

United States Court of Appeals for the Federal Circuit

00-1518, -1558, -1559, -1560, 01-1046

FRANK'S CASING CREW & RENTAL TOOLS, INC.,
C&H PIPE SERVICES, INC., DAMCO SERVICES, INC.,
HOBCO, INC., HUNTING TUBULAR THREADING, INC., REBEL RENTALS, INC.,
SLADCO, INC., and TONG RENTALS & SUPPLY CO., INC., and TONG RENTALS, INC. ,

Plaintiffs-Cross Appellants,

and

TUBULAR MAKEUP TECHNOLOGY, INC.,

Plaintiff-Cross Appellant,

and

CONNECTION TECHNOLOGY, LTD. and TONG SPECIALTY, INC.,

Plaintiffs-Cross Appellants,

and

GULFSTREAM RENTAL TOOLS, INC. and OFFSHORE ENERGY SERVICES, INC.,

Plaintiffs-Cross Appellants,

and

BENTON CASING SERVICE, INC.,

Plaintiff,

and

HYDRIL COMPANY,

Plaintiff,

and

TUBULAR TECHNOLOGY, INC.,

Plaintiff,

and

SPINDLETOP TUBULAR SERVICES, INC.,

Plaintiff-Appellee,

and

VAM PTS COMPANY,

Plaintiff-Appellee,

and

BILCO TOOLS, INC. and CHEYENNE SERVICES, INC.,

Plaintiffs,

and

LOOMIS INTERNATIONAL, INC.,

Plaintiff,

v.

PMR TECHNOLOGIES, LTD. and PMR SERVICES, INC.,

Defendants-Appellants,

v.

DARRELL L. VINCENT, LARRY W. VINCENT, TUBULAR MAKEUP SPECIALIST, INC.,
TMS EQUIPMENT MANUFACTURING & SALES, INC., CONNECTION TECHNOLOGY,
and JOHN E. SHAUNFIELD,

Defendants.

Guy E. Matthews, The Matthews Firm, of Houston, Texas, argued for plaintiffs-cross appellants, Frank's Casing Crew & Rental Tools, Inc., Et Al. With him on the brief was C. Vernon Lawson.

Dwayne L. Mason, Akin, Gump, Strauss, Hauer, & Feld, L.L.P., of Houston, Texas, for plaintiff-cross-appellant, Tubular Makeup Technology, Inc. Of counsel were Lester L. Hewitt and John F. Luman.

Gregory C. Smith, Garvey, Smith, Nehrbass & Doody, L.L.C., of Metairie, Louisiana, for plaintiff-cross appellants, Connection Technology, Ltd., and Tong Specialty, Inc. With him on the brief was Brett A. North.

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Herbert W. Fortson, III, Fortson, Frazer & Siegrist, P.C., of Houston, Texas, argued for defendant-appellant, PMR Technologies, Ltd. and PRM Services, Inc. Of counsel on the brief was A.H. Evans, of Houston, Texas.

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

Judge Rebecca F. Doherty

United States Court of Appeals for the Federal Circuit

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Plaintiffs-Cross Appellants,

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TUBULAR TECHNOLOGY, INC.,

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SPINDLETOP TUBULAR SERVICES, INC.,

Plaintiff-Appellee,

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VAM PTS COMPANY,

Plaintiff-Appellee,

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BILCO TOOLS, INC. and CHEYENNE SERVICES, INC.,

Plaintiffs,

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LOOMIS INTERNATIONAL, INC.,

Plaintiff,

v.

PMR TECHNOLOGIES, LTD. and PMR SERVICES, INC.,

Defendants-Appellants,

v.

DARRELL L. VINCENT, LARRY W. VINCENT, TUBULAR MAKEUP SPECIALIST, INC.,
TMS EQUIPMENT MANUFACTURING & SALES, INC., CONNECTION TECHNOLOGY, and JOHN
E. SHAUNFIELD,

Defendants,

DECIDED: June 4, 2002

Before CLEVINGER, Circuit Judge, ARCHER, Senior Circuit Judge, and DYK, Circuit Judge.

DYK, Circuit Judge.

PMR Technologies LTD and PMR Service Company (collectively, "PMR") appeal a declaratory judgment entered by the United States District Court for the Western District of Louisiana. The court held that it had personal jurisdiction over PMR; held that the named inventors of United States Patent RE 34,063 (the "'063 patent") had failed to list a true inventor (Peter Weiner ("Weiner")); and held that the '063 patent was unenforceable due to inequitable conduct by named inventors in failing to name Weiner as an inventor. Frank's Casing Crew & 00-1518, -1558, -1559, -1560, 01-1046 5

Rental Tools, Inc. v. PMR Techs. Ltd, Civ. No. 98-0254 (W.D. La., January 24, 2000). Cross-appellants, Frank's Casing Crew & Rental Tools, Inc., et al. and Tubular Makeup Technology, Inc., et al. (collectively, "Frank's"), the assignees of Weiner's claimed interest in the patent, appeal the district court's decision holding the '063 patent unenforceable and declining to correct inventorship of the patent to name Weiner as the sole inventor of the patent. Cross-appellants, Connection Technology, Ltd., et al. and Gulfstream Rental Tools, Inc., et al. appeal the district court's decision declining to award them attorney fees pursuant to 35 U.S.C. § 285.

Because PMR waived its personal jurisdiction defense by filing claims against new defendants in the United States District Court for the Western District of Louisiana; because the district court's finding (that a true inventor of at least one of the '063 patent claims was not named on the patent) was not erroneous; because the district court did not commit reversible error in concluding that the '063 patent was unenforceable because of inequitable conduct during its prosecution; and because the district court did not abuse its discretion in denying attorney fees, we affirm those portions of the district court's holding. We remand to the district court for the limited purpose of determining the correct inventorship of the '063 patent.

I

PMR is the assignee of the '063 patent, which is directed to a method and apparatus for monitoring torque while connecting threaded tubular goods. The '063 patent is a reissue of United States Patent 4,738,145 (the "'145 patent"),¹ which issued on April 19, 1988, pursuant to an application filed on June 1, 1982. The invention disclosed in the '063 patent has particular utility in the field of oil and gas drilling.

Oilfield pipes have threaded connections which may be screwed together to connect sections of pipe. As the pipes are screwed together (or "made-up"), the torque required to turn

¹ The district court generally referred to the '145 patent as the "'0145 patent."

the sections generally increases. By monitoring the amount of torque required to turn the sections while the sections are made-up, it may be determined when a successful connection between two sections has been made.

The "Background" section of the patent describes prior art techniques of simultaneously monitoring the torque and the number of turns applied to sections of threaded pipe as they are made-up to determine if the final connection between the sections is satisfactory. The Background cites several references as describing prior art methods of monitoring torque and turns applied to pipe sections being made-up ("torque-turn" monitoring), including U.S. Patent Nos. 4,091,451, issued to Weiner, et al. and 4,210,017, issued to James V. Motsinger. Generally, in torque-turn monitoring, as two sections of pipe were made-up, the number of turns on one section relative to the other section and the torque applied to the connection were monitored. A satisfactory connection was determined if the number of turns applied was between a predetermined minimum and maximum number of turns while the torque applied to the connection was simultaneously within a predetermined minimum and maximum amount of torque. See '063 patent, col. 1, ll. 27-36.

The Background section of the '063 patent further describes "premium" pipe connections which involve "metal-to-metal sealing or 'shoulder' connections along specially shaped areas of the pin and box members being connected." Id., col. 1, ll. 42-45. Premium connections have generally straight or slightly tapered threads and include one or more annular shoulders surrounding the male tubular part and within the female tubular part. A metal-to-metal seal is obtained between these shoulders when the male and female parts are screwed together. The Background states that

torque-turn monitoring was not well adapted for premium connections, since shoulder could occur in a much smaller portion of a turn than the intervals, usually

tenths, into which one revolution of a pipe was divided for monitoring turns. There have been indications that reducing the size of turn interval might help in shoulder contact detection, but this would require a substantial increase in the number of lugs or projections formed for turn interval division purposes on the rotary jaw member of the power tongs used in makeup of petroleum tubular goods.

Id., col. 1, ll. 50-60. Apparently, when using torque-turn monitoring, the number of turns was not monitored continuously, but only at a finite number of positions around a circle concentric with the axis of the pipe sections being made-up.

In the invention described in the '063 patent, torque on a connection is monitored as the connection is made-up. The torque is generally monitored as a function of time, rather than turns. When the shoulders of the sections of a premium pipe connection meet, the applied torque rapidly increases as the connection is made-up. The applied torque is monitored to detect this rapid increase in the applied torque, indicating that shoulder contact has been achieved.

An additional torque (a "differential torque"), to be imposed on the connection after the shoulder contact condition is obtained, may also be specified. Id., col. 2, ll. 28-31. The sum of the differential torque and the torque at which shoulder contact occurred may be compared to acceptable minimum and maximum torque values. Id., col. 2, ll. 31-38. If the connection cannot obtain this total torque in operation, it is characterized as unsatisfactory and rejected. If total torque is greater than an acceptable maximum torque level, the connection is characterized as unsatisfactory, and the make-up of the connection is halted to prevent damage to the connection. Whether a satisfactory connection has been made may be determined by comparing the torque at which the shoulder condition occurred to minimum and maximum torque levels for achieving the shoulder condition, id., col. 2, ll. 17-19, and by comparing the total torque to minimum and maximum levels.

The '063 patent contains 8 independent claims and 55 dependent claims. Independent claim 30, at issue on this appeal, claims:

30. A method of monitoring torque conditions during the make-up of a threaded tubular connection, wherein shoulder contact is formed in the threaded connection, comprising the steps of:
 - (a) sensing the torque imposed on the connection during makeup;
 - (b) monitoring the torque conditions during said step of sensing the torque to detect if a satisfactory threaded connection is obtained;
 - (c) establishing a supplemental torque level for an acceptable minimum torque differential after shoulder contact; and
 - (d) displaying the sensed torque during make-up.

'063 patent, col. 15, ll. 45-57 (emphases added).

The named inventors of the '063 patent are Darrell L. Vincent, Larry W. Vincent (who are brothers), and John E. Shaunfield ("Shaunfield"). Appellees assert that Weiner should have been named as either a sole or joint inventor of the '063 patent.

Weiner had extensive experience in the field of torque monitoring and is a named inventor of several U.S. patents relating to torque-turn monitoring. Weiner first met Larry Vincent in 1976 and was later hired in July 1978 by a company founded by the Vincents, Tubular Makeup Specialists ("TMS"), as a consultant. Prior to starting TMS, Larry and Darrell Vincent had no technical experience in the torque-monitoring business.

While working for TMS, Weiner attempted to develop a superior torque monitoring device. Weiner's goal was to develop a torque-monitoring device coupled to a computer and a cathode ray tube ("CRT") display device that would sense the torque and number of turns applied to a connection, and process and display that information on the CRT during make-up. TMS named this device the TMS 1000 and in 1980 hired Shaunfield to program the computer used in the device.

At about this time, in early 1980, Mobil Oil Co. developed a need for superior torque-monitoring devices for use with Atlas Bradford TC4S premium threaded shoulder connections it

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intended to use in its wells. However, upon testing the connections in September 1980, Mobil found one that leaked because the sealing shoulders did not properly form a metal-to-metal seal. To prevent this problem in the future, Atlas Bradford issued a supplement to its standard make-up protocol in October 1980. The torque at which shouldering occurred, the torque applied to the connection after shouldering, and the total torque applied to the connection were identified as separate parameters that governed the acceptability of the make-up. To achieve an acceptable connection in the premium pipe connection, the protocol required determining the torque at which shouldering occurred (the "shoulder torque") and then adding a predetermined "supplemental torque" or "delta torque" to the shoulder torque.

Because Mobil did not know how to implement the Atlas Bradford supplemental protocol requiring a determination of the torque at which shoulder contact occurred, Elmo Blount, the director of drilling operations at Mobil, contacted Weiner to describe the problem Mobil faced and to inquire if Weiner knew of any devices that could monitor shoulder torque and supplemental torque. Weiner responded that he knew of an existing device that might be useful to Mobil. Blount and TMS subsequently arranged to test the TMS torque-monitoring device, then known as the TMS 1000, at the Atlas Bradford yard in Houston, Texas, on December 6, 1980. Blount and Darrell Vincent attended this test. After reviewing the performance of the device at this test, Blount decided to use the TMS 1000 system in Mobil's wells in the Arun Field.

Weiner was not significantly involved with the development of the TMS device during or after the summer of 1981. In the summer of 1981, Shaunfield programmed the TMS device with the capability of automatically detecting the occurrence of shoulder contact by detecting a sudden rate of change of the torque that occurs at shoulder contact. With this capability, the device could automatically control the make-up of the pipe connection, such that the device

would automatically apply the proper amount of torque necessary to achieve a satisfactory connection. The improved device was named the TMS 2000.

TMS's efforts to obtain a patent on its torque-monitoring device began at least as early as March 1981. TMS initially retained Harold Meyer of a law firm in Dallas, Texas, to work on a patent application. Darrell Vincent met with Meyer on March 26, 1981, to discuss the potential patent application and Weiner met with Meyer shortly thereafter to explain the technical details of the TMS device. In 1981 the relationship between Weiner and the Vincents was deteriorating. On July 31, 1981, Weiner invoiced TMS for \$103,441.80 for service rendered over the previous three years and not paid by TMS. On October 31, 1981, Weiner exercised a stock option to purchase 25% of TMS for \$5,000, but he never received any stock. At about this time, the Vincents discharged Meyer and the Dallas law firm, and had files related to the patent application forwarded to Albert Kimball of the Pravel, Gambrell & Kimball law firm in Houston, Texas. Weiner was not aware that the files had been transferred to Kimball, nor was he further involved with the prosecution of the patent application. The patent application was finalized and filed on June 1, 1982, naming Darrell and Larry Vincent and Shaunfield as the inventors. The Vincents did not tell Shaunfield about the filing of the application. Because Shaunfield did not sign an oath when the application was filed, the Vincents filed the application under 37 C.F.R. § 1.47(a) together with declarations attesting that Shaunfield refused to execute an oath or declaration; that TMS had performed all obligations and paid all consideration due Shuanfield; and providing Shuanfield's last known address.

When Shaunfield first learned about the patent just before it was due to issue, he filed a petition to suspend issuance proceedings in the United States Patent and Trademark Office ("PTO") to protect his interest in the patent. His petition initiated a March 17, 1987, inquiry by the PTO to determine whether the Vincents had violated their duty of candor under 35 C.F.R. § 1.56

by submitting the declarations under Rule 1.47 with their patent application. The PTO ultimately found that the Vincents' conduct before the PTO did not "rise to the level of gross negligence or bad faith such as would support a finding of inequitable conduct."

Twenty-four days after filing the patent application on June 25, 1982, the Vincents settled their dispute with Weiner over the unpaid fees without telling him about the patent application. The patent application was allowed and subsequently issued on April 19, 1988, as the '145 patent. On April 17, 1990, the Vincents and Shaunfield applied for a broadening reissue of the '145 patent, which was allowed and resulted in the issuance of the '063 patent on September 15, 1992.

On October 11, 1992, shortly after issuance of the '063 patent, PMR Services, Inc. obtained a license to the patent. PMR Services is a Texas corporation and is the general partner of PMR Technologies, Ltd., a Texas limited partnership. After obtaining rights to the '063 patent, PMR attempted to sell licenses to the patent to oil and gas companies. PMR sent over 300 letters to Louisiana residents, including 59 "cease and desist" letters, several of which contained proposed licenses.

After receiving a cease and desist letter, Frank's Casing Crew and Rental Tools, Inc. ("Frank's")² filed this action against PMR³ on February 11, 1998, in the Western District of Louisiana seeking a declaratory judgment that the '063 patent was invalid, unenforceable, and not infringed. Subsequently, PMR filed suit in the Southern District of Texas against Frank's and

² The action was later joined by Hobco, Inc., Rebel Rentals, Inc., Tong Rentals & Supply Co., Inc., C & H Pipe Services, Inc, Tubular Makeup Technology, Inc., Damco Services, Inc., Sladco, Inc., and Hunting Tubular Threading, Inc. These co-appellees are collectively referred to as "Frank's."

³ The Vincents and Shaunfield were also included as defendants in some of the claims asserted against PMR. Also included were previous assignees of the '063 and/or the '145 patent, Tubular Makeup Specialists, Inc., and TMS Equipment Manufacturing & Sales, Inc.

others⁴ for infringement of the '063 patent. On June 15, 1998, that action was transferred to the Western District of Louisiana and consolidated with the declaratory judgment action. Additional declaratory judgment actions were filed in the Western District of Louisiana by Connection Technology, Ltd., Gulfstream Rental Tools, Inc., Offshore Energy Services, Inc. and Tong Rentals, Inc. against PMR asserting that the '063 patent was invalid, unenforceable, and not infringed. Those actions were also consolidated with the original action brought by Frank's.

On April 20, 1998, PMR moved under Rule 12(b)(2) of the Federal Rules of Civil Procedure to dismiss for lack of personal jurisdiction. On January 8, 1999, following discovery on the jurisdictional issue, the district court denied the motion. The district court found that PMR's contacts with the Louisiana corporations it had licensed and the control PMR maintained through the terms of its license over the licensee's use of the '063 patent rendered PMR subject to "specific jurisdiction" under Louisiana law. On January 25, 1999, after the district court's ruling, PMR filed an amended Answer, Class-Action Counter-Claim, and First Amended Complaint in the Western District of Louisiana asserting a new patent infringement class action claim, joining six additional defendants as named defendants and seeking to have them certified as representatives of a class of unnamed defendants. (No such certification occurred.)

A bench trial was held on November 8-12 and 15-17, 1999. On January 24, 2000, the district court filed findings of fact and conclusions of law. It "[found] pursuant to 35 U.S.C. § 256, Dr. Weiner is an innocent co-inventor that should be added to the '0145 and '063 patents." Frank's Casing, No. 98-0254, slip op. at 49. The district court "[found] Dr. Weiner to have been an inventor or co-inventor of the TMS 1000," id. at 44; that "the TMS 1000 [was] the subject of the '0145 and the '063 patents," id. at 43; and therefore concluded that "Weiner presented the

⁴ In addition to bringing suit against the Frank's group, PMR also brought suit against Tubular Makeup Technology, Inc., Tong Specialty, Inc., Benton Casing Service, Inc.,

‘conception of the invention,’” id. at 33, and that “Weiner proved his claim [of inventorship] by clear and convincing evidence” Id. at 41. However, even though the court found that “Dr. Weiner is an innocent co-inventor that should be added to the ’0145 and ’063 patents,” id. at 49, the court denied Frank’s request to correct inventorship to name Weiner as the sole inventor or as a co-inventor, because the court found Shaunfield was also an inventor of the ’063 patent. Id. at 49-50.

The court also held that the ’063 patent was unenforceable because the Vincents engaged in inequitable conduct by failing to name Weiner as an inventor. The court found that the Vincents deliberately omitted Weiner from the patent and acted to hide Weiner’s involvement in the invention throughout the patent prosecution process, and that the Vincents “deliberately misrepresented the material facts surrounding the conception of the invention underlying the ’0145 and ’063 patents from the inception of the patent process up to and through the hearing held before this Court,” id. at 45, and that the Vincents “engaged in deliberate inequitable conduct in failing to include Dr. Weiner on either the ’045 [sic] or ’063 Re-issue patents and in their actions surrounding John Shaunfield and the patent.” Id. at 49. Accordingly, the court held that the ’145 and ’063 patents were unenforceable. Id. at 48. On July 24, 2000, the district court entered final judgment under Rule 54(b) of the Federal Rules of Civil Procedure.

On June 27, 2000, the court denied Frank’s motion to declare the case an exceptional case and award attorney fees from PMR under 35 U.S.C. § 285, because “PMR’s conduct was [not] wholly frivolous, vexatious, or in bad faith.” Frank’s Casing, No. 98-0254, slip op. at 4.

PMR appeals the district court’s personal jurisdiction ruling, its ruling that Weiner was an inventor, and its ruling that the patent is unenforceable. Cross-Appellants Frank’s, et al., the assignees of Weiner’s claimed interest in the patent, appeal the district court’s ruling that the

patent is unenforceable and seek to correct inventorship to name Weiner as the sole inventor on the '063 patent. Cross-Appellants, Gulfstream, et al. and Connection Technology Ltd., et al. appeal the district court's denial of attorney fees under section 285.

DISCUSSION

I

We have jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(1). We review questions of personal jurisdiction without deference. Dainippon Screen Mfg. Co. v. CFMT, Inc., 142 F.3d 1266, 1269, 46 USPQ2d 1616, 1619 (Fed. Cir. 1998). “Disputed facts underlying this legal determination, however, are reviewed for clear error.” Id. Inventorship is a question of law which we review without deference, although we review for clear error a district court's factual findings upon which such a determination is based. Ethicon, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1460, 45 USPQ2d 1545, 1547 (Fed. Cir. 1998). We review a district court's determination of inequitable conduct for abuse of discretion. PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 225 F.3d 1315, 1319, 56 USPQ2d 1001, 1006 (Fed. Cir. 2000). In reviewing a determination of inequitable conduct, we review for clear error the district court's factual findings as to whether the alleged misconduct meets threshold levels of materiality and intent to deceive. Id. at 1318-19, 56 USPQ2d at 1006. “The determination of whether a case is exceptional and, thus, eligible for an award of attorney fees under section 285 is a factual determination reviewed for clear error. The subsequent determination of whether attorney fees are appropriate is reviewed for an abuse of discretion.” Tegal Corp. v. Tokyo Electron Am., Inc., 257 F.3d 1331, 1351, 59 USPQ2d 1385, 1400 (Fed. Cir. 2001).

II

PMR contends that the district court erred in denying its motion to dismiss for lack of personal jurisdiction.⁵ PMR argues that it does not have sufficient minimum contacts in Louisiana to subject it to personal jurisdiction as a matter of due process. It is unnecessary for us to address this question because we conclude that PMR waived its personal jurisdiction defense when PMR filed its Answer, Class-Action Counter-Claim, and First Amended Complaint in the Western District of Louisiana and for the first time asserted infringement claims against six defendants that had not previously been involved in any infringement suit related to the '063 patent.

In Lapides v. Board of Regents of University System of Georgia, No. 01-298, 535 U.S. ___, (U.S. May 13, 2002), the Supreme Court recently addressed a situation related to the one we confront here. In that case, Lapides brought suit in state court against Georgia, alleging violations of state and federal law. The state removed the case to federal court, and then moved to dismiss the case, urging that it was immune from suit in federal court under the Eleventh Amendment. The Supreme Court noted that by removing the case Georgia “voluntarily invoked the jurisdiction of the federal court,” slip op. at 7 (emphasis in original), and held that “removal is a form of voluntary invocation of a federal courts jurisdiction sufficient to waive the State’s otherwise valid objection to litigation of a matter . . . in a federal forum.” Id. at 9. Just as the invocation of federal jurisdiction can waive Eleventh Amendment immunity, the invocation of federal jurisdiction can waive due process objections.

However, PMR urges that the defense of lack of personal jurisdiction is not waived when a party brings a third party into an existing lawsuit. But none of the cases PMR relies upon is on point. For example, Bayou Steel Corp. v. M/V Amstelveorn, 809 F.2d 1147, 1149 (5th Cir.

⁵ “This court applies the law of the Federal Circuit, rather than that of the regional circuits, to determine personal jurisdiction in a patent infringement case.” Red Wing Shoe Co. v. Hockerson-Halberstadt, Inc., 148 F.3d 1355, 1358, 47 USPQ2d 1192, 1194 (Fed. Cir. 1998).

1987), held that “the filing of a counter-claim, cross-claim, or third-party demand does not operate as a waiver of an objection to jurisdiction, whether that objection is raised by motion or answer” We think that principle is limited to situations in which the Federal Rules of Civil Procedure authorize the joining of an additional claim, for example, where there is a compulsory counterclaim arising out of the same transaction or occurrence, see Fed. R. Civ. P. 13(a); where an unrelated claim is brought as a permissive counterclaim against the plaintiff, see Fed. R. Civ. P. 13(b); or where a third-party complaint arising out of the same transaction or occurrence is brought against a third-party, see Fed. R. Civ. P. 14. Where, as here, a defendant seeks to bring into the action new claims against new parties, not arising out of the same transaction or occurrence,⁶ such action is not authorized by the joinder rules, and we think that such an attempted joinder constitutes a waiver as to the claims then pending in the action against the party seeking to add the additional claims. See Gen. Contracting & Trading Co. v. Interpole, Inc., 940 F.2d 20, 25 (1st Cir. 1991) (holding that a defendant that invokes the jurisdiction of a court as a plaintiff waives its personal jurisdiction defense in all actions related to the claim for which it invoked the court’s jurisdiction).

Thus, we conclude that because PMR voluntarily invoked the court’s jurisdiction as a plaintiff in a class action, it waived its personal jurisdiction defense to the suits brought by Frank’s in the Western District of Louisiana.

III

PMR argues that the district court erred in finding that Weiner was an inventor of the invention claimed in the ’063 patent. PMR urges that while Weiner and Shaunfield may have

⁶ Although PMR’s claims against the original parties and the new parties were based on infringement of the same patent, they were not alleged to have arisen out of the same factual transaction or occurrence.

created a state of the art torque monitoring device when working at TMS, the device was not the invention claimed in the '063 patent. PMR conceded at oral argument that Weiner was at least a co-inventor of the TMS 1000 device which was tested on December 6, 1980, at the Atlas Bradford yard (the "1980 device").⁷ Despite its concession, PMR urges that this device did not embody the patented invention.

When a question of inventorship is presented "the critical question . . . is who conceived . . . the subject matter of the claims at issue." Ethicon, Inc. v. United States Surgical Corp., 135 F.3d 1456, 1460, 45 USPQ2d 1545, 1548 (Fed. Cir.) (emphasis added), cert. denied, 525 U.S. 923 (1998). "To determine whether [a person] made a contribution to the conception of the subject matter of [a claim, the] court must determine what [the person's] contribution was and then whether that contribution's role appears in the claimed invention." Id. at 1461, 45 USQP2d at 1549 (emphasis added). Furthermore an inventor need not make a contribution to every claim in the patent. "A contribution to one claim is enough." Id. at 1460, 45 USPQ2d at 1548. Here, the parties have assisted our task on appeal by agreeing that, in light of PMR's concession that Weiner was at least a co-inventor of the 1980 device, if the 1980 device is within the patent claims, Weiner must be an inventor of the '063 patent.

A.

⁷ At oral argument the following exchange occurred between the court and counsel for PMR:

THE COURT: You don't dispute that Dr. Weiner was an inventor of that device [the 1980 device]?

COUNSEL FOR PMR: Well, one of them. Yes, absolutely.

THE COURT: Then the key question for us is, whether the December 1980 device is within the patent claims, right?

COUNSEL FOR PMR: Exactly right.

Initially we resolve a problem resulting from the fact that the district court never construed any of the '063 patent's claims. The district court opinion focuses primarily on weighing the credibility of the factual evidence presented to the court by various witnesses. While such credibility determinations are an important part of the district court's fact-finding role, an equally important role is the interpretation of the claims.

The parties dispute the meaning of the claims. Claim construction is a matter of law which we perform without deference to the district court. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (en banc). Although the district court never construed the claim language, on this appeal we may resolve the parties' legal dispute regarding the proper interpretation of "monitoring." The parties contest the meaning of the word "monitoring" as used in the preamble and in a claim limitation of claim 30. In particular, step (b) of claim 30 requires "monitoring the torque conditions during said step of sensing the torque to detect if a satisfactory threaded connection is obtained." '063 patent, col. 15, ll. 51-53. PMR's principal contention is that the method performed by the December 1980 device did not satisfy claim 30 because "monitoring" as used in step (b) of the claim

requires the determination and instantaneous calculation of the torque and its rate of change so that the shoulder is identified ("picked" in the art) within a satisfactory range and the proper amount of supplemental torque is applied within the maximum allowable torque, all in real time so that the '063 system controls the makeup of the connection in real time without the necessity of human intervention.

Appellant's Opening Brief at 38-39 (emphasis added). Thus, PMR contends that the monitoring step in the claim requires control over the make-up and performance of the step by the apparatus described in the '063 patent without the need for any human intervention. Appellees counter that "monitoring," as used in the patent claims, should not be interpreted as having the special meaning PMR proposes, and that the ordinary meaning of monitoring allows that "monitoring can be done by an operator" and "[is] not limited to instantaneous, computer-driven

calculations and shut-off features excluding an operator as proposed by [appellant].” Brief for Connection Technology Ltd., et al. at 7. In particular, appellees urge that “‘monitoring’ can be accomplished simply by an operator viewing a dynamic display unit (computer screen) that displays the torque applied during threading.” Brief for Tubular Makeup Technology, Inc. at 42. The crucial distinctions between the claim constructions urged by the parties is (1) whether the “monitoring” requires that the make-up of the connection be controlled; and (2) whether “monitoring” must be performed by the apparatus described in the ’063 patent or whether it may also be performed by a human operator using the apparatus.

In construing patent claims, we first look to the intrinsic evidence of record -- the claims, the specification, and, if in evidence, the prosecution history. Vitronics Corp. v. Conceptoronic, Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). If ambiguity remains after consideration of the intrinsic evidence, “[e]xtrinsic evidence may also be considered, if needed to assist in determining the meaning or scope of technical terms in the claims.” Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216, 36 USPQ2d 1225, 1228 (Fed. Cir. 1995) (citations omitted), cert. denied, 520 U.S. 1115 (1997). It is also well-settled that, as a general rule, “[w]ords in a claim will be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently.” Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 USPQ 473, 477 (Fed. Cir. 1984) (internal quotations omitted).

Here, the language of claim 30 (quoted in full above at page 6) generally claims in the preamble “[a] method of monitoring torque conditions during the make-up of a threaded tubular connection, wherein shoulder contact is formed in the threaded connection” and in step (b) “monitoring the torque conditions during said step of sensing the torque to detect if a satisfactory threaded connection is obtained.” ’063 patent, col. 15, ll. 15-47, 51-53. On its face the language requires only the “monitoring” of torque. However, contrary to PMR’s contention, the common

meaning of “monitor”⁸ does not require the application of torque. The clear language itself is also not limited to a machine- or computer-implemented method of monitoring, and does not explicitly exclude human intervention.

We turn then to the specification to determine if the patentees defined “monitoring” to include the application of torque or to exclude human intervention. The “Operation of Apparatus” section of the written description and the flow charts shown in Figures 2A, 2B, 2C, and 2D do not suggest that “monitoring” requires the application of torque. Nor do they preclude human intervention. They may be understood to mean that the monitoring is generally done automatically by the apparatus. However, the specification also suggests an interpretation of “monitoring” under which a human operator detects the torque conditions. The specification states that that “monitoring torque conditions . . . permits an operator of apparatus [sic] according to the present invention to initially detect whether or not the shoulder condition is achieved in making up a premium threaded connection,” *id.* at col 5., ll. 28-33, and that “[t]he dynamic display unit permits an operator to monitor progress of each connection or joint as it is being madeup” *Id.* at col. 5, ll. 8-10. Thus, while the apparatus described in the ’063 patent may be necessary for performing the steps of “(a) sensing the torque imposed on the connection during makeup” and “(d) displaying the torque sensed during make-up,” neither the plain language of the claim nor the specification excludes a human operator from performing the step of “(b) monitoring the torque conditions during said step of sensing the torque to detect if a satisfactory threaded connection is obtained.” ’063 patent, col. 15, ll. 49-57. Therefore, a

⁸ Dictionary definitions of “monitor” include: “15. to observe, record, or detect (an operation or condition) with instruments that have no effect upon the operation or condition. 16. to oversee, supervise, or regulate: to monitor the administration of a test. 17. to watch closely for purposes of control, surveillance, etc.; keep track of; check continually: to monitor one’s eating habits.” Random House Webster’s Unabridged Dictionary 1242 (2d ed. 1998); “2: to test . . . for intensity of radiation . . . to determine whether the intensity comes within specified limits. . . . 3: to

human operator may use the apparatus described in the '063 patent to perform the method claimed in claim 30.

We conclude that “monitoring” as used in the '063 patent claims does not require the application of torque or exclude human participation during make-up of a connection.

B.

Under this claim construction, the district court's conclusion that Weiner was an inventor of at least one claim of the '063 patent is not erroneous.

At trial, Darrell Vincent testified that the method performed by the 1980 device satisfied the limitations of claim 30 contained in the preamble and in steps (a), (c), and (d). PMR does not dispute that now on appeal. Vincent testified that the limitation of step (b) was not satisfied because the 1980 device itself did not monitor torque conditions. However, Vincent was using an incorrect interpretation of “monitoring” to arrive at that conclusion. Vincent testified that the method performed by the 1980 device did not meet the limitations of claim 30 because “[t]he claims in the patent require an apparatus that's smart, that has intelligence, that makes calculations, decisions and controls the make-up” Using the correct definition of “monitoring” the testimony was undisputed that the method performed by the 1980 device was within the scope of claim 30. The clearest testimony concerning the capability of the 1980 device was Blount's. Blount testified that the 1980 device provided all the necessary information so that an operator using the device could detect the occurrence of shoulder contact by observing an abrupt increase in the torque applied to the connection as the connection was made-up, that the operator could compare the applied torque to predetermined torque conditions, and that this monitoring of the torque conditions enabled the operator to determine whether a satisfactory connection had been achieved. Thus, Blount testified that the 1980

device enabled an operator to perform step (b) of claim 30. The testimony of Jim Lamb, a project manager for Atlas Bradford, while perhaps less clear (because he testified about a 1981 experience with the 1980 device) was confirmatory, as was the somewhat conclusory testimony of Weiner himself. Shaunfield's testimony also confirmed that a human operator could use the information provided by the 1980 device to perform the claimed method. We have been directed to no contrary evidence in the record.

Because the method performed by the 1980 device, conceded to have been invented by Weiner, was shown by clear and convincing evidence to have satisfied all the limitations of at least claim 30, Weiner was an inventor and should have been named on the patent.

IV

The district court found that "Darrel and Larry Vincent deliberately concealed Dr. Weiner's involvement in the conception of the invention . . . [and] engaged in a pattern of intentional conduct designed to deceive the attorneys and patent office as to who the true inventors were." The court found that the Vincents' failure to disclose Weiner's involvement in the invention was material because "Dr. Weiner was an inventor of the patented device." Frank's Casing, No. 98-0254, slip op. at 46. Furthermore, the district court found "not only inferred intent [to mislead the PTO] on the part of the Vincents, but also direct evidence of deliberate scheming on the part of the Vincents designed to claim the patents for themselves and to omit Dr. Weiner and John Shaunfield from participation." Id. at 47. The district court suggested that the Vincents' intentions were motivated by a desire to "settle [TMS's] dispute with Dr. Weiner for consulting fees owed, and [to convince] Dr. Weiner [to] release[] his claim to stock ownership in TMS." Id. at 27. Appellants urge that the trial court's "conclusion of inequitable conduct concerning . . . Shaunfield . . . was arbitrary and capricious, and improper as a matter of law, and should be

reversed.” Appellant’s Opening Brief at 55-56. We review a district court’s ultimate determination of inequitable conduct for abuse of discretion. PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc., 225 F.3d 1315, 1319, 56 USPQ2d 1001, 1003 (Fed. Cir. 2000). In reviewing a determination of inequitable conduct, we review for clear error the district court’s factual findings as to whether the alleged misconduct meets threshold levels of materiality and intent to deceive. Id. at 1318-19, 56 USPQ2d at 1003. Under the clear and convincing evidence standard, the district court did not err in finding that the Vincents engaged in inequitable conduct.

The district court’s holding on inequitable conduct further appears to have been partly based on the Vincents’ conduct vis-à-vis Shaunfield. The district court stated that the Vincents’ “pattern of conduct continued through the additional and separate attempts to omit John Shaunfield from participation in the patent” Frank’s Casing, No. 98-0254, slip op. at 45. The PTO had found that this conduct did not “rise to the level of gross negligence or bad faith such as to support a finding of inequitable conduct.”

However, the main thrust of the district court’s analysis was devoted to the Vincents’ conduct in acquiring patent rights in their own names and Shaunfield’s while excluding Weiner. We are convinced that even without any misconduct with respect to Shaunfield, the district court would have concluded that the ’063 patent was unenforceable because of the Vincents’ inequitable conduct before the PTO in omitting Weiner as an inventor. We thus sustain the district court’s holding as to inequitable conduct.

V

Frank’s is the assignee of Weiner’s interest in the ’063 patent, and in its cross-appeal seeks to vest enforceable rights to the ’063 patent in Weiner alone. Frank’s urges that the district court erred in declining to order that the ’063 patent be corrected to reflect that Weiner

was the sole true inventor and in holding the patent unenforceable because of acts committed by the Vincents.

Frank's urges that because the Vincents were not true inventors of the '063 patent, their conduct cannot render the patent unenforceable. However, it was the Vincents who sought a patent on the invention, regardless of whose invention it was. Thus, their inequitable conduct during prosecution of the application leading to the patent renders the patent unenforceable, just as the conduct of an attorney who participates in the prosecution of a patent application may render a patent unenforceable. We have explained that "if unenforceable due to inequitable conduct, a patent may not be enforced even by 'innocent' co-inventors. One bad apple spoils the entire barrel. Misdeeds of co-inventors, or even a patent attorney, can affect the property rights of an otherwise innocent individual." Stark v. Advanced Magnetics, Inc., 119 F.3d 1551, 1556, 43 USPQ2d 1321, 1325 (Fed. Cir. 1997). PMR urges that Weiner cannot be tainted by the Vincents' conduct because the "one bad apple" rule only applies "where all the apples in the barrel are true inventors (or their attorneys or agents)." Appellant's Opening Brief at 41. We disagree. This is not a situation in which the patent would have issued without participation by the wrongdoers. If not for the Vincents, the '063 patent never would have issued; Weiner made no claim of inventorship until 1998. In such circumstances, the Stark rule still applies, and the '063 patent is unenforceable due to that conduct.

Thus, because of the Vincents' inequitable conduct the '063 patent is unenforceable, and Frank's cannot obtain any rights to an enforceable patent in this case.

VI

The district court concluded that it could not "substitute Dr. Weiner as the sole inventor on the patent" because "Larry and Darrell Vincent as named inventors engaged in inequitable conduct before the PTO" Frank's Casing, No. 98-0254, slip op. at 50. Nothing in the

statute governing a court's power to correct inventorship, 35 U.S.C. § 256, however, prevents a court from correcting the inventorship of an unenforceable patent. On this record, we agree with the district court that Shaunfield was properly named as an inventor on the patent. However, it is unclear whether the district court held that the Vincents should or should not be named as inventors. Therefore, we remand to the district court for the limited purpose of determining the correct inventorship of the '063 patent if Frank's wishes to pursue its claim for correction of inventorship.

VII

Cross-Appellants, Gulfstream Rental Tools, Inc. and Offshore Energy Services, Inc. (collectively, "Gulfstream") and Connection Technology, Ltd. and Tong Specialty, Inc. (collectively, "Connection") urge that the district court erred in failing to declare this an exceptional case and award attorney fees, as permitted by 35 U.S.C. § 285. Gulfstream and Connection allege that the district court applied the wrong legal standard when determining that this was not an exceptional case by not considering the Vincents' inequitable conduct before the PTO when making its determination. Section 285 is unique to patent law and we have held, as Connection points out, that "inequitable conduct is a substantive patent issue that must be taken into consideration in determinations under 35 U.S.C. § 285." Pharmacia & Upjohn Co. v. Mylan Pharms., Inc., 182 F.3d 1356, 1359, 51 USPQ2d 1466, 1468 (Fed. Cir. 1999). Connection alleges that the district court did not follow the Pharmacia & Upjohn standard. But the district court cited and quoted this exact holding from Pharmacia & Upjohn in its ruling denying the motion for attorney fees. Frank's Casing, No. 98-0254, slip op. at 4. Thus, the district court did not apply an improper standard or fail to consider the Vincents' inequitable conduct.

Gulfstream and Connection also urge that sanctions are appropriate because PMR allegedly knowingly sponsored false testimony by the Vincents, but the district court properly

distinguished between misconduct of the Vincents and misconduct of PMR and did not find a sufficient nexus between the Vincents' testimony and PMR to warrant recovery of attorney fees from PMR. We cannot say that the district court clearly erred in finding the facts or abused its discretion in declining to declare this an exceptional case.

CONCLUSION

For the foregoing reasons, we

AFFIRM-IN-PART, VACATE-IN-PART AND REMAND.

COSTS

No costs.