

United States Court of Appeals for the Federal Circuit

2006-1491, 2007-1180

EXERGEN CORPORATION,

Plaintiff-Cross Appellant,

v.

WAL-MART STORES, INC.

HANA MICROELECTRONICS CO., LTD., and CVS CORPORATION,

Defendants,

and

S.A.A.T. SYSTEMS APPLICATION OF ADVANCED TECHNOLOGY, LTD.

and DAIWA PRODUCTS, INC.,

Defendants-Appellants.

Heidi E. Harvey, Fish & Richardson P.C., of Boston, Massachusetts, argued for plaintiff-cross appellant. With her on the brief were Gregory A. Madera and Thomas A. Brown.

Peter M. Midgley, Jr., Zarian Midgley & Johnson PLLC, of Boise, Idaho, argued for defendants-appellants. With him on the brief was Dana M. Herberholz.

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

Judge Reginald C. Lindsay

United States Court of Appeals for the Federal Circuit

2006-1491, 2007-1180

EXERGEN CORPORATION,

Plaintiff-Cross Appellant,

v.

WAL-MART STORES, INC.
HANA MICROELECTRONICS CO., LTD., and CVS CORPORATION,

Defendants,

and

S.A.A.T. SYSTEMS APPLICATION OF ADVANCED TECHNOLOGY, LTD.
and DAIWA PRODUCTS, INC.,

Defendants-Appellants.

Appeals from the United States District Court for the District of Massachusetts in case no. 01-CV-11306, Judge Reginald C. Lindsay.

DECIDED: August 4, 2009

Before MICHEL, Chief Judge, LINN, Circuit Judge, and ST. EVE, District Judge.*

LINN, Circuit Judge.

S.A.A.T. Systems Application of Advanced Technology, Ltd. and Daiwa Products, Inc. (collectively "SAAT") appeal the denial of their motion for judgment as a matter of law ("JMOL") after a jury found that SAAT willfully infringed U.S. Patents No.

* The Honorable Amy J. St. Eve, District Judge, United States District Court for the Northern District of Illinois, sitting by designation.

5,012,813 (“the ’813 patent”), No. 6,047,205 (“the ’205 patent”), and No. 6,292,685 (“the ’685 patent”) and awarded lost profit damages to the patentee, Exergen Corporation (“Exergen”). Exergen Corp. v. Wal-Mart Stores, Inc., No. 01-CV-11306 (D. Mass. Aug. 4, 2005). SAAT further appeals the denial of its motion for leave to amend its answer to allege that the ’813 and ’685 patents are unenforceable due to inequitable conduct. Exergen cross-appeals the denial of its motion to alter or amend judgment for an award of enhanced damages and prejudgment interest.

We conclude that all claims of the ’205 patent are anticipated and that no substantial evidence supports the jury’s contrary finding. Furthermore, we conclude that Exergen failed to introduce substantial evidence to support the jury’s finding that the ’813 and ’685 patents are infringed. Because our invalidity and non-infringement determinations require that we reverse the damages award, we need not address Exergen’s cross-appeal regarding enhanced damages and prejudgment interest. Finally, we conclude that the district court did not abuse its discretion in denying SAAT’s motion to amend its pleading because it correctly held that SAAT’s proposed allegations of inequitable conduct failed to satisfy the heightened pleading requirement of Federal Rule of Civil Procedure 9(b). Thus, we affirm-in-part and reverse-in-part.

BACKGROUND

Exergen’s patents relate to infrared thermometers for measuring human body temperature. The thermometers first detect infrared radiation emitted from a surface of the human body, such as the tympanic membrane (eardrum) or the skin of the forehead, to obtain the surface temperature. The surface temperature is a function of both the internal (core) temperature within the body and the ambient (air) temperature to

which the surface is exposed. From the detected surface temperature, the thermometers calculate the internal temperature in accordance with equations provided in the patents and then display a digital readout thereof. For example, the '813 and '205 patents disclose a thermometer that detects radiation from the tympanic membrane, but the claims of those patents are directed more broadly to detecting radiation from "biological tissue." The '685 patent, by contrast, is directed to a thermometer that detects radiation from the skin that covers the temporal artery in the temple region near the side of the forehead.

SAAT manufactures thermometers that detect radiation from the skin that covers the temporal artery. After detecting this radiation, SAAT's thermometers convert the measured surface reading to the patient's oral temperature, which is the commonly used temperature measurement in the United States.

Exergen sued SAAT for infringement of the '813 and '205 patents on July 27, 2001. The '685 patent issued on September 18, 2001, and was added to the suit on October 2, 2001. SAAT answered by asserting affirmative defenses and counterclaims of both noninfringement and invalidity. On September 6, 2002, SAAT sought leave pursuant to Federal Rule of Civil Procedure 15(a) to add inequitable conduct as an affirmative defense and counterclaim against the '813 and '685 patents. Exergen Corp. v. Wal-Mart Stores, Inc., No. 01-CV-11306 (D. Mass. Sept. 6, 2002) (Dkt. No. 51) ("Answer"). The district court denied SAAT's motion, stating that the proposed pleading failed to allege inequitable conduct with particularity under Rule 9(b).

The court then conducted a hearing on claim construction and construed two terms in claim 7 of the '813 patent. First, the court construed "biological surface tissue"

to mean “a living layer of external human tissue having a temperature that can be measured.” Exergen Corp. v. Wal-Mart Stores, Inc., No. 01-CV-11306, slip op. at 10 (D. Mass. July 14, 2004) (“Claim Construction Order”). Second, the court construed “internal temperature” to mean “temperature of the region existing beneath the surface of the biological tissue targeted for measurement.” Id. The parties agreed that these terms were the only terms at issue in the case. Moreover, before trial, Exergen waived any argument that SAAT infringed under the doctrine of equivalents.

The case then proceeded to a jury trial on a theory of literal infringement only. The jury found that SAAT directly infringed claim 7 of the '813 patent and claims 1 and 3-5 of the '205 patent, and that SAAT actively induced infringement of claims 1 and 27-30 of the '685 patent. Infringement of each patent was found to be willful. The jury also found in favor of Exergen on SAAT's invalidity defenses. Finally, the jury awarded lost profit damages totaling more than \$2.5 million.

SAAT moved for JMOL on the grounds of noninfringement, invalidity, and absence of lost profits. These motions were denied on March 24, 2006. Exergen moved to alter or amend judgment for an award of enhanced damages and prejudgment interest. This motion was denied on January 12, 2007.

SAAT and Exergen appeal. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

I. Standard of Review

We review the denial of a motion for JMOL under the law of the regional circuit. See 800 Adept, Inc. v. Murex Sec., Ltd., 539 F.3d 1354, 1366 (Fed. Cir. 2008). In the First Circuit, “[t]he district court’s decision to grant or deny a motion for judgment as a

matter of law is reviewed de novo.” Soto-Lebron v. Fed. Express Corp., 538 F.3d 45, 56 (1st Cir. 2008). JMOL is appropriate if “the presentation of the party’s case reveals no ‘legally sufficient evidentiary basis’ for a reasonable jury to find for that party.” Mag Jewelry Co. v. Cherokee, Inc., 496 F.3d 108, 117 (1st Cir. 2007) (quoting Fed. R. Civ. P. 50(a)(1)). Anticipation and infringement are both questions of fact, which, when found by a jury, are generally reviewed for substantial evidence. See Cordis Corp. v. Boston Scientific Corp., 561 F.3d 1319, 1330, 1335 (Fed. Cir. 2009).

The denial of a motion to amend a pleading under Rule 15(a) is a procedural matter governed by the law of the regional circuit. See Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Solutions, P.C., 482 F.3d 1347, 1357 (Fed. Cir. 2007). The First Circuit reviews the denial of a Rule 15(a) motion for an abuse of discretion. See Trans-Spec Truck Serv., Inc. v. Caterpillar Inc., 524 F.3d 315, 326 (1st Cir. 2008). Whether inequitable conduct has been pleaded with particularity under Rule 9(b) is a question governed by Federal Circuit law. See Cent. Admixture, 482 F.3d at 1356.

II. Anticipation

SAAT challenges the jury’s finding that claims 1-5 of the ’205 patent are not anticipated by U.S. Patent No. 4,602,642 (“O’Hara”). “To anticipate a claim, a single prior art reference must expressly or inherently disclose each claim limitation.” Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1334 (Fed. Cir. 2008).

Claim 1 is the sole independent claim of the ’205 patent. It recites:

1. A method of detecting temperature of biological tissue comprising:
 - providing a radiation detector for sensing infrared radiation from an external target;
 - sensing radiation from multiple areas of the biological tissue with the radiation detector; and

electronically detecting the peak radiation from the multiple areas to obtain a peak temperature signal.

'205 patent col.20 ll.46-54.

O'Hara issued more than two years before the earliest priority date of the '205 patent. O'Hara discloses "a method and apparatus for measuring the internal temperature of a patient's body by sensing infrared emissions in the external ear canal." O'Hara col.3 ll.8-10. This apparatus includes a handheld "probe unit" containing "an infrared sensitive thermopile detector," id. col.3 ll.37-40, and a base or "chopper unit" that mates with and heats the probe unit to 98°F for calibration immediately prior to use, id. col.3 ll.32-36. When a user removes the probe unit from the chopper unit, the system begins taking radiation measurements at a rate of seven times per second and stores the maximum reading. Id. col.12 ll.37-47. From the time that the probe unit is removed from the chopper unit, the user has ten seconds to insert the probe into the external ear canal and press the SCAN key. Id. col.12 ll.61-65. When the SCAN key is pressed, "[t]he maximum reading from the beginning of the removal of the probe unit from the chopper unit is displayed as the tympanic temperature." Id. col.13 ll.7-9.

Exergen's expert, Dr. Pompei, admitted at trial that O'Hara discloses all limitations of claim 1 except the third step, namely, "electronically detecting the peak radiation from the multiple areas to obtain a peak temperature signal." J.A. 6502-03 (39:14-40:12). On appeal, Exergen also focuses only on this third step and presents two arguments for distinguishing O'Hara. First, Exergen argues that O'Hara heats the probe unit to 98°F and detects this radiation in addition to the radiation detected from the patient. Second, Exergen argues that O'Hara detects radiation only from a single

spot, not from “multiple areas,” in the ear canal after the SCAN key is pressed. Neither of these arguments, however, provides a plausible basis for distinguishing O’Hara.

First, nothing in claim 1 of the ’205 patent requires the detector to detect radiation solely from the biological tissue. The claim uses the term “comprising,” which is well understood in patent law to mean “including but not limited to.” CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360 (Fed. Cir. 2007); see Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368 (Fed. Cir. 2003) (“The transition ‘comprising’ in a method claim indicates that the claim is open-ended and allows for additional steps.”). The fact that O’Hara detects radiation from the heated probe, in addition to detecting the peak radiation from multiple areas of the biological tissue to obtain a peak temperature signal, does not prevent O’Hara from anticipating claim 1. Moreover, Exergen does not argue that a heated probe is incapable of detecting radiation from sources having a lower temperature. To the contrary, Exergen concedes that the detection of radiation is an additive process that allows radiation to be detected from both the heated probe and the biological tissue. Pl.-Cross Appellant’s Br. 31 (stating that O’Hara’s “own radiation is always added to the radiation it is detecting from random targets that it encounters along the way” (emphasis added)).

Second, Exergen’s contention that O’Hara detects radiation only from a single spot, not from “multiple areas,” is unsupported by substantial evidence. In fact, Exergen’s expert, Dr. Pompei, testified that O’Hara inherently discloses this limitation:

Q. While you’re moving this probe unit from the chopper unit, is it -- what is it measuring?

A. It’s measuring infrared radiation.

* * *

Q. And you have to move it along the side of the patient's face to get to the ear, don't you?

A. Yes.

Q. During the period that you're moving along the side of the patient's face, what's it measuring? What's it doing?

A. It's measuring radiation.

J.A. 6495-96 (32:25-33:12 (emphasis added)). Because a user of O'Hara's method would necessarily detect radiation from the patient's face, outer ear, and ear canal at a rate of seven times per second while inserting the probe unit into the ear canal, O'Hara inherently discloses the detection of radiation from "multiple areas" of biological tissue. See Trintec Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1295 (Fed. Cir. 2002) ("Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." (quoting In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999))). Exergen also contends, with respect to the "multiple areas" limitation, that O'Hara's probe unit employs a detector with a wide field of view, which, once inserted into the ear canal, measures radiation from only one spot of the ear canal after the SCAN key is pressed. Exergen's argument overlooks the fact that the term "biological tissue" in claim 1 is not limited to "ear canal," and the fact that O'Hara detects radiation from multiple areas of the body during the entire time that the probe unit is being inserted into the ear canal, even before the SCAN key is pressed. O'Hara unambiguously states that "[t]he maximum reading from the beginning of the removal of the probe unit from the chopper unit is displayed as the tympanic temperature." O'Hara col.13 ll.7-9 (emphasis added). The record also reflects that as the probe unit is moved into position in the ear canal, it necessarily passes over—and detects radiation from—the face, outer ear, and ear canal along the way. Because

O'Hara obtains a peak temperature signal corresponding to a peak radiation detected over the patient's face, outer ear, and ear canal—i.e., multiple areas of the biological tissue—O'Hara anticipates claim 1.

Exergen presents no separate argument as to the validity of dependent claims 2-5. The limitations of those claims are readily found in O'Hara. Compare '205 patent claim 2 (“a temperature display for displaying the peak temperature”), with O'Hara col.4 ll.25-26 (“The internal body temperature . . . is displayed on the LCD.”); compare '205 patent claim 3 (“the radiation sensor is a thermopile”), with O'Hara col.3 ll.39-40 (“an infrared sensitive thermopile detector”); compare '205 patent claim 4 (“sounding an audible tone from the radiation detector to indicate detection of peak radiation”), with O'Hara col.13 ll.11-13 (“the audio indicator is energized to signal completion of the temperature reading process”); compare '205 patent claim 5 (“the biological tissue is scanned with movement of the radiation detector”), with O'Hara col.12 ll.59-61 (“The user then inserts the speculum covered probe into the external ear canal using moderate pressure.”).

We therefore reverse the jury's finding that all claims of the '205 patent are not invalid. Moreover, because “invalid claim[s] cannot give rise to liability for infringement,” Medtronic, Inc. v. Cardiac Pacemakers, Inc., 721 F.2d 1563, 1583 (Fed. Cir. 1983), SAAT cannot be liable for infringement of this patent.

III. Infringement

SAAT challenges the jury's findings that SAAT directly infringed the '813 patent and actively induced infringement of the '685 patent. “Direct infringement requires a party to perform each and every step or element of a claimed method or product.” BMC

Res., Inc. v. Paymentech, L.P., 498 F.3d 1373, 1378 (Fed. Cir. 2007). Active inducement requires the patentee to prove “first that there has been direct infringement, and second that the alleged infringer knowingly induced infringement and possessed specific intent to encourage another’s infringement.” Minn. Mining & Mfg. Co. v. Chemque, Inc., 303 F.3d 1294, 1304-05 (Fed. Cir. 2002) (citations omitted).

A. The '813 Patent

Claim 7 is the sole claim of the '813 patent found infringed. It recites, with key term emphasized:

7. A radiation detector comprising:
 - a thermopile mounted to view a target of biological surface tissue;
 - a temperature sensor for sensing ambient temperature;
 - an electronic circuit coupled to the thermopile and temperature sensor and responsive to the voltage across the thermopile and the temperature sensed by the sensor to provide an indication of an internal temperature within the biological tissue adjusted for the ambient temperature to which the surface tissue is exposed; and
 - a display for providing an indication of the internal temperature.

'813 patent col.14 ll.50-63.

SAAT argues that its device does not possess “a display for providing an indication of the internal temperature” as recited in the claim. The district court construed “internal temperature” to mean “temperature of the region existing beneath the surface of the biological tissue targeted for measurement.” Claim Construction Order at 10. Neither SAAT nor Exergen challenges the construction of “internal temperature.” Moreover, because SAAT’s device targets the patient’s forehead area for measurement, it is undisputed that the relevant “internal temperature” here is the temperature of the temporal artery beneath the skin of the forehead. SAAT’s device, however, measures infrared radiation from the patient’s forehead to calculate and

display a digital readout of the patient's oral temperature, which is different from (and typically lower than) the patient's temporal artery temperature. Although Exergen told the jury that "an oral temperature is an internal temperature," J.A. 188 (119:21-22), Exergen now retracts that statement and acknowledges that the "internal temperature" here is "the temperature of the temporal artery beneath the skin of the forehead that is targeted," Pl.-Cross Appellant's Br. 35 (emphasis added). For these reasons, SAAT argues that its device does not infringe.

Exergen responds that oral temperature, while not itself an internal temperature, is nevertheless an "indication" of internal temperature because the two temperatures can be compared and correlated to one another in a clinical lookup table. Exergen further argues that SAAT did not seek any particular construction of the term "indication" and thus SAAT has waived its attempt to construe "indication" to mean "reading."

We observe that it is Exergen, not SAAT, which seeks to change the ordinary meaning of "indication" that was given to the jury. Exergen's own expert and co-inventor on the '813 patent, Dr. Pompei, testified on direct examination that the phrase "a display for providing an indication" in claim 7 means that "[o]n the display it reads a temperature that is -- you know, is the internal temperature." J.A. 6346 (184:13-14 (emphasis added)). His testimony made clear that the number shown on the display must itself be the value of the internal temperature; it cannot be some other value requiring further (mental) computation before arriving at the internal temperature. Id. 6346 (184:8-10 (Dr. Pompei testifying with respect to claim 7 that "[w]hen scanning the surface of the skin, then the temperature that I display here is the temperature underneath, somewhere inside that tissue"))).

We further decline to find waiver against SAAT in view of Exergen's misleading statement to the jury that "an oral temperature is an internal temperature" in the context of a forehead thermometer—a statement that directly contradicts the district court's earlier construction of "internal temperature." See Claim Construction Order at 10. Once a district court has construed the relevant claim terms, and unless altered by the district court, then that legal determination governs for purposes of trial. No party may contradict the court's construction to a jury.

Because it is undisputed that SAAT's device possesses a display for providing a reading of oral temperature rather than the temperature of the temporal artery beneath the skin of the forehead, the device cannot infringe claim 7 of the '813 patent. We therefore reverse the jury's finding that this patent is infringed.

B. The '685 Patent

The jury found that SAAT actively induced infringement of claims 1 and 27-30 of the '685 patent. Inducement requires a threshold finding of direct infringement. Because Exergen presented no evidence of any "specific instance of direct infringement," Exergen was required to show that "the accused device necessarily infringes the patent in suit." ACCO Brands, Inc. v. ABA Locks Mfrs. Co., 501 F.3d 1307, 1313 (Fed. Cir. 2007) (citing Dynacore Holdings Corp. v. U.S. Philips Corp., 363 F.3d 1263, 1275-76 (Fed. Cir. 2004)). Exergen relied on instructions and drawings accompanying SAAT's infrared thermometers as circumstantial evidence that customers would necessarily infringe the '685 patent. See Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1272 (Fed. Cir. 1986) (holding that sales of product with instructions to use product in an infringing manner may constitute circumstantial

evidence that customers would use the product in the manner directed). As we shall explain, however, any customer who actually followed SAAT's instructions would not have performed the steps recited in the asserted claims of the '685 patent and thus would not have directly infringed the patent. Accordingly, we reverse the jury's finding that SAAT actively induced infringement of this patent.

1. Claim 1

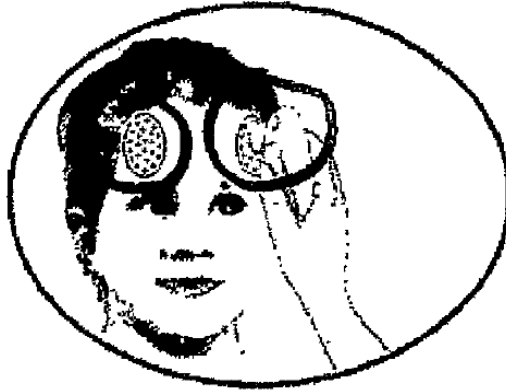
Claim 1 recites:

1. A method of detecting human body temperature comprising:
laterally scanning a temperature detector across a forehead; and
providing a peak temperature reading from plural readings during
the step of scanning.

'685 patent col.9 ll.15-20. The parties agree that "laterally" means "horizontal relative to the human body." Pl.-Cross Appellant's Br. 42.

Exergen presented evidence of sales of two types of thermometers: ThermoTek and CVS.¹ Both thermometers were sold with instructions containing the following drawing:

¹ A third product, the Safety 1st thermometer, was never sold to end users. Exergen concedes that "the record does not support a finding of induced infringement of the '685 patent with respect to the Safety 1st thermometer." Pl.-Cross Appellant's Br. 47.



J.A. 7917, 7951 (two circles added during trial). The instructions for the ThermoTek thermometer state, “Scan with the thermometer around the temple area (marked as dotted area in the drawing).” Id. at 7917 (emphasis added). The instructions for the CVS thermometer state, “Place the thermometer’s soft touch tip just outside the eyebrow (in the temple region of the forehead) and slowly slide upwards to just below the hairline.” Id. at 7951 (emphasis added).

SAAT argues that a user following either set of instructions would not be “laterally scanning . . . across a forehead,” as recited in the claim, because the two oval patterns (marked as the dotted areas) are located only on the temples and are oriented vertically relative to the human body. Exergen responds that each oval pattern includes at least some horizontal component, which Exergen believes is sufficient to constitute “laterally scanning.”

We agree with SAAT. Even if the term “laterally scanning” captures the minimal horizontal movement envisioned by Exergen (an issue on which we express no opinion), Exergen’s argument ignores the claim language requiring the lateral scan to occur “across a forehead,” not merely within the temple region located on one side of

the forehead. In fact, counsel for Exergen told the jury to essentially ignore this requirement:

[MS. HARVEY:] The only other issue on this is whether or not, with Claim 1, there's a lateral scan. . . .

And I was thinking, you know, dogs go straight to where they're going across, and my cats go around in a circle to get there, but they both end up at the same place. When you go around in a circle, you have gone across. It doesn't matter if I -- it would be like saying cross the Charles River going east. Well, you can cross the Charles River going east, west, north and south, depending on which bridge you take, right? You crossed the river, you've crossed the river.

. . . . And Doctor Pompei admitted that if you followed strictly their instructions to start out here at the outside of the eyebrow and go straight up to the hairline, that would not be a lateral scan. On the other hand, if they're scanning in this direction, they're doing both vertical and lateral. And this is word-sniffing to try to hide out from that claim of the patent because the point is -- and you saw him take the temperature on the front cover of the '685 patent. The point of those instructions is to find the temporal artery. It's to make sure that you cross it, right? And these instructions ensure that you cross the temporal artery.

J.A. 199-200 (130:8-131:10 (emphases added)).

Thus, Exergen posited to the jury that scanning within one of the oval patterns in the temple region was sufficient to infringe claim 1 because such a scan would achieve substantially the same result as scanning across the forehead, namely, crossing the temporal artery. The claim recites "across a forehead," not "across a temporal artery." The ThermoTek instruction says to scan "around the temple area (marked as dotted area in the drawing)"—a motion that is more limited than scanning "across a forehead." Exergen's insistence on the sufficiency of merely crossing the temporal artery, including its criticism of SAAT's alleged "word-sniffing," is an argument sounding in the doctrine of equivalents—a doctrine "designed to do equity" and "to relieve an inventor from a semantic strait jacket," Perkin-Elmer Corp. v. Westinghouse Elec. Corp., 822 F.2d 1528, 1532 (Fed. Cir. 1987), but one which Exergen expressly waived before trial. Under a

theory of literal infringement, to which Exergen was limited, no reasonable jury could have found that scanning within an oval pattern in the temple region on one side of the forehead meets the literal requirement of scanning “across a forehead.”

Exergen also points to the testimony of SAAT’s president, Mr. Gerlitz, who described the operation of the accused thermometer as follows: “when it shows ‘ready,’ you can go to the temple and start to go from the left side of the left eyeball to the right side of the right eyeball.” J.A. 7360 (54:14-16 (emphasis added)). Exergen’s reliance on this testimony is misplaced for two reasons. First, Mr. Gerlitz was not referring to the instructions sold with the ThermoTek or CVS thermometers, which instruct only to scan inside the dotted oval patterns in a noninfringing manner. Second, his testimony shows merely that the thermometers “can” be used in an infringing manner by scanning across the forehead from one temple to the other, as opposed to the noninfringing manner disclosed in the ThermoTek or CVS instructions. “Because the accused device can be used at any given time in a noninfringing manner, the accused device does not necessarily infringe the [patent-in-suit].” ACCO Brands, 501 F.3d at 1313.

Because no reasonable jury could have found that a purchaser of SAAT’s thermometers, who actually followed the accompanying instructions, would have performed the steps recited in claim 1, we reverse the jury’s finding that SAAT actively induced infringement of this claim.

2. Claim 27

Claim 27 recites:

27. A method of detecting human body temperature comprising measuring temperature of the temporal artery through skin.

'685 patent col.10 ll.58-60.

SAAT argues that its device does not measure the “temperature of the temporal artery through skin” as recited in the claim but measures only the surface temperature of the skin that covers the temporal artery. It is undisputed that ambient air causes the skin to be at a lower temperature than the temporal artery. SAAT’s device then converts this skin temperature measurement to oral temperature, which again is different from the temperature of the temporal artery.

Exergen responds, citing portions of Dr. Pompei’s testimony, ostensibly for the proposition that “sensing the temperature of the forehead in the temple area as defendants’ instructions direct will necessarily measure the temperature of the temporal artery.” Pl.-Cross Appellant’s Br. 45 (citing J.A. 6417-19 (66:6-68:19), 6420-22 (69:13-71:14)).

Exergen overstates the record.² All that Dr. Pompei said in his testimony was that a user scanning within the temple area would necessarily scan over the temporal artery. J.A. 6417 (66:21 (“it’s scanning over the temporal artery”)), 6418 (67:18-20 (“the

² This was not the only occasion when an argument by Exergen’s counsel drifted from the record or the court’s rulings. See J.A. 188 (119:21-22 (arguing, contrary to the district court’s construction, that “an oral temperature is an internal temperature” in the context of a forehead thermometer)), 200 (131:5 (dismissing as “word-sniffing” the requirement that the lateral scan occur “across a forehead” rather than merely “across a temporal artery”)); compare Pl.-Cross Appellant’s Br. 42 (arguing that customers’ use of Safety 1st thermometer constitutes substantial evidence of induced infringement of the ’685 patent), with id. at 47 (conceding that “the record does not support a finding of induced infringement of the ’685 patent with respect to the Safety 1st thermometer”). While this form of advocacy may have resulted in a short-lived victory at trial, it does not serve the interests of the client or the interests of the court. See Allen Eng’g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1356 (Fed. Cir. 2002) (“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.”). Because we reverse the jury’s findings of infringement, we need not consider whether counsel’s conduct so prejudiced SAAT as to warrant a new trial.

infrared detector . . . is scanned across the temporal artery”)), 6419 (68:6-7 (“it crosses over the temporal artery”)), 6421 (70:21-22 (“it’s right at the location of the temporal artery”)), 6422 (71:13-14 (“you’d still cross the temporal artery”)). He never equated this act with measuring the temperature of the temporal artery. Nor did he state that the temperature of the skin is the same as the temperature of the temporal artery. To the contrary, the specification of the ’685 patent, which names Dr. Pompei as the sole inventor, makes clear that skin loses heat to the air as a function of the ambient temperature (“ T_a ”) at the same time that the skin is heated by the core arterial blood supply, such as the blood supply in the temporal artery. ’685 patent col.2 ll.14-36; col.7 ll.3-38. Skin temperature (“ T_s ”) is expressly distinguished from core temperature (“ T_c ”). Id. col.7 ll.24-25. The specification then provides an equation to “calculate core temperature T_c when skin temperature T_s and ambient temperature T_a are known.” Id. col.7 ll.39-41.

Simply put, a measurement of the temperature of the skin is not a measurement of the temperature of the temporal artery beneath the skin. It requires a further computation to arrive at the temperature of the temporal artery, a computation that SAAT’s device indisputably does not perform. Thus, a customer using SAAT’s device would not have infringed independent claim 27 or its dependent claims 28-30. See Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1329 n.5 (Fed. Cir. 2008) (“A conclusion of noninfringement as to the independent claims requires a conclusion of noninfringement as to the dependent claims.”). In the absence of direct infringement, SAAT cannot be liable for induced infringement.

IV. Inequitable Conduct

The district court denied SAAT's motion to add inequitable conduct as an affirmative defense and counterclaim against the '813 and '685 patents, holding that SAAT's proposed pleading failed to allege inequitable conduct with particularity under Rule 9(b). On appeal, SAAT focuses only on its allegations concerning the '685 patent.

The relevant portion of SAAT's proposed pleading states:

40. The '685 patent is unenforceable due to inequitable conduct by Exergen, its agents and/or attorneys during the prosecution of the application for the '685 patent before the PTO.

41. Prior to the filing of the '685 patent application, Exergen filed a patent application that ultimately issued as U.S. Patent No. 4,566,808 (hereinafter referred to as "the '808 patent") on January 28, 1986. Thus, Exergen was aware of the '808 patent well before the '685 patent issued on September 18, 2001. The '808 patent was material to the patentability of the '685 patent because it discloses a technique of scanning a radiation detector across a target to measure the maximum emitted radiation, and it is not cumulative to the information already of record in the prosecution history of the '685 patent.

42. In addition, U.S. Patent No. 4,317,998 (hereinafter referred to as "the '998 patent") was cited in a Supplemental Information Disclosure Statement filed by Exergen on October 17, 1997 in connection with the prosecution of the '205 patent. Thus, Exergen was aware of the '998 patent well before the '685 patent issued on September 18, 2001. The '998 patent was material to the patentability of the '685 patent because it discloses a technique of swiping a radiation detector across a target, and it is not cumulative to the information already of record in the prosecution history of the '685 patent.

43. Because Exergen was aware of the '808 patent and the '998 patent prior to the issuance of the '685 patent, Exergen had an opportunity to disclose each of these patents to the PTO during the prosecution of the '685 patent. Moreover, because the '808 patent and the '998 patent were material to the patentability of the '685 patent, Exergen had an obligation to disclose each of these patents to the PTO. Nevertheless, Exergen failed to cite either of these patents to the PTO during the prosecution of the '685 patent. SAAT is informed and believes, and therefore alleges, that Exergen, its agents and/or attorneys intentionally withheld the '808 patent and the '998 patent from the PTO with the intent to deceive the PTO to issue the '685 patent.

44. In addition, during the prosecution of the '685 patent application, Exergen made a number of arguments to the PTO to overcome rejections of the pending claims based upon various prior art references related to tympanic temperature detectors. For example, in an Amendment filed on July 31, 2000, the following statements were made to the PTO:

What was nonobvious . . . was that reliable temperature measurements could be obtained from the forehead by extending techniques initially developed for the tympanic membrane. What had not been generally appreciated by those skilled in the art of temperature measurement was that the superficial temporal artery . . . provides an exceptionally reliable temperature reading.

45. These arguments made to the PTO were contradicted by statements from Exergen's own website, such as the following statement which appeared on the website at the time of the July 31, 2000 Amendment:

The temporal artery area has a long history of temperature measurement, dating back to the early centuries before Christ with the first recorded references to palpation of the head for fever assessment.

46. Thus, while Exergen acknowledged on its website that the temporal artery has a long history of temperature measurement, Exergen misrepresented to the PTO that no such history existed and omitted any reference to the website. The misrepresentation and omission were material to the patentability of the '685 patent because the information was not cumulative to the information already of record in the prosecution history of the '685 patent, and it refutes, or is inconsistent with, a position taken by Exergen in asserting an argument of patentability. SAAT is informed and believes, and therefore alleges, that the misrepresentation and omission were made with the intent to deceive the PTO to issue the '685 patent.

Answer ¶¶ 40-46.

SAAT argues that its allegations pass muster under the First Circuit's "time, place, and content" test for Rule 9(b) pleadings, citing McGinty v. Beranger Volkswagen, Inc., 633 F.2d 226, 228 (1st Cir. 1980). But see Alternative Sys. Concepts, Inc. v. Synopsys, Inc., 374 F.3d 23, 29 (1st Cir. 2004) (requiring identification of "the who, what, where, and when of the allegedly false or fraudulent representation"). Contrary to SAAT's suggestion, however, we apply our own law, not the law of the

regional circuit, to the question of whether inequitable conduct has been pleaded with particularity under Rule 9(b). See Cent. Admixture, 482 F.3d at 1356 (stating that whether inequitable conduct has been adequately pleaded is a question of Federal Circuit law because it “pertains to or is unique to patent law”).

Rule 9(b) requires that “[i]n all averments of fraud or mistake, the circumstances constituting fraud or mistake shall be stated with particularity.” “[I]nequitable conduct, while a broader concept than fraud, must be pled with particularity” under Rule 9(b). Ferguson Beauregard/Logic Controls, Div. of Dover Resources, Inc. v. Mega Sys., LLC, 350 F.3d 1327, 1344 (Fed. Cir. 2003). A pleading that simply avers the substantive elements of inequitable conduct, without setting forth the particularized factual bases for the allegation, does not satisfy Rule 9(b).³ See King Auto., Inc. v. Speedy Muffler King, Inc., 667 F.2d 1008, 1010 (CCPA 1981) (“Rule 9(b) requires that the pleadings contain explicit rather than implied expression of the circumstances constituting fraud.”). For example, in a case where inequitable conduct was alleged on the basis that an applicant “failed to disclose all the relevant prior art known to it,” we found this allegation deficient because it did not identify the specific prior art that was allegedly known to the applicant and not disclosed. Cent. Admixture, 482 F.3d at 1356-57 (internal quotation marks omitted). In that case, the accused infringer also alleged that the applicant “sought to mislead the [PTO] regarding the relationship between the claimed invention

³ The substantive elements of inequitable conduct are: (1) an individual associated with the filing and prosecution of a patent application made an affirmative misrepresentation of a material fact, failed to disclose material information, or submitted false material information; and (2) the individual did so with a specific intent to deceive the PTO. See Star Scientific, Inc. v. R.J. Reynolds Tobacco Co., 537 F.3d 1357, 1365 (Fed. Cir. 2008); Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178, 1181 (Fed. Cir. 1995); 37 C.F.R. § 1.56 (2008).

and the prior art” “by manipulation of various measurements and units.” Id. at 1356 (internal quotation marks omitted). This pleading, too, was deficient because it failed to identify “what ‘measurements and units’ were manipulated, or how that manipulation was meant to mislead the PTO.” Id. at 1357. As the Seventh Circuit has held, the “circumstances” in Rule 9(b) must be set forth with “particularity,” i.e., they “must be pleaded in detail”—“[t]his means the who, what, when, where, and how” of the alleged fraud. DiLeo v. Ernst & Young, 901 F.2d 624, 627 (7th Cir. 1990). Based on the foregoing, and following the lead of the Seventh Circuit in fraud cases, we hold that in pleading inequitable conduct in patent cases, Rule 9(b) requires identification of the specific who, what, when, where, and how of the material misrepresentation or omission committed before the PTO.

Rule 9(b) also states that “[m]alice, intent, knowledge, and other conditions of mind of a person may be averred generally.” The relevant “conditions of mind” for inequitable conduct include: (1) knowledge of the withheld material information or of the falsity of the material misrepresentation, and (2) specific intent to deceive the PTO. See Hebert v. Lisle Corp., 99 F.3d 1109, 1116 (Fed. Cir. 1996); Molins, 48 F.3d at 1181. Although “knowledge” and “intent” may be averred generally, our precedent, like that of several regional circuits, requires that the pleadings allege sufficient underlying facts from which a court may reasonably infer that a party acted with the requisite state of mind.⁴

⁴ See, e.g., N. Am. Catholic Educ. Programming Found., Inc. v. Cardinale, 567 F.3d 8, 13 (1st Cir. 2009) (“Rule 9(b) requires not only specifying the false statements and by whom they were made but also identifying the basis for inferring scienter.”); Tricontinental Indus., Ltd. v. PricewaterhouseCoopers, LLP, 475 F.3d 824,

In Ferguson Beauregard, an accused infringer alleged that a patentee had made an affirmative misrepresentation to the PTO in a petition under 35 U.S.C. § 41(c), in which the patentee declared that its late payment of a patent maintenance fee was “unintentional.” 350 F.3d at 1343. In its pleadings, the accused infringer averred scienter generally. Id. at 1344 (alleging that the patentee “did not have firsthand knowledge of the facts and circumstances surrounding the late payment” and that the late payment “was not unintentional”). We affirmed the district court’s decision to strike the inequitable conduct allegations as failing to provide a factual basis for the assertion that the patentee’s late payment was “not unintentional,” stating that “we decline to infer facts to support a claim that must be pled with particularity.” Id.; Ferguson Beauregard/Logic Controls Div. of Dover Res., Inc. v. Mega Sys., LLC, No. 99-CV-437, slip op. at 10 (E.D. Tex. Aug. 14, 2000) (“Merely putting the words . . . ‘inequitable conduct’ in a[n] . . . Answer will not be sufficient to unleash the mischief” of the defense.).

In King Automotive, a trademark registrant filed a petition with the PTO declaring that, to the best of its knowledge, no third party had the right to use the mark “SPEEDY MUFFLER KING” or a confusingly similar mark. 667 F.2d at 1010. A competitor then

833 (7th Cir. 2007) (“[U]nder Rule 9(b) . . . the complaint ‘must still afford a basis for believing that plaintiffs could prove scienter.’” (quoting DiLeo, 901 F.2d at 629)); Lerner v. Fleet Bank, N.A., 459 F.3d 273, 290 (2d Cir. 2006) (“But because ‘we must not mistake the relaxation of Rule 9(b)’s specificity requirement regarding condition of mind for a license to base claims of fraud on speculation and conclusory allegations[,] . . . plaintiffs must allege facts that give rise to a strong inference of fraudulent intent.” (quoting Acito v. IMCERA Group, Inc., 47 F.3d 47, 52 (2d Cir. 1995)) (alterations in original)); In re Burlington Coat Factory Sec. Litig., 114 F.3d 1410, 1418 (3d Cir. 1997) (“While state of mind may be averred generally, plaintiffs must still allege facts that show the court their basis for inferring that the defendants acted with ‘scienter.’”).

sought to cancel the mark under § 38 of the Lanham Act alleging, among other things, that the registrant's statement was "known . . . to be untrue" and was made with "intent to deceive" the PTO because the registrant had previously obtained a trademark search report showing a third party's use of a confusingly similar mark, namely, "MUFFLER KING." Id. at 1009 & n.3. Our predecessor court, the Court of Customs and Patent Appeals, found this pleading deficient under Rule 9(b). The court held:

Even if the disclosures in the trademark search report supported appellant's contention that [the registrant] knew of the alleged third-party use of MUFFLER KING (and on this point we express no opinion), appellant's conclusory statement that [the registrant] knew its declaration to be untrue is not supported by a pleading of any facts which reflect [the registrant's] belief that the respective uses of MUFFLER KING and SPEEDY MUFFLER KING would be likely to confuse.

Id. at 1011 (emphases added). Thus, the registrant's knowledge of MUFFLER KING, standing alone, was not enough to infer that the registrant also subjectively believed that the mark was confusingly similar to SPEEDY MUFFLER KING. The pleading thus failed to allege sufficient underlying facts to support a reasonable inference that the registrant knew its statement to be false or that it intended to deceive the PTO. Id.

In sum, to plead the "circumstances" of inequitable conduct with the requisite "particularity" under Rule 9(b), the pleading must identify the specific who, what, when, where, and how of the material misrepresentation or omission committed before the PTO. Moreover, although "knowledge" and "intent" may be averred generally, a pleading of inequitable conduct under Rule 9(b) must include sufficient allegations of underlying facts from which a court may reasonably infer that a specific individual (1) knew of the withheld material information or of the falsity of the material

misrepresentation, and (2) withheld or misrepresented this information with a specific intent to deceive the PTO.⁵

Turning now to SAAT's pleading, we agree with the district court that the allegations are deficient with respect to both the particularity of the facts alleged and the reasonableness of the inference of scienter. We begin with the factual deficiencies, of which we note three.

First, the pleading refers generally to "Exergen, its agents and/or attorneys," Answer ¶¶ 40, 43, but fails to name the specific individual associated with the filing or prosecution of the application issuing as the '685 patent, who both knew of the material information and deliberately withheld or misrepresented it. The pleading thus fails to identify the "who" of the material omissions and misrepresentation. See 37 C.F.R. § 1.56(a) ("Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the [PTO]" (emphasis added)); id. at § 1.56(c) (identifying classes of individuals); Manual of Patent

⁵ A reasonable inference is one that is plausible and that flows logically from the facts alleged, including any objective indications of candor and good faith. See Greenstone v. Cambex Corp., 975 F.2d 22, 26 (1st Cir. 1992) (Breyer, C.J.) (declining to infer fraudulent intent where "the complaint makes clear that Cambex publicized its IBM memory 'trade-in' practice with a candor that seems inconsistent with knowledge of illegality or fear of a lawsuit"), superseded by statute on other grounds, Private Securities Litigation Reform Act of 1995, Pub. L. No. 104-67, 109 Stat. 737. In contrast to the pleading stage, to prevail on the merits, the accused infringer must prove both materiality and intent by clear and convincing evidence. See Star Scientific, 537 F.3d at 1365. Whereas an inference of deceptive intent must be reasonable and drawn from a pleading's allegations of underlying fact to satisfy Rule 9(b), this inference must be "the single most reasonable inference able to be drawn from the evidence to meet the clear and convincing standard." Id. at 1366 (emphasis added).

Examining Procedures (“MPEP”) § 2001.01 (8th ed., rev.2, May 2004) (explaining that “the duty applies only to individuals, not to organizations”).⁶

Second, the pleading fails to identify which claims, and which limitations in those claims, the withheld references are relevant to, and where in those references the material information is found—i.e., the “what” and “where” of the material omissions. See Regents of Univ. of Cal. v. Eli Lilly & Co., 119 F.3d 1559, 1570 (Fed. Cir. 1997) (“Information is material if a reasonable examiner would have considered it important to the patentability of a claim.” (emphasis added)); 37 C.F.R. § 1.56(a) (“The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned.” (emphasis added)).

Third, the pleading states generally that the withheld references are “material” and “not cumulative to the information already of record,” Answer ¶¶ 41-42, but does not identify the particular claim limitations, or combination of claim limitations, that are supposedly absent from the information of record. Such allegations are necessary to explain both “why” the withheld information is material and not cumulative, and “how” an examiner would have used this information in assessing the patentability of the claims. See Larson Mfg. Co. v. Aluminart Prods. Ltd., 559 F.3d 1317, 1333 (Fed. Cir. 2009) (finding information cumulative to art of record that taught the “same combination” of

⁶ Because one of the purposes of Rule 9(b) is “to protect those whose reputation would be harmed as a result of being subject to fraud charges,” Kearns v. Ford Motor Co., 567 F.3d 1120, 1125 (9th Cir. 2009), a district court may require that filings be made under seal, require redaction of individuals’ names, and impose other safeguards under Federal Rules of Civil Procedure 5.2(d)-(e) and 26(c), or other sources of protective authority.

claim limitations taught in withheld reference); 37 C.F.R § 1.56(b)(1) (information is material if it “establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim”).

Aside from these factual deficiencies, which themselves are fatal under Rule 9(b), the facts that are alleged do not give rise to a reasonable inference of scienter, including both (1) knowledge of the withheld material information or of the falsity of the material misrepresentation, and (2) specific intent to deceive the PTO.

With regard to the withheld patent references, the pleading states that “Exergen was aware” of the ’808 and ’998 patents in general, and that Exergen had become aware of them during prosecution of Exergen’s own prior applications. Answer ¶¶ 41-42. The pleading, however, provides no factual basis to infer that any specific individual, who owed a duty of disclosure in prosecuting the ’685 patent, knew of the specific information in the ’808 and ’998 patents that is alleged to be material to the claims of the ’685 patent. A reference may be many pages long, and its various teachings may be relevant to different applications for different reasons. Thus, one cannot assume that an individual, who generally knew that a reference existed, also knew of the specific material information contained in that reference. See FMC Corp. v. Manitowoc Co., Inc., 835 F.2d 1411, 1415 (Fed. Cir. 1987) (requiring actual knowledge of the existence of the information alleged to be material; discussing “should have known” standard in connection with the information’s materiality). The pleading here does not allege facts that would support a reasonable inference that a relevant individual knew of the allegedly material information contained in the ’808 and ’998 patents.

As for the alleged misrepresentation, any knowledge of its alleged falsity is similarly deficient. No facts are alleged from which one can reasonably infer that, at the time of the allegedly false statement, the individual who made this statement to the PTO was aware of an allegedly contradictory statement on Exergen's website. See Brasseler, U.S.A. I, L.P. v. Stryker Sales Corp., 267 F.3d 1370, 1382 (Fed. Cir. 2001) ("The mere possibility that material information may exist will not suffice to give rise to a duty to inquire; sufficient information must be presented to the attorney to suggest the existence of specific information[,] the materiality of which may be ascertained with reasonable inquiry." (emphases added)); Am. Hoist & Derrick Co. v. Sowa & Sons, Inc., 725 F.2d 1350, 1362 (Fed. Cir. 1984) ("Nor does an applicant for patent, who has no duty to conduct a prior art search, have an obligation to disclose any art of which, in the [district] court's words, he 'reasonably should be aware.'").

Deceptive intent in this case was pleaded solely on "inform[ation] and belie[f]." Answer ¶¶ 43, 46. Pleading on "information and belief" is permitted under Rule 9(b) when essential information lies uniquely within another party's control, but only if the pleading sets forth the specific facts upon which the belief is reasonably based.⁷ Here, SAAT's pleading provides neither the "information" on which it relies nor any plausible

⁷ See, e.g., See Romani v. Shearson Lehman Hutton, 929 F.2d 875, 878 (1st Cir. 1991) ("Where allegations of fraud are explicitly or . . . implicitly . . . based only on information and belief, the complaint must set forth the source of the information and the reasons for the belief."); Wexner v. First Manhattan Co., 902 F.2d 169, 172 (2d Cir. 1990) ("Where pleading is permitted on information and belief, a complaint must adduce specific facts supporting a strong inference of fraud or it will not satisfy even a relaxed pleading standard."); Kowal v. MCI Commc'n Corp., 16 F.3d 1271, 1279 n.3 (D.C. Cir. 1994) ("[P]leadings on information and belief require an allegation that the necessary information lies within the defendant's control, and . . . such allegations must also be accompanied by a statement of the facts upon which the allegations are based.").

reasons for its “belief.” Moreover, the circumstances that SAAT has alleged, even if true, do not plausibly suggest any “deliberate decision to withhold a known material reference” or to make a knowingly false misrepresentation—a necessary predicate for inferring deceptive intent. Molins, 48 F.3d at 1181 (stating that the evidence “must show that the applicant made a deliberate decision to withhold a known material reference”). SAAT’s purported basis for inferring deceptive intent is that Exergen had cited the ’998 patent when prosecuting the ’205 patent but then failed to cite it when prosecuting the ’685 patent. The mere fact that an applicant disclosed a reference during prosecution of one application, but did not disclose it during prosecution of a related application, is insufficient to meet the threshold level of deceptive intent required to support an allegation of inequitable conduct. Indeed, SAAT’s pleading does not contain specific factual allegations to show that the individual who had previously cited the ’998 patent knew of the specific information that is alleged to be material to the ’685 patent and then decided to deliberately withhold it from the relevant examiner. In the absence of such allegations, the district court was correct not to draw any permissive inference of deceptive intent with regard to the ’998 patent, lest inequitable conduct devolve into “a magic incantation to be asserted against every patentee” and its “allegation established upon a mere showing that art or information having some degree of materiality was not disclosed.” FMC, 835 F.2d at 1415. See Burlington Coat Factory Sec. Litig., 114 F.3d at 1418 (Alito, J.) (“To allow plaintiffs and their attorneys to subject companies to wasteful litigation based on the detection of a few negligently made errors found subsequent to a drop in stock price would be contrary to the goals of Rule 9(b),

which include the deterrence of frivolous litigation based on accusations that could hurt the reputations of those being attacked.”).

Because the district court correctly held that SAAT’s proposed allegations of inequitable conduct were deficient under Rule 9(b), the court did not abuse its discretion in denying SAAT’s motion for leave to add these allegations to SAAT’s original answer.

CONCLUSION

We affirm the denial of SAAT’s motion for leave to allege inequitable conduct. We reverse the final judgment that all claims of the ’205 patent are not invalid and that the ’813 and ’685 patent are infringed. We therefore reverse the damages award.

AFFIRMED-IN-PART and REVERSED-IN-PART

COSTS

Costs to SAAT.