one are "selected." Because steps two and three must be performed "continually," it cannot be said that the claim language itself requires all steps to be performed in the order written. Also, the mere fact that step four refers back to "said higher and said lower pressure magnitudes" of step one does not, as a rule, require step one to be performed before step four. Indeed, in Interactive Gift Express, we held that step one of a method claim can be performed after step four, even though step four referred to "the catalog code" introduced in step one. Interactive Gift Express, Inc. v. Compuserve Inc., 256 F.3d 1323, 1328 (Fed. Cir. 2001) (emphasis added); id. at 1343 ("[T]here is no reason why step one[ ] . . . must occur before step four[ ] . . . ."). Thus, in a method claim, a step that recites "said" or "the," referring to an earlier object, does not always have to be performed after the step that first introduces the object.

We turn then to the specification, which we have called "'the single best guide to the meaning of a disputed term.'" Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). In this case, the specification discloses only one way to select the higher and lower pressure magnitudes: via pressure adjustment controls (labeled "90" and "92"), which are depicted as a pair of dials in Figure 4, reproduced below.

FIG. 4



These dials, according to the specification, are used "for setting the respective [higher] IPAP and [lower] EPAP pressure levels." '802 patent col.13 ll.30-31. Throughout the specification, the pressure magnitudes are referred to as being "predetermined," id. col.2 l.68-col.3 l.1, col.7 l.40, or "preselected," id. col.3 l.27. See also '194 patent col.3 ll.3-4, l.30. When pressed at oral argument to identify an embodiment in the specification where the pressure magnitudes are not preselected, counsel for Respironics was unable to do so. Oral Arg. at 5:35-6:10, available at http://oralarguments.cafc.uscourts.gov/mp3/2008-1164.mp3. Similarly, the district court found, and we agree, that "[t]here is no indication in the patents that the lower pressure magnitude can somehow be changed breath by breath." Claim Construction Order at

19. The preselection of higher and lower pressure magnitudes is not merely a preferred embodiment; it is the patents' only embodiment.

The prosecution history also supports the district court's construction. As originally filed, claims 3 and 24 of the '802 patent used the word "alternately" in place of the now-disputed word "selected." In response to an obviousness rejection, Respironics amended the term to its current form and carried it over to the claims of the '193 patent. J.A. 935, 939. Respironics offers no explanation for this amendment. But, to whatever extent the word "alternately" might have permitted selection of pressure magnitudes on a breath-by-breath basis, a capability nowhere disclosed in the patents, Respironics's decision to replace "alternately" with "selected" forecloses the broader construction.

Thus, we conclude that the district court correctly construed the term "selected higher and lower pressure magnitudes" to require the pressure magnitudes to be chosen prior to operation of the computer circuitry that is used to determine whether the patient is inhaling or exhaling. See Loral Fairchild Corp. v. Sony Corp., 181 F.3d 1313, 1322 (Fed. Cir. 1999) ("Although not every process claim is limited to the performance of its steps in the order written, the language of the claim, the specification and the prosecution history support a limiting construction in this case.").

b. Infringement of '802 and '193 Patents

We also conclude that that district court correctly determined that the Commercial Device does not infringe the '802 and '193 patents under the district court's proper claim construction. As previously discussed, the claims require both higher and lower pressure magnitudes to be selected at the outset of operation. The Commercial Device, however, preselects only the higher pressure magnitude when operated under

normal conditions, not the lower magnitude. Respironics, 511 F. Supp. 2d at 596 (quoting Respironics's expert as admitting that "the magnitude of unloading is a function of the [SoftX] setting . . . and peak inspiratory flow of the preceding inspiration (patient-determined quantity)"). Because the Commercial Device does not perform every step of the asserted claims, we agree with the district court that the Commercial Device does not infringe these patents.

Respironics argues, alternatively, that operating the Commercial Device in so-called "Standby Mode" might still infringe the '802 and '193 patents. Although the district court's opinion did not expressly address this argument, we conclude that Respironics's evidence failed to create a genuine issue of material fact sufficient to defeat the grant of summary judgment of noninfringement. Respironics relies on the Supplemental Mascara Declaration for the assertion that the ΔV variable in the Unloading Equation is given a predetermined value in Standby Mode, which is then used to preselect the lower pressure magnitude before the device detects whether the patient is inhaling or exhaling, as required by the claims. This statement is directly belied by Respironics's own brief, which expressly defines the ΔV variable as "the change in valve position defined by (Peak – Median) for the inhalation of the previous breathing cycle." Appellant's Br. 14 (emphasis added). Because ΔV presupposes the detection of a previous breathing cycle, this operation cannot infringe. A similarly noninfringing definition of ΔV is found in the computer code cited in the Supplemental Mascara Declaration. See J.A. 1985 (defining "ΔV = 10 ('valve_change' initial value)") (citing J.A. 4477 ("The valve_change value is the amount of movement the valve has m[a]de from it[s] average position between breaths.") (emphasis added)). Because

there is no genuine issue of material fact that ΔV requires at least one prior breath to have been detected, operating the Commercial Device in Standby Mode does not infringe as a matter of law. Accordingly, we affirm the judgment of noninfringement of the '802 and '193 patents.

c. Claim Construction of "shape"

Respironics challenges the district court's construction of the word "shape" in claims 21 and 43 of the '575 patent. That word is used in the following phrase: "a shape of said predetermined pressure profile is set independent of any monitored respiratory characteristics of such a patient." (emphasis added). The district court construed "shape" to mean "magnitude and duration." Claim Construction Order at 26. We agree with Respironics that this construction is unduly narrow. As the intrinsic record makes clear, a pressure profile is defined not only by its magnitude and duration, but also by its shape, which is a different characteristic reflective of the way the pressure changes over time, independent of the particular magnitude and duration of the profile.

We look first to the claims. The claims themselves suggest that a profile's shape is a separate characteristic that can be set independent of the profile's magnitude and duration. Claims 22 and 44, which depend directly from claims 21 and 43, each recites a single additional limitation: "setting at least one of a magnitude and a duration of said pressure profile." (emphases added). Because parent claims 21 and 43 recite that the profile's "shape" is set independent of any monitored respiratory characteristics of a patient, the further setting of the profile's "magnitude" and/or "duration" in claims 22 and 44 would be redundant if "shape" meant "magnitude and duration," as construed by the district court.

Like the claims, the specification refers separately to each of these three characteristics: "[T]he defined pressure profile has a shape that generally corresponds to a patient's normal flow," '575 patent col.20 ll.23-25 (emphasis added); "Multiple predefined pressure profiles, having different magnitudes, durations or both can be stored in a CPAP/PPAP device," id. col.20, ll.53-55 (emphases added). A drawing best captures the point. The patent's Figure 11B, reproduced below, shows three pressure profiles (P_1, P_2, P_3) with different magnitudes (M_1, M_2, M_3) and different durations (D_1, D_2, D_3). But, despite having different magnitudes and durations, all three pressure profiles have the same general shape (a left-of-center "U"-shape), which "drops off quickly at the start of expiration then rises slowly." Id. col.20 ll.63-64.

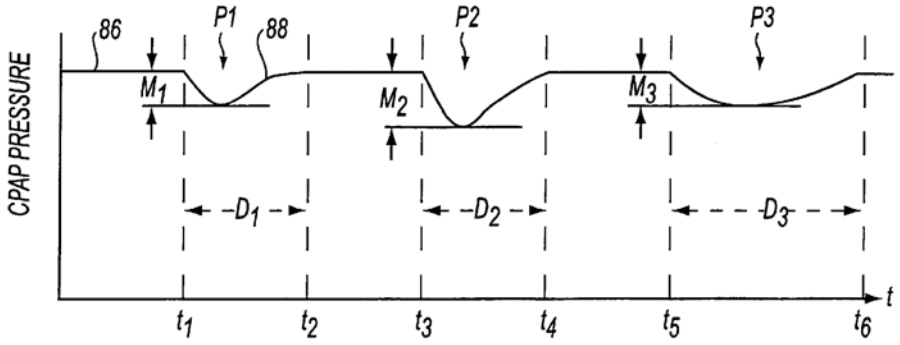


FIG. 11B

The specification thus illustrates that a pressure profile is defined by its duration, magnitude, and shape. These three characteristics—duration, magnitude, and shape—are interrelated, but are different factors in the overall makeup of the pressure profile. The profile's duration (e.g., D_1, D_2, D_3 in Fig. 11B) is the time difference measured from the start to the end of the profile. The profile's magnitude (e.g., M_1, M_2, M_3 in Fig. 11B) is the pressure difference between the profile's maximum and minimum pressures. But duration and magnitude alone do not define how quickly or slowly the profile drops off to

arrive at the minimum pressure, how long it might stay at any particular pressure, or how quickly or slowly the profile rises up to arrive back at the maximum pressure. These are considerations that relate to the "shape" of the profile. As shown in Figure 11B, the profile's shape is the contour along which the pressure changes over time, independent of the particular magnitude and duration of the profile.

The prosecution history does not contradict the claims or the specification. The disputed term was added to claims 21 and 43 in response to an anticipation rejection over U.S. Patent No. 5,598,838 ("Servidio"). Distinguishing Servidio, Respironics explained to the examiner that "the shape of [Servidio's] expiratory model waveform is generated based on the inspiratory waveform, which is determined by monitoring the patient flow during inspiration. . . . Furthermore, it would not be obvious to modify the teachings of [Servidio] so that the shape of the expiratory waveform model is not based on the monitored respiratory characteristics of the patient." J.A. 3719 (emphases added). This statement says nothing about the waveform's magnitude or duration. It merely shows that Respironics understood that a "waveform" can have a "shape."

We conclude that a profile's "shape" is not limited to its "magnitude and duration." We therefore modify the construction of the word "shape" to mean "contour along which the pressure changes over time, describing the way in which the profile drops off to arrive at the minimum pressure and then rises up to arrive back at the maximum pressure, independent of the exact values of magnitude and duration."

d. Infringement of '575 Patent

Based on an incorrect construction of the word "shape," the district court held on summary judgment that the Commercial Device did not infringe claims 21, 43, and 44 of

the ’575 patent. Because the Commercial Device supplies a pressure whose magnitude is based on the patient’s previous breath, the court determined that the pressure profile’s “shape” cannot be set independent of the patient’s respiratory characteristics. Respironics, 511 F. Supp. 2d. at 587. This would be true if “shape” were tied to “magnitude,” as it was under the district court’s construction. But, as previously explained, “shape” should not have been so limited. Moreover, Respironics points to record evidence that it believes shows that the Commercial Device utilizes a predetermined pressure profile having a so-called “bath-tub”-shape that is set independent of any monitored breathing characteristics. J.A. 1443 (Respironics’s claim chart accusing the Commercial Device of employing a “predetermined pressure profile ‘bath-tub’ shape”); id. 2334, 2420. Under our modified construction of “shape,” Respironics’s evidence may raise a genuine issue of material fact. We therefore vacate the grant of summary judgment with respect to noninfringement of the ’575 patent and remand the issue for consideration by the district court in the first instance under the modified construction.

e. Disclaimer of CPAP and Bi-level Therapy

On cross-appeal, Invacare challenges the district court’s claim construction of the ’802, ’193, and ’575 patents, which Invacare argues should be construed to expressly disclaim CPAP and Bi-level therapy from the scope of the claims. Because the district court found no infringement of these patents, Invacare’s cross-appeal admittedly seeks only “a second ground for non-infringement.” Cross-Appellant’s Br. at 1. This is an improper cross-appeal. See Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1252 (Fed. Cir. 2004) (“A cross-appeal is only proper if ‘a party seeks to enlarge its own rights

under the judgment or to lessen the rights of its adversary under the judgment.'") (quoting Bailey v. Dart Container Corp. of Mich., 292 F.3d 1360, 1362 (Fed. Cir. 2002). We shall therefore treat Invacare's claim construction argument as an alternative ground for affirming the judgment of noninfringement, and shall disregard Invacare's noncompliant Reply Brief on this issue. See Chiron, 363 F.3d 1252 ("Although styled as a cross-appeal, this court treats this claim construction issue as an alternative ground for affirming the judgment."). Moreover, because we have affirmed, supra, the judgment of noninfringement of the '802 and '193 patents, we shall limit our review to the '575 patent.

Having considered Invacare's argument, we decline to read an express disclaimer into the claims, but nevertheless modify the construction of the term "predetermined pressure profile" in claims 21 and 43 of the '575 patent to reflect the way this term was later used on summary judgment. Originally, Invacare had urged the district court to construe the term to require, among other things, that the pressure profile "is used to reduce the CPAP or bi-level pressure." J.A. 1441 (chart of claim 21); id. 1465 (chart of claim 43). That construction was never expressly adopted in the Claim Construction Order. Id. at 25 (construing "predetermined pressure profile" only with regard to means-plus-function language). Later, on summary judgment, the district court apparently adopted Invacare's earlier proposed construction, stating that "the predetermined pressure profile reduces the constant pressure of CPAP or the reduced EPAP pressure of bi-level therapy once the device detects the expiratory breathing phase." Respironics, 511 F. Supp. 2d. at 603. On that basis alone, the district court held that claims 21 and 43 were not anticipated by two prior art patents. Id.

Respironics does not dispute the district court's summary judgment interpretation, presumably because doing so would jeopardize the validity rulings. We agree with the district court's summary judgment interpretation and find it to be entirely consistent with the way the term is used throughout the specification. E.g., '575 patent col.20 ll.20-25 (distinguishing "predetermined pressure profile" from straight-line CPAP); id. col.21 ll.12-18 (distinguishing it from straight-line Bi-level EPAP). Thus, in order to maintain consistent claim constructions for both validity and infringement, we shall modify the construction of "predetermined pressure profile" to require, as the district court later did, that "the predetermined pressure profile reduces the constant pressure of CPAP or the reduced EPAP pressure of bi-level therapy once the device detects the expiratory breathing phase." Respironics, 511 F. Supp. 2d. at 603. See Kim v. ConAgra Foods, Inc., 465 F.3d 1312, 1324 (Fed. Cir. 2006) ("The same claim construction governs for validity determinations as for infringement determinations.").

Despite the above modification, we nevertheless deny Invacare an alternative ground for affirming the grant of summary judgment of noninfringement of the '575 patent. Invacare's noninfringement argument is premised on the assertion that the Commercial Device is a standard CPAP device whose pressure remains constant. That fact, however, is in dispute. See J.A. 2975, Respironics's Opp. Def.'s Mot. Partial Summ. J. 26 ("[H]owever, the accused device is not a standard CPAP device.") (emphasis in original). Invacare's own User Manual states that the Commercial Device "decreas[es] the pressure that the patient must exhale against" and contains "three (3) settings allow[ing] the user to adjust the extent of the pressure drops." J.A. 5323. The User Manual goes on to explain that, in addition to the three adjustable settings, the

device "can be set for standard CPAP operation." Id. The presence of the other three settings creates a genuine issue of material fact as to whether the Commercial Device can only operate as a standard CPAP device. We therefore conclude that Invacare's CPAP argument does not provide an alternative basis to affirm the grant of summary judgment of noninfringement of the '575 patent.

2. Tradeshow Device

We next turn to Invacare's cross-appeal of the jury's finding that the Tradeshow Device infringed claims 29, 30, and 32 of the '517 patent.

a. Claim Construction of "controlling"

Invacare challenges the district court's construction of the "controlling" step in claim 29 of the '517 patent, which the district court declined to interpret as a step-plus-function limitation under 35 U.S.C. § 112 ¶ 6. Claim Construction Order at 34-35. The "controlling" step reads:

> controlling a pressure of the flow of breathing gas delivered to a patient based on a product of the expiratory gain and the fluid characteristic during at least a portion of an expiratory phase of such a patient's breathing cycle, so that a pressure of the flow of breathing gas delivered to the patient during at least a portion of the expiratory phase varies with fluctuations of the fluid characteristic.

Without pointing to anything in the claim language itself that would dictate construction under § 112 ¶ 6, Invacare relies entirely on the prosecution history. Specifically, Invacare asserts that Respironics urged the examiner to interpret the "controlling" step as a step-plus-function limitation and that the examiner adopted this interpretation. Neither assertion is persuasive.

First, Respironics never urged the examiner to apply § 112 ¶ 6 to method claim 29 (then-claim 73). When that claim was added during prosecution, together with

apparatus claim 24 (then-claim 68), the pending application already included apparatus claim 1 (then-claim 45) and method claim 9 (then-claim 53). J.A. 3790-801. Both apparatus claims recite a "processing means . . . for producing a command signal," and both method claims recite "controlling a pressure of the flow of breathing gas delivered to a patient." Notably, the apparatus limitations are written in "means for" format; by contrast, the method steps lack the words "step for," thus triggering a presumption that § 112 ¶ 6 does not apply to the method steps. See Generation II Orthotics Inc. v. Med. Tech. Inc., 263 F.3d 1356, 1368 (Fed. Cir. 2001) (stating that "there is a presumption that . . . limitations are not subject to section 112, paragraph 6" when they do not use the words "means for" or "step for"). When Respironics added new claims 68 and 73 (now 24 and 29, respectively), Respironics told the examiner that "[n]ew independent claims 68 and 73 are similar to existing independent claims 45 and 53" (now 1 and 9, respectively). J.A. 3788. Although Invacare now seizes upon Respironics's "similar to" language in this statement, it is clear, based on the above comparison of common terms, that Respironics was referring to the common language used respectively in the two apparatus claims ("processing means . . . for producing a command signal") and in the two method claims ("controlling a pressure of the flow of breathing gas delivered to a patient"), not to any alleged similarity between apparatus and method claims. Thus, contrary to Invacare's assertion, Respironics did not urge the examiner to import a meaning under § 112 ¶ 6 from the apparatus claims into the method claims.

Second, the examiner never adopted any step-plus-function interpretation. In the reasons for allowance, the examiner set forth the various limitations of the apparatus claims, referring to the "processing means" limitation in the apparatus claims, but not

the "controlling" step in the method claims. J.A. 3806. After setting forth the apparatus limitations, the examiner referred to the "abovementioned" (apparatus) limitations only as "means plus function" limitations. Id. (emphasis added). Nowhere in the reasons for allowance does the examiner mention the patent's "controlling" steps, or refer to them as step-plus-function limitations. Accordingly, we reject Invacare's argument that the prosecution history compels a different construction.

b. Exclusion of Noninfringement Opinion

Invacare asks us to vacate the jury's verdict regarding the Tradeshow Device because the district court ruled that Invacare could not introduce into evidence a prior opinion by Respironics's sole testifying witness, who had opined that the Commercial Device does not infringe the '517 patent. The district court sustained Respironics's objection that this evidence was "[i]rrelevant," J.A. 220, which we interpret as an exclusion under Rule 402 of the Federal Rules of Evidence ("Evidence which is not relevant is not admissible."). "We review a district court's evidentiary rulings under the law of the regional circuit." Proveris Scientific Corp. v. Innovasystems, Inc., 536 F.3d 1256, 1267 (Fed. Cir. 2008). The Third Circuit reviews the district court's evidentiary rulings for abuse of discretion. United States v. Williams, 458 F.3d 312, 315 (3d Cir. 2006).

Because the sole issue at trial was infringement by the Tradeshow Device, we see no abuse of discretion in the district court's decision to exclude the noninfringement opinion regarding the Commercial Device. Other available evidence shows that these two devices operate quite differently. For example, Invacare's own product manager, Ms. Hanley, testified that she had detected deep exhalation unloading when she used

the Tradeshow Device, but detected virtually none with the Commercial Device. J.A. 2323. Because independent claim 29 requires that the accused device provide breathing gas whose pressure "varies with fluctuations of the fluid characteristic," the Commercial Device's lack of appreciable variations in unloading (in contrast to that of the Tradeshow Device) would have been a critical difference for purposes of infringement. Given this key difference, the district court did not abuse its discretion in concluding that noninfringement by the Commercial Device was not probative of whether the Tradeshow Device infringed. See Fed. R. Evid. 401 (defining "relevant evidence" as "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence").

Invacare's reliance on Petree v. Victor Fluid Power, Inc., 887 F.2d 34 (3d Cir. 1989), is misplaced. Evidence in that case was relevant under Rule 402 but was excluded by the district court under Rule 403.[1] Petree, 887 F.2d at 37-38. The appeal there focused solely on admissibility under Rule 403. Id. at 40-41 (holding that the evidence was admissible for impeachment purposes). Here, by contrast, the district court sustained Respironics's objection that the noninfringement opinion was "[i]rrelevant." J.A. 220. Because we affirm this ruling under Rule 402, the parties' arguments regarding unfair prejudice and jury confusion are, themselves, irrelevant.

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[1] Federal Rule of Evidence 403 provides, with emphasis added, "Although relevant, evidence 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."

c. JMOL

Invacare appeals the denial of its JMOL motion, asserting that the jury's verdict regarding the V_{scale} variable used in the Tradeshow Device did not amount to a finding of infringement of the '517 patent. We review the denial of a JMOL motion under the law of the regional circuit. 800 Adept, Inc. v. Murex Sec., Ltd., 539 F.3d 1354, 1366 (Fed. Cir. 2008). In this regard, the Third Circuit asks "whether viewing the evidence in the light most favorable to the nonmovant and giving [the nonmovant] the advantage of every fair and reasonable inference, there is insufficient evidence from which a jury reasonably could reach the conclusions that it did." Rinehimer v. Cemcolift, Inc., 292 F.3d 375, 383 (3d Cir. 2002) (internal quotation marks omitted).

We conclude that Invacare's JMOL motion was properly denied. In that motion, Invacare argued that the question sent to the jury was not dispositive of infringement because it pertained only to a single claim element, and that there was no finding as to all other claim elements.[2] The district court held that Invacare had waived this argument because it had not been raised (and no missing claim elements had been identified) in opposition to Respironics's motion for summary judgment of infringement. JMOL Opinion at 10-11. Moreover, the district court held that Invacare had a duty of candor to come forward and help the court identify any remaining factual issues, rather than permit the court to conduct the entire proceeding on an issue the court thought was the sole issue in dispute. Id. at 11-12.

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[2] The question on the verdict form asked, "Has Respironics proven by the preponderance of the evidence that the V_{scale} variable in the Unloading Equation converts valve position information into flow rate units, that is, the volume of breathing gas moving per unit of time?" The jury checked "YES," above "Respironics wins." J.A. 2183.

We agree: "Counsel must remember that they are not only advocates for their clients; they are also officers of the court and are expected to assist the court in the administration of justice, particularly in difficult cases involving complex issues of law and technology." Allen Eng'g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1356 (Fed. Cir. 2002). In this case, the district court went to great lengths to understand a complex algorithm and to distill the myriad issues down to those issues in material dispute. The district court identified a single factual issue—unit conversion by the V_{scale} variable—which precluded entry of summary judgment and which would be resolved by a jury. Respironics, 511 F. Supp. 2d. at 598 ("If it does [convert valve position information into flow rate units], then defendant's trade show device infringed this patent. If it does not, then defendant's trade show device did not infringe this patent."). In response, Invacare filed a motion for reconsideration that was focused solely on the V_{scale} variable, nowhere addressing any other claim elements. When the district court denied this motion, it again stated that the V_{scale} variable was the sole issue for trial. Later, at an August 2007 status conference, both parties agreed that the only way to bring the infringement case to a close was for a jury to answer the question regarding the V_{scale} variable. See JMOL Opinion at 7-8 (recounting history of case). Invacare never filed any motion in limine indicating that there were additional issues for trial. Nor did it so indicate in either its proposed jury instruction or its proposed verdict form. Six weeks after the August 2007 status conference, and a mere three weeks before trial was scheduled to begin, Invacare stated that it wanted to present its new noninfringement defense, but again failed to identify any particular claim element that was missing from the Tradeshow Device. Id. at 9. Under these circumstances, we agree with the district court that

Invacare should not be permitted to overturn a judgment of infringement based on claim limitations that Invacare itself apparently conceded were met.

B. Anticipation

Invacare appeals the grant of Respironics's motion for summary judgment, which sought a determination that claims 21 and 43 of the '575 patent and claims 29, 30, and 32 of the '517 patent are not anticipated by a publication authored by Dr. Magdy Younes et al., titled "An apparatus for altering the mechanical load of the respiratory system," 62 J. Appl. Physiol. 2491 (1987) ("the Younes Article"). We review a district court's grant of summary judgment de novo. Leggett & Platt, Inc. v. VUTEk, Inc., 537 F.3d 1349, 1352 (Fed. Cir. 2008). "A patent is invalid as anticipated if every limitation in a claim is found in a single prior art reference." Nystrom v. TREX Co., 424 F.3d 1136, 1149 (Fed. Cir. 2005). "While anticipation is a question of fact, 'it may be decided on summary judgment if the record reveals no genuine dispute of material fact.'" Leggett & Platt, 537 F.3d at 1352 (quoting Golden Bridge Tech., Inc. v. Nokia, Inc., 527 F.3d 1318, 1321 (Fed. Cir. 2008)).

We agree with Invacare; the grant of summary judgment was improper because neither Respironics nor the district court identified any claim limitation that was not disclosed in the Younes Article. When Respironics moved for summary judgment, it identified the following distinctions between the patents and the Younes Article:

> a. The device disclosed [in the Younes Article] does not deal with the use of any of the illustrated functions for treatment of any particular condition (i.e., matching specific function with specific disease states) (id.);
> b. The Younes article discloses a generic apparatus that can deliver various desired pressure functions using a piston as the gas delivery source (id.); and

c. The apparatus has no means to detect and compensate for leaks (id.).

J.A. 1535. The problem with this list is that none of the cited distinctions is reflected in the claims of the patents. The first distinction is of no consequence because the claims of the '575 and '517 patents are not limited to the treatment of any particular condition or disease state, but generally recite "delivering pressurized breathing gas to an airway of a patient." The second misses the mark because the claims do not necessarily preclude using pistons as the gas delivery source. As for the third, leak detection is not recited in the claims. Respironics has never explained how these alleged differences relate to the claims of the '575 and '517 patents.

Moreover, in opposition to Respironics's motion, Invacare submitted several claim charts purporting to match each claim limitation with a specific disclosure in the Younes Article. J.A. 4528 (Def.'s Br. Opp. Pl.'s Mot. Partial Summ. J. 7); id. 806-09 (charts of '575 patent); id. 816-18 (charts of '517 patent). The district court's summary judgment opinion, however, does not refer to these charts; nor does the opinion explain which claim limitation(s) are missing in the Younes Article. We take no view on the technical merits of Invacare's claim charts, but note that the district court on remand should determine whether Invacare has shown the existence of a genuine issue of material fact. See Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1363 (Fed. Cir. 2005) (stating that an accused infringer "only needed to show the existence of a genuine issue of material fact in order to preclude summary judgment for" the patentee) (citing Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 252 (1986)). We therefore reverse the grant of summary judgment of validity with regard to claims 21 and 43 of the '575 patent and claims 29, 30, and 32 of the '517 patent. Although the district

court erred by granting summary judgment on the grounds set forth in Respironics's motion, Respironics may move again for summary judgment more clearly setting forth whatever patentable differences it believes exist over the Younes Article.

C. Additional Claim Constructions

Respironics requests that we construe various other terms that were not determinative in the district court's infringement analyses. We have, on occasion, exercised our discretion to construe such terms in the interest of judicial efficiency. Here, we decline to construe any additional terms in the '802 and '193 patents, because the district court correctly found no infringement of those patents under the term "selected higher and lower pressure magnitudes," and because those patents do not present any remaining issues on remand. See Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc., 450 F.3d 1350, 1352 (Fed. Cir. 2006) (declining to construe additional terms where noninfringement was affirmed under dispositive term and where no validity issues remained). However, because we have held, supra, that a remand is necessary to reconsider both infringement of the '575 patent and anticipation of the '575 and '517 patents, we shall review the disputed claim constructions of those patents. See Chimie v. PPG Indus., Inc., 402 F.3d 1371, 1375 n.2 (Fed. Cir. 2005) (construing second term after vacating summary judgment of noninfringement under first term, where "the construction of this second disputed term was not dispositive to the district court's decision, but may be relevant on remand").

1. Claim Construction of "fluid characteristic"

Respironics argues that "fluid characteristic" in the claims of the '575 and '517 patents should not be limited to just "flow rate," because the specification also discloses

"volume" as a fluid characteristic. See '575 patent col.23 ll.65-67 ("said fluid characteristic is one of a rate of said flow of gas within said patient interface and a volume of gas to be exhaled") (emphases added). We agree that the claim construction should be modified to include volume. Although volume can be calculated from flow rate, such a calculation would require additional steps to be performed: measuring time and then multiplying time by average flow rate (or integrating a time-varying flow rate). Aside from volume, however, Respironics points to no other fluid characteristic disclosed in the specification. Nor do we see any. Thus, properly construed, "fluid characteristic" means "flow rate or volume."

2. Claim Construction of "corresponding to"

Respironics also contends that the phrase "corresponding to" means something more than just "equal to." For the reasons stated above, our review here is limited to the term's use in the "sensing" step of the '517 patent's claim 29, which recites: "sensing a fluid characteristic associated with the flow of breathing gas and outputting a signal corresponding to the fluid characteristic." (emphasis added). In this context, we agree with Respironics that "corresponding to" is broader than "equal to." This particular step recites a "fluid characteristic," which we have construed, supra, to mean flow rate or volume. It would make no sense, then, to say that a flow rate or volume is "equal to" a signal, when the specification speaks of electrical signals that are typically measured in units of voltage or current. Two such things cannot be equal to one another. Rather, it is more proper to say that the two are functionally related to one another: the magnitude of the outputted signal varies as a function of the magnitude of the sensed flow rate or volume. These two things "correspond to" one another in the sense that they are

"similar, comparable, and/or matching"—the term's plain and ordinary meaning. Because the modified construction is broader than the construction under which infringement was found, our modification of "corresponding to" does not disturb the finding of infringement.

III. CONCLUSION

For the foregoing reasons, we affirm the judgment in all but two respects: we vacate the grant of summary judgment of noninfringement as to claims 21, 43, and 44 of the '575 patent; and reverse the grant of summary judgment of validity as to claims 21 and 43 of the '575 patent and claims 29, 30, and 32 of the '517 patent. We remand the case for further proceedings consistent with this opinion.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, AND REMANDED