

United States Court of Appeals for the Federal Circuit

03-1444, -1490

CATERPILLAR INC.,

Plaintiff-Cross Appellant,

v.

STURMAN INDUSTRIES, INC.,
ODED E. STURMAN, and CAROL K. STURMAN,

Defendants-Appellants.

William K. West, Jr., Howrey Simon Arnold & White, LLP, of Washington, DC, argued for plaintiff-cross appellant. With him on the brief were Robert G. Abrams, Gregory J. Commins, Jr., Christopher J. DelliCarpini and Gary J. Fischman. Of counsel was Pamela S. Kane.

William A. Streff, Jr., Kirkland & Ellis LLP, of Chicago, Illinois, argued for defendants-appellants. With him on the brief were Paul R. Steadman, Mary E. Zaug, Craig D. Leavell, Mark L. Vanboncouer and Tiffany P. Cunningham.

Appealed from: United States District Court for the Central District of Illinois

Chief Judge Joe Billy McDade

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DECIDED: October 28, 2004

Before NEWMAN, DYK, and PROST, Circuit Judges.

PROST, Circuit Judge.

Sturman Industries, Inc., Oded E. Sturman, and Carol K. Sturman (collectively, Sturman) appeal from a decision of the United States District Court for the Central District of Illinois, Case No. 99-CV-1201, in which the jury found in favor of Caterpillar Inc. (Caterpillar) on its claims of trade-secret misappropriation, breach of contract, and conversion. In particular, Sturman appeals the district court's refusal to strike a juror for cause, the denial of judgment as a matter of law, the exclusion of a defense exhibit from evidence before the jury, the assignment of two of its United States patents to Caterpillar, and the grant of summary judgment in favor of Caterpillar on certain of Sturman's counterclaims. Caterpillar cross-appeals the trial judge's findings in favor of Sturman on issues of co-inventorship of various United States patents, as well as the

limitation on state unjust enrichment remedies as preempted by federal law. We reverse the district court's decision to allow a presumed biased juror to sit on the jury, vacate the jury's verdict and resultant remedies, and remand for a new trial on the state common law and statutory claims. In addition, we reverse the grant of summary judgment in favor of Caterpillar on Sturman's fraudulent inducement counterclaim, affirm the decision maintaining Mr. Sturman as the sole inventor of U.S. Patent Nos. 5,460,329 and 5,640,987, and reverse the decision naming Mr. Sturman the sole inventor of U.S. Patent No. 5,479,901.

I. BACKGROUND

A. Facts

As the district court noted, "[t]he technology at issue in this case is the use of magnetic latching in a fuel injector via the use of residual magnetism." Residual magnetism here refers to magnetism that a material continues to exert after it has been magnetized by the process of passing an electric current through a coil of wire wound around the material.

Mr. Sturman began his work in residual magnetism in the nineteen-sixties. On July 3, 1973, Mr. Sturman obtained U.S. Patent No. 3,643,898 (the '898 patent) on technology employing this phenomenon. The '898 patent relates to "[l]atching devices which utilize the residual magnetism retained in the relatively soft magnetic materials in the magnetic circuit for the latching force." '898 patent, Abstract. Figure 8 of the '898 patent (below) demonstrates relevant features of the claimed invention.

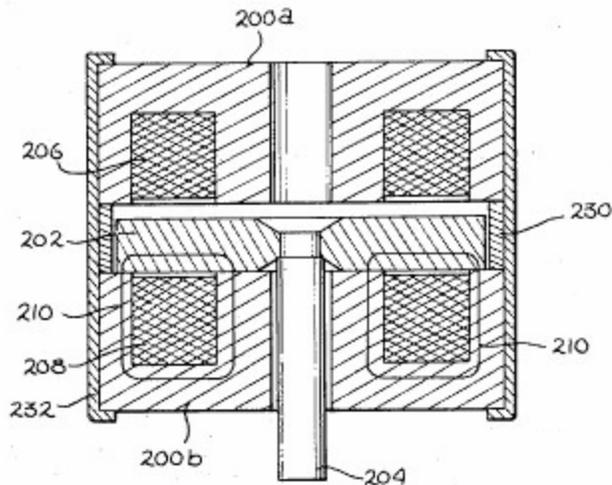


Fig. 8

In this design, the plunger or armature (202) moves up and down between the upper and lower pole pieces (200a, 200b). Id. at col. 12, ll. 15-29. This moves the attached actuating pin (204), which linearly actuates a valve or other device. Id. at col. 12, ll. 7-12. For example, to move the armature downward, the lower solenoid coil (208) is energized, thus magnetizing the housing and lower pole and creating a magnetic force that attracts the armature (202). Id. at col. 12, ll. 15-20. The current to the solenoid can be shut off once the armature is in contact with the lower pole because the armature will remain latched against the lower pole by the residual magnetism exerted by the material. Id. at col. 12, ll. 59-66; col. 13, ll. 22-24. To then move the armature upward, the upper solenoid coil (206) is energized. This, in turn, pulls the armature to the upper pole. When the armature touches the upper pole, the current to the solenoid is again shut off and the armature remains latched via residual magnetism.

In the late nineteen-eighties, Mr. Sturman worked for Cummins Engine Co. on fuel injector valves. While at Cummins, Mr. Sturman alleges he developed a fuel injector valve using residual magnetic latching. Caterpillar notes, however, that all of the resultant designs used permanent magnets. Later, in the early nineteen-nineties,

Sturman was developing applications for residual magnetism for both BKM, a California fuel injection consulting firm, and the United States Navy, among others.

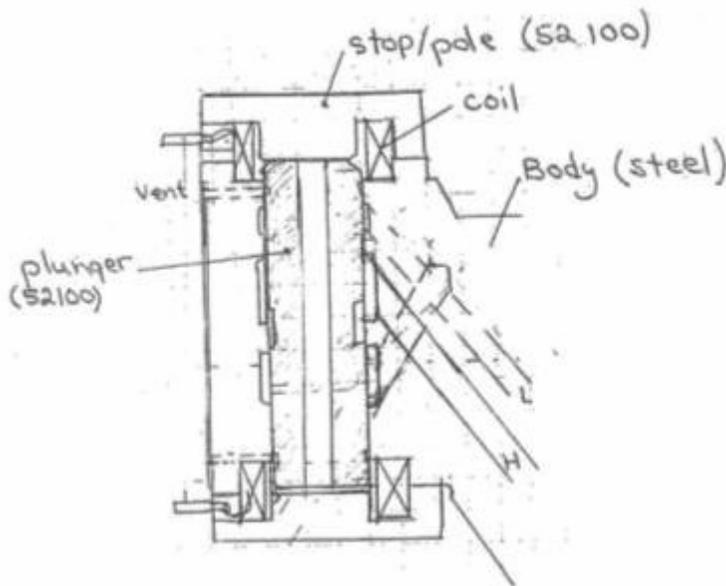
In 1991, Caterpillar and Sturman executed a Consultant Agreement to develop electronically controlled actuators and related driver circuits for possible applications in fuel systems for diesel engines. In 1992, the parties replaced the Consultant Agreement with a Joint Development Agreement (JDA). The purpose of the JDA was to develop "ACTUATORS and DRIVER CIRCUITS for CATERPILLAR's exclusive use in fuel systems for diesel engines."

Under the JDA, Sturman agreed to assign Caterpillar "INTELLECTUAL PROPERTY made or conceived by [Sturman] personnel, either alone or with others (a) pursuant to the [joint development program] or (b) resulting from CATERPILLAR'S PROPRIETARY INFORMATION." The JDA defined "INTELLECTUAL PROPERTY" as "patentable inventions, patents, copyrights, technical trade secrets and/or technical PROPRIETARY INFORMATION." Caterpillar agreed to pay Sturman royalties on any uses of such intellectual property going forward, even after termination of the JDA.

Pursuant to the JDA, Sturman and Caterpillar jointly developed actuators and driver circuits for fuel injection in diesel engines. The work related primarily to poppet valves using linear actuators, which operate under principles similar to those described above with respect to the '898 patent. The complete systems are known as mechanically actuated, electronically controlled unit injectors (MEUIs). Sturman assigned its rights in these inventions to Caterpillar, which obtained U.S. Patent Nos. 5,407,131 and 5,494,219 claiming such technology (the '131 patent and '219 patent, respectively). The MEUI designs under consideration under the JDA had demanding

physical requirements. They had to open and close nine hundred times per second, with a required life of a billion cycles. In addition, they required a sixty pound latching force over a 0.002 inch air gap. Thus, to make use of residual magnetic latching (as opposed to permanent magnets), it became necessary to find a material with both the necessary magnetic and physical characteristics capable of withstanding such demanding operational requirements. Caterpillar engineers Maley and Tharp engaged in this search, ultimately identifying hardened 52100 and 4140 steels as appropriate for residual magnetic latching in a MEUI.

From September 1 to September 3, 1992, Sturman and Caterpillar engineers met at Jumers Castle Lodge, a hotel in Peoria, Illinois, to discuss fuel injector designs. On the second day, the team met to “brainstorm alternate system designs.” The following morning, Mr. Sturman sketched an idea for an integrated spool valve employing residual magnetic latching using 52100 steel (below).



(Jumers Drawing.) Mr. Sturman marked his sketch “Confidential.”

The integrated spool valve works on different principles than the armature-with-connecting-pin design described above. The design eliminates the need for a separate armature and connecting pin; it integrates the armature function into the body of the spool itself. As depicted in the Jumers Drawing, an integrated spool valve comprises a spool-shaped piece—marked “plunger (52100)” —that moves back and forth within a cylindrical housing. When it moves from one position to another, it opens and closes different flow channels cut around the circumference of the spool. In the integrated spool valve, electromagnetic pole pieces reside at opposite ends of the spool. When an electric current is applied to the electromagnetic pole pieces at one end of the device, the spool is magnetically attracted thereto. After the spool has reached the end and the current has been shut off, residual magnetism latches the spool in place. When a current is drawn through the pole pieces at the opposite end (while a small current is passed through the latched end to demagnetize it), the electromagnetic force pulls the spool, causing it to slide towards and latch at the other end.

Caterpillar rejected the idea for a spool valve design for a MEUI for a variety of reasons, but primarily because it was not suitable for high pressure 30,000 psi fuel systems. Under these operating conditions, the valve leaked too much. Sturman agreed with this assessment and the parties did not further develop the idea of a spool valve for use in a MEUI. Nonetheless, Caterpillar engineers did recognize that Sturman’s integrated spool valve design had “tremendous potential.”

In fact, Caterpillar began exploring the idea of using an integrated spool valve for a hydraulically actuated, electronically controlled unit injector (HEUI). The district court found that contemporaneous memoranda indicate that the idea came from Sturman’s

design, as presented in the Jumers Drawing. Caterpillar never informed Sturman about its work using an integrated spool valve for a HEUI. Instead, it treated this project as independent and outside of the JDA.

By its own terms, the JDA expired in July 1993. To avoid paying ongoing royalties to Sturman under its terms, Caterpillar sought to amend the JDA. It offered Sturman a lump-sum payment of \$275,000 and sought a release of any claims involving the JDA in exchange. The parties executed the amendment on November 30, 1993.

In negotiating the release, Sturman repeatedly sought to determine which intellectual property arose under the JDA. In particular, as reflected in Mrs. Sturman's handwritten notes from an October 22, 1993, teleconference regarding the potential buy-out, the release was "to cover everything generated in the program," specifically the "2 applications w/ Eddie as co-inventor." A letter dated November 16, 1993, from Anthony Woloch in Caterpillar's patent department listed as "the inventions naming Eddie as a co-inventor and arising under the [JDA]," the two patent applications that matured into the '131 and '239 patents. This letter also asked Mr. Sturman to fill out an enclosed form if he believed any other inventions arose under the JDA. Finally, on the date the parties signed the amendment, Mrs. Sturman's handwritten notes reflect that she asked whether the release would cover "just these 2 applications as spelled out [in the] Nov. 16 letter from CAT?" According to the notes, Caterpillar responded that the "\$275,000 will cover whatever CAT [received] during our time together" and would "cover anything from the program that [Caterpillar] utilized now or in the future."

Following the 1993 dissolution of the JDA, Sturman began working on numerous other projects as a consultant. Much of this work focused on integrated spool valve

designs for clients including Navistar and BKM. In February 1994, Sturman published an article describing this technology in *Machine Design*. That spring, Sturman also filed two patent applications claiming this technology. The first application related to two-, three-, and four-way versions of the integrated spool valve technology and issued as U.S. Patent No. 5,640,987 (the '987 patent). The second application related to three- and four-way integrated spool valves for a HEUI and issued as U.S. Patent No. 5,460,329 (the '329 patent). Both patents are related to the spool-valve design depicted in Mr. Sturman's Jumers Drawing.

Meanwhile, Caterpillar continued its own work with an integrated spool valve design for use in a HEUI. In May 1994, Caterpillar's counsel drafted a patent application covering this technology. The application named Mr. Sturman as a co-inventor. Caterpillar therefore asked Mr. Sturman to sign the patent application and assign Caterpillar his rights in the invention. Mr. Sturman refused, claiming he had invented the technology outside the JDA. In response to the request, Mrs. Sturman sent Caterpillar a letter dated June 14, 1994, which stated:

Upon review of Patent Application No. 92-463, we have found that there must be some mistake. Sturman Industries has already applied for a similar patent independently. As per your letter of November 16, 1993, there were only two inventions that were derived out of our [JDA] The material in your Patent Application No. 92-463 is almost identical to work that Sturman Industries . . . did independently of Caterpillar.

In light of this, Caterpillar filed two separate applications. One was directed to two-way valves, which Mr. Sturman refused to sign and went abandoned. The other was directed to three-way valves, which did not name Mr. Sturman as an inventor and ultimately issued as U.S. Patent No. 5,479,901 (the '901 patent).

B. Prior Proceedings

On June 28, 1999, Caterpillar filed a complaint against Sturman in the United States District Court for the Central District of Illinois. Among other things, Caterpillar brought claims alleging Sturman violated the Illinois trade-secret statute, breached the JDA, and unlawfully converted Caterpillar's property. Caterpillar also sought correction of inventorship of Sturman's '329 and '987 patents. In response, Sturman counterclaimed, seeking, inter alia, correction of inventorship of the '901 patent and alleging fraudulent inducement of the amendment to the JDA.

Before trial, Caterpillar moved for summary judgment on Sturman's counterclaims. The district court granted-in-part Caterpillar's motion on the basis that many of Sturman's counterclaims were barred by the release in the amendment to the JDA and, further, because Sturman did not present genuine issues of material fact that it was fraudulently induced into signing that amendment. Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. Dec. 10, 2001) (order denying, inter alia, Sturman's fraudulent inducement claim). Among other things, the district court denied-in-part Caterpillar's summary judgment motion on Sturman's counterclaim seeking correction of inventorship of the '901 patent. Id.

At the beginning of trial, during the jury selection process, Sturman moved to dismiss for cause any current or former Caterpillar employees and their spouses. The district court denied Sturman's blanket objection, but specifically allowed Sturman to show cause for individual jurors. During that process, over Caterpillar's objections, Sturman sought to strike for cause any potential jurors with close ties to Caterpillar. The district court dismissed one juror whose husband was in management at Caterpillar, but

refused to dismiss other jurors who simply had a connection to certain of Caterpillar's union-contract employees. Sturman did not individually challenge for cause Juror No. 3¹, the spouse of a current Caterpillar employee, nor did it use one of its peremptory challenges to have her removed. Juror No. 3 ultimately sat on the jury.

At the conclusion of Caterpillar's case on the merits, Sturman moved for judgment as a matter of law (JMOL) under Rule 50(a) of the Federal Rules of Civil Procedure. Sturman argued that, based on Caterpillar's evidence, no reasonable juror could rule in favor of Caterpillar on its trade-secret, breach-of-contract, and conversion claims. The district court denied Sturman's motion. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. July 12, 2002) (order denying Sturman's motion for JMOL).

Thereafter, Sturman presented its case to the jury. As part of its case, Sturman sought to introduce into evidence DX410, an internal Caterpillar report prepared before the litigation discussing the merits of material choices for the spool valve. Caterpillar objected to the introduction of DX410. The district court sustained the objection, finding that its probative value was substantially outweighed by the danger of unfair prejudice and potential to mislead the jury. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. July 16, 2002) (order sustaining Caterpillar's objection to the admission of DX410).

The jury ruled in favor of Caterpillar on all counts before it. In response to a special interrogatory regarding the trade secret, the jury found that Caterpillar "proved by a preponderance of the evidence that workable magnetic latching in the fuel injector

¹ "Juror No. 3" refers to the juror who filled out Juror Questionnaire No. 3,

valve in the absence of permanent magnets via the use of a housing and armature made of a material with sufficient residual magnetism was first made or conceived pursuant to the [JDA].” With respect to the trade-secret misappropriation claim, the jury found in favor of Caterpillar and awarded \$1.00 in nominal damages and \$1.32 million in restitution for unjust enrichment. With respect to the breach-of-contract claim, the jury found that Sturman breached a variety of different clauses in the JDA but awarded only \$1.00 in nominal damages. Finally, the jury also found in favor of Caterpillar on its conversion claim.

The district court conducted a bench trial on the correction-of-inventorship claims. On Caterpillar’s claims for correction of inventorship of Sturman’s ’329 and ’987 patents, the court held that Caterpillar failed to rebut, by clear and convincing evidence, the presumption that Sturman, the named inventor, was the true and only inventor. See Caterpillar Inc. v. Sturman Indus., Inc., No 99-1201, slip op. 40 (C.D. Ill. Feb. 6, 2003) (Caterpillar Opinion). It therefore denied Caterpillar’s co-inventorship claim. On Sturman’s counterclaim for correction of inventorship of the ’901 patent, however, the district court found that Sturman had presented clear and convincing evidence to rebut the presumption that the Caterpillar engineers named on the patent were the true and only inventors. See id. Consequently, the court named Sturman as the sole inventor of the ’901 patent.

Thereafter, based on the jury findings, the district court granted Caterpillar additional remedies. Notwithstanding the district court’s inventorship findings in favor of Sturman regarding the ’329 and ’987 patents, the district court granted Caterpillar’s

not the juror who was seated third.

request for specific performance, ordering Sturman to assign Caterpillar sole ownership of those patents. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. Feb. 11, 2003) (order directing specific performance). The district court noted that the ruling depended on the jury's verdict that Sturman breached the IP-assignment clause in the JDA and converted the '329 and '987 patents in violation of Illinois law. In addition, the court imposed a constructive trust on all monies received by Sturman attributable to the '329 patent prior to January 2, 1996, at which point Caterpillar's '901 patent issued, ending any trade-secret claims. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. Feb. 10, 2003) (order imposing constructive trust).

On February 12, 2003, the district court entered final judgment in Caterpillar's favor on all litigated claims. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. Feb. 12, 2003). Sturman subsequently filed timely motions for judgment as a matter of law and for a new trial, which the district court denied. See Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. May 29, 2003) (order denying Sturman's renewed motion for JMOL); Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. May 30, 2003) (order denying Sturman's motion for a new trial). On June 3, 2003, Sturman filed a timely notice of appeal. Caterpillar responded with a timely notice of cross-appeal on June 27, 2003. After entering an amended judgment on June 30, 2003, see Caterpillar Inc. v. Sturman Indus., Inc., No. 99-1201 (C.D. Ill. June 30, 2003), Sturman filed a corrected amended notice of appeal on July 3, 2003, and Caterpillar filed an amended notice of cross-appeal on July 9, 2003.

We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

II. DISCUSSION

Sturman appeals (1) the district court's decision to allow Juror No. 3 to sit on the jury; (2) the district court's denial of Sturman's motions for judgment as a matter of law on Caterpillar's trade-secret and breach-of-contract claims; (3) the district court's exclusion of DX410 from evidence before the jury; (4) the district court's assignment of Sturman's '329 and '987 patents to Caterpillar on the basis of the jury's verdicts; and (5) the district court's grant of summary judgment in favor of Caterpillar on various Sturman counterclaims, particularly the fraudulent inducement counterclaim, as having been released under the amendment to the JDA.

Caterpillar cross-appeals (1) the district court's decision denying Caterpillar's claims that its engineers Maley and Tharp were joint inventors of the '329 and '987 patents; (2) the district court's decision that Sturman was the sole inventor of the '901 patent; and (3) the district court's limitation of Caterpillar's state unjust enrichment remedies as preempted by federal law.

We address each of these issues in turn.

A. Whether the District Court Erred By Seating Juror No. 3

1. Standard of review

The parties disagree as to the applicable standard of review. Caterpillar argues the more common abuse-of-discretion standard applies, while Sturman contends this case presents a legal question of implied bias, which is reviewed de novo.

Typically, the redress for an assertion of jury bias at the trial court is a hearing at which the defendant is afforded the opportunity to prove actual bias. Smith v. Phillips, 455 U.S. 209, 217 (1982). "While the Supreme Court has held that the question of whether an individual juror is biased is a factual determination entitled to deference on

review,” however, “it has never ‘precluded the use of the conclusive presumption of bias’ in ‘extreme’ or ‘extraordinary cases.’” Hunley v. Godinez, 975 F.2d 316, 318 (7th Cir. 1992) (quoting Smith, 455 U.S. at 217 (O’Connor, J., concurring)). Thus, in cases of implied bias, as opposed to actual bias, “[w]hether a juror’s partiality may be presumed from the circumstances is a question of law,” which we review de novo. Id.; see also Skaggs v. Otis Elevator Co., 164 F.3d 511, 517 (10th Cir. 1998) (“The determination of implied bias is a question of law reviewed de novo.”)

As discussed in detail below, Sturman’s arguments relate to whether the district court should have dismissed for cause Caterpillar employees, retirees, and their spouses due to their interest in the case, not whether Juror No. 3 had actual bias (which would be a factual question). Accordingly, Sturman presents a legal question of whether Juror No. 3 was impliedly biased and de novo review applies.

2. Arguments

Sturman argues that the district court erred by allowing Juror No. 3, the spouse of a Caterpillar employee, to sit on the jury. Juror No. 3’s marriage to an employee of a party and consequent financial interest in the case, Sturman contends, required the court to excuse her under United States v. Polichemi, 219 F.3d 698, 704 (7th Cir. 2000), and Getter v. Wal-Mart Stores, 66 F.3d 1119, 1122 (10th Cir. 1995). As Sturman points out, it therefore moved before trial to excuse all such potential jurors (including Juror No. 3) for cause, even warning the district court that failure to do so could warrant finding a mistrial. Contrary to Caterpillar’s arguments at the district court that the exclusion of these potential jurors would violate the rule set forth in Batson v. Kentucky, 476 U.S. 79 (1986), which prohibits, under the Equal Protection Clause, challenging

potential jurors solely on the basis of their race, Sturman asserts there is no constitutional right to have the employees of a party and their spouses sit on a jury, even if that party employs a large percentage of the local population. In addition, according to Sturman, having raised the blanket objection to the presence of such jurors, it was not required to raise the same point individually for each potential juror, nor was it required to use a peremptory challenge to dismiss the juror.

Caterpillar counters that Sturman waived its right to appeal the presence of Juror No. 3 because it did not individually object to her presence when offered the opportunity to do so by the district court. Sturman's blanket objection did not suffice, according to Caterpillar, because "[s]uch a 'class' is not presumed biased as a matter of law; rather, bias must be shown individually." Appellee's Br. 24. As such, Caterpillar contends, the district court did not abuse its discretion in denying Sturman's blanket objection and directing it to make individual for-cause showings. Citing Zamora v. Guam, 394 F.2d 815, 816 (9th Cir. 1968), Caterpillar argues Sturman waived objection by not making an individual motion to strike Juror No. 3 for cause. Moreover, Caterpillar asserts, the cases Sturman relies on do not hold that Juror No. 3 is biased as a matter of law. Caterpillar particularly points out that the juror at issue in Getter was challenged individually and presumed biased in part because of his stockholdings in Wal-Mart, not simply his spouse's employment there.

3. Analysis

The threshold issue with regard to the question of juror bias is whether the district court correctly concluded that Sturman waived objection to the presence of Juror No. 3 on the jury. If we disagree with the district court as to the waiver issue, we must

subsequently determine whether Juror No. 3 should have been deemed biased as a matter of law.

a. Whether Sturman waived objection to Juror No. 3

We hold that Sturman did not waive objection to Juror No. 3, who was married to a Caterpillar employee. If a party fails to raise an argument at trial, it waives any appeal of that issue because, barring a few exceptions, an appellate court does not consider arguments first made on appeal. See *Datamatic Servs. v. United States*, 909 F.2d 1029, 1034 (7th Cir. 1990). In this case, in considering Sturman's Motion for a New Trial Pursuant to Rule 59 of the Federal Rules of Civil Procedure, the district court had already considered the waiver issue, concluding that Sturman waived objection to Juror No. 3 by declining to individually challenge her for cause when offered the opportunity to do so. See *Caterpillar Inc. v. Sturman Indus., Inc.*, No. 99-1201 (C.D. Ill. May 30, 2003) (order denying Sturman's motion for a new trial). The court therefore concluded that Sturman could not, at that late stage in the trial, challenge the propriety of Juror No. 3. Id. (relying on *Frazier v. United States*, 335 U.S. 497, 513 (1949)).

In most cases, we are the first to consider the legal question of whether a party waived appeal of an issue, basing that decision on underlying facts. E.g., *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1426 (Fed. Cir. 1997). In considering the question of waiver here, however, we find ourselves reviewing the district court's conclusion that Sturman waived objection to Juror No. 3. Because the issue of waiver on appeal and the issue of waiver on a request for a new trial require the same legal determination based on the same underlying facts, we review the district court's legal determination de novo and factual determinations for clear error.

Having reviewed the transcript from the jury selection process in detail, we hold that Sturman did not waive objection to Juror No. 3. At the onset of the jury selection process, Sturman requested that the district court hear challenges for cause. Sturman noted that these challenges fell into two categories. “One [was] current employees or retirees from Caterpillar,” and the other was those closely related to them, for example, spouses or children. Sturman had a list of eleven people that it challenged for these reasons, including Juror No. 3. Discussing the motion with counsel in chambers, the court treated it as one to strike for cause all retirees and current employees of Caterpillar, as well as all spouses of retirees or current employees of Caterpillar.

Caterpillar contested the motion, arguing that the jury would not be representative of the community if people were dismissed on the basis of having ties with Caterpillar. In response, Sturman argued that it was not appropriate to have people on the jury whose financial livelihood came from a party to the proceedings. Even if these potential jurors claimed to be impartial, Sturman asserted, it was unlikely to be true given their inherent interest in the case. Sturman then reiterated that the challenge centered on current and retired Caterpillar employees and their spouses. Caterpillar concluded the discussion by contending any such blanket exclusion of potential jurors would violate the Supreme Court’s decision in Batson.

In ruling on Sturman’s challenges for cause, the district court sided with Caterpillar on the basis that “it would not be a representative community without some Caterpillar connection.” It did, however, exclude those potential jurors who knew potential witnesses. The district court also noted that, once it excluded this group, “any others you [Sturman] will have to make your record”; for those the court would “make a

decision individually.” The court reiterated, after excusing three potential jurors for knowing potential witnesses, “if you [Sturman] want to make individual motions for cause . . . you can. We will take them up individually.”

In making individual challenges for cause, Sturman argued beyond the parameters of the initial blanket objection, noting additional ties to Caterpillar. For example, with respect to one potential juror, Sturman noted that both daughters worked at Caterpillar. With respect to another, Sturman noted that, in addition to having her husband work at Caterpillar, her father had worked there and her son in law currently worked there.

While Sturman made its individual challenges, Caterpillar repeatedly objected that Sturman was simply rearguing its previous blanket objection individually. Caterpillar made this argument at least three separate times. For example, Caterpillar contended that “now what we’re doing is going one by one, and [Sturman] is going to make the argument with respect to each person that he is a current or retired person at Caterpillar, deriving a paycheck. Well, that is the same thing as striking all these people for cause.” In response, Sturman reminded the court that it “made a motion in the beginning for a group of people to try to expedite this matter. We could have gone one by one.”

During the individual for-cause arguments, the district court focused on whether each potential juror worked in management or held a union-contract position at Caterpillar, or whether the potential juror’s spouse was in management or held a union-contract position. The court explained its rationale by stating “if someone is in a union, they have a union contract, it solely isn’t at the whim of management. If they are

considered management, then they're not protected by a union contract. And I presume they may even have employment at will, and that makes a big difference, in my mind." Sturman disagreed with this logic, arguing that the dividing line was not appropriate because both management employees and employees under a union contract would have a financial interest in the outcome of the case.

Nearing the end of the process, Sturman returned to the issue of one of the potential jurors that the judge had originally passed on. In doing so, Sturman stated it would "not move to strike either of the latter two [jurors], although they have significant contact with Caterpillar—sons, as well as one of them's got a grandson—but we do renew our motion on [Juror]." The judge subsequently struck this juror because of his work in Caterpillar management.

Based on this record, we conclude Sturman did not waive objection to the presence of Juror No. 3 on the jury. While Sturman began its objection by more broadly trying to exclude all current and retired Caterpillar employees and their immediate family, the judge immediately narrowed the issue to one of current and retired Caterpillar employees and their spouses. The parties focused their arguments on this alleged ground for dismissal, making the arguments detailed above. Considering this basis alone as the reason for Sturman's for-cause challenges, the judge refused to dismiss any potential jurors. Thus, it is clear that Sturman voiced its objection to these potential jurors for reasons of implied bias, and the court distinctly ruled on the objection.

Further, we disagree with Caterpillar and the district court that Sturman had to individually challenge Juror No. 3 to later avoid waiving its objection. To begin,

Caterpillar's waiver arguments on appeal that Sturman was required to make individual objections to each and every juror are inconsistent with its position before the district court. As detailed above, Caterpillar repeatedly objected to Sturman's individual objections to jurors at trial, contending that all Sturman was doing was making the same arguments it made in its blanket objection. It therefore repeatedly asked the judge to deny Sturman's individual objections as having already been ruled on.

In any event, while the judge did advise Sturman to object to specific jurors individually after refusing to dismiss those jurors under Sturman's blanket objection, the context of those individual challenges reveals that the judge's request sought to elicit more factually particularized challenges where appropriate. In other words, having previously rejected Sturman's blanket objection, the judge would allow Sturman to make challenges for reasons supplemental to the original blanket objection, allowing Sturman to point out additional facts that might have warranted dismissing a potential juror for cause. This is best demonstrated by the fact that (as discussed) Sturman brought up additional facts about the individual jurors beyond the reasons given in the original blanket objection, particularly the employment by Caterpillar of other immediate family members. This is also highlighted by the judge's focus on whether an employee held a management or union-contract position at Caterpillar, a matter of fact beyond the bounds of the blanket objection. In making these additional arguments in its individual challenges, Sturman was going beyond the parameters of the original challenge.

Indeed, Sturman specifically stated it would not individually challenge Juror No. 3, despite having additional reasons for doing so. This highlights two things. First, as mentioned above, when the judge requested that Sturman make individual challenges,

Sturman treated that request as seeking additional reasons for dismissing jurors, above and beyond the reasons for its blanket objection. Second, by failing to do so, Sturman waived its right to appeal the issue of implied bias potentially resulting from any additional family connections to Caterpillar, having failed to preserve the record on this issue. Nonetheless, by its original objection on the record, Sturman preserved the blanket issue of whether Juror No. 3 should be presumed biased because of her husband's employment at Caterpillar.

Our holding is consistent with Zamora v. Guam, 394 F.2d 815, 816 (9th Cir. 1968), cited by Caterpillar in support of its argument. In Zamora, the United States Court of Appeals for the Ninth Circuit refused to overturn a guilty verdict based on allegations of juror bias. In that case, the defendant, Zamora, was charged with robbery after a police line-up. At trial, the defense attorney made a general objection to the presence of "repeat" jurors—jurors who had been on the jury for a previous murder trial against Zamora. The trial judge refused to dismiss all such jurors for cause, but "announced that defense counsel could explore the matter of prejudice with any juror." Id. Defense counsel did not question individual jurors as to any bias. The Ninth Circuit therefore concluded that defense counsel had made a deliberate choice of trial tactics by not pursuing the issue individually, thereby waiving the issue on appeal. Id.

Zamora is distinguishable from this case. As discussed before, actual bias and implied bias require the application of different legal tests. The bias at issue in Zamora was actual bias. Thus, the trial judge allowed defense counsel to "explore the matter of prejudice with any juror." This indicates that the bias at issue was a factual question that required inquiry of individual jurors. The bias at issue here, implied bias, did not

require such factual inquiry because it is an issue of law. The relevant facts—ties to Caterpillar through employment, retirement, or immediate relatives—were already on the record as a result of the voir dire process. Part of the rationale for the waiver doctrine—to encourage parties to develop a full record of the case—is therefore not applicable. In addition, Sturman already satisfied another rationale for the waiver doctrine—expeditiously informing the court about potential errors so as to put the court on notice of mistakes that, if left uncorrected, may result in reversal on appeal. Because this case deals with a legal question of implied bias, not actual bias, and the relevant facts were established during voir dire, Sturman preserved this issue by making its general objection.

b. Whether Juror No. 3 was biased as a matter of law

Having concluded from the record that Sturman did not waive objection to Juror No. 3, we must determine whether Juror No. 3 was biased as a matter of law such that the district court should have dismissed her. We conclude the district court erred by not dismissing Juror No. 3 for cause because she was biased as a matter of law.

Because the issue of juror bias is not an issue of patent law or procedurally related thereto and this case arose in the Central District of Illinois, we apply the law of the Seventh Circuit with regard to the issue of implied bias. See Utah Med. Prods., Inc. v. Graphic Controls Corp., 350 F.3d 1376, 1381 (Fed. Cir. 2003). We also look to opinions of the other regional circuits for their persuasive authority.

Courts may use the doctrine of implied bias to dismiss a potential juror in extraordinary circumstances. See Hunley, 975 F.2d at 318; see also Getter, 66 F.3d at 1122. This helps ensure the right to an impartial jury and a fair trial. Skaggs, 164 F.3d

at 514-17.² A party may demonstrate implied bias by “showing that the juror has a ‘personal connection to the parties or circumstances.’” Id. at 517 (quoting Gonzales v. Thomas, 99 F.3d 978, 987 (10th Cir. 1996)); see also Hunley, 975 F.2d at 319 (noting that, in criminal cases, potential jurors have been presumed biased in cases where they have been the victim of a crime or have experienced a situation similar to the one at issue in the trial). Specific examples of extraordinary circumstances in civil cases include owning stock in a corporation that was a party to the suit, Gladhill v. General Motors Corp., 743 F.2d 1049, 1050 (4th Cir. 1984); see also Getter, 66 F.3d at 1122 (concluding potential juror was biased as a matter of law because of stock ownership and his wife’s employment at defendant-company); as well as working as an employee of a party, see Francone v. Southern Pacific Co., 145 F.2d 732, 733 (5th Cir. 1944); United States v. Haynes, 398 F.2d 980, 984 (2d Cir. 1968).

The doctrine of implied bias has been addressed in detail by several circuit courts, including the Seventh Circuit. In Polichemi, the Seventh Circuit reevaluated its original conclusion that a juror should have been dismissed as a matter of law in light of an intervening Supreme Court case. In the original criminal trial at the district court, the defendants argued that a potential juror should be excluded on the ground of implied bias because she was a long-time employee of the United States Attorney’s Office that was conducting the prosecution. The district court refused to dismiss her for cause. On

² As the court noted in Skaggs, the Seventh Amendment guarantees a civil litigant the right to a trial by jury. 164 F.3d at 514. And while this right is not the same as that guaranteed by the Sixth Amendment, which grants the right to an “impartial” jury, it applies equally as a result of the Fifth Amendment’s due process protections. Id. Moreover, while most of the reported cases deal with the issue of implied bias in criminal proceedings, and therefore the Sixth Amendment, the reasoning of those cases is “germane” to the Seventh Amendment analysis here. Id. at 515 n.2.

petition for rehearing, the Seventh Circuit affirmed its prior conclusion that the district court should have excused the potential juror when the defendants moved to strike her for cause. It noted that “a court must excuse a juror for cause if the juror is related to one of the parties in the case, or if the juror has even a tiny financial interest in the case.” Id. at 704 (citing Getter, 66 F.3d at 1122) (emphasis added). Furthermore, the court so concluded despite assurances from the potential juror during voir dire that she could be fair and impartial. Id. at 703. Based on the close relationship between the potential juror and the prosecuting office, the Seventh Circuit concluded that the potential juror should have been dismissed as a matter of law, noting that “the law errs on the side of caution.” Id. at 704.

In Getter, the plaintiff sued Wal-Mart because she was injured in a slip and fall accident. At the district court, Getter challenged a prospective juror both because he owned stock in Wal-Mart and his wife was employed there. Getter, 66 F.3d at 1122. The district court refused to dismiss the juror for cause, however, and Getter used a peremptory challenge. Id. The appellate court began its review by noting that extraordinary conditions call for a presumption of bias, listing as examples of such conditions ownership of stock in a company or working for a corporation that was a party to the suit. Id. “In these situations, the relationship between the prospective juror and a party to the lawsuit points so sharply to bias in [the] particular juror that even the juror’s own assertions of impartiality must be discounted in ruling on a challenge for cause.” Id. (internal quotes omitted). Consequently, the court found that the district court abused its discretion as a matter of law by not dismissing the juror for cause. Id. “Due to his stock ownership and his wife’s employment, Mr. Agin’s financial well-being

was to some extent dependent upon defendant's. This is precisely the type of relationship that requires the district court to presume bias and dismiss the prospective juror for cause." Id.

We conclude that the district court should have dismissed Juror No. 3 for implied bias. Juror No. 3 had a financial interest in this case because her husband worked for Caterpillar at the time of the trial. As noted in Polichemi, even a tiny financial interest is enough to warrant dismissal. And it is legally irrelevant whether this financial interest arose due to his employment in management or under a union contract. We therefore disagree with the district court's reasoning during the jury selection process, whereby it either retained or dismissed potential jurors based on, respectively, employment under a union contract or, alternatively, in management. In either case, there is a financial interest in the outcome of the case. In addition, we find no distinction in the law between the financial interest of an at-will management employee and the interest of an employee under a union contract, nor do we advocate creating one.

The situation of Juror No. 3 is akin to the juror in Getter. As discussed, in Getter, the Tenth Circuit found that the district court erred by failing to dismiss a potential juror in part because he was married to a woman who worked for the defendant. Although there is no record in this case regarding stock ownership, as in Getter, Juror No. 3's "financial well-being was to some extent dependent upon defendant's." Id. She should have been presumed biased and dismissed for cause, despite assurances that she could be fair and impartial. See id.; Polichemi, 219 F.3d at 703.

Having concluded that Sturman preserved its objection to Juror No. 3 and that she was biased as a matter of law, we reverse the district court's decision to empanel

Juror No. 3.³ Because Juror No. 3 actually sat on the jury, we vacate the jury's verdicts in favor of Caterpillar on its claims of trade-secret misappropriation, breach of contract, and conversion, and order a new trial thereon. See Martinez-Salazar, 528 U.S. at 316 (ordering a new trial because a biased juror actually sat on the jury).⁴ In addition, we also vacate the district court's grant of specific performance ordering Sturman to assign the '329 and '987 patents to Caterpillar because the grant of this remedy was based purely on the jury's verdict.

B. Summary Judgment on Sturman's Fraudulent Inducement Counterclaim

As one of its counterclaims at trial, Sturman alleged that Caterpillar fraudulently induced it to execute the amendment to the JDA by misrepresenting its scope. At trial, Caterpillar filed a motion for summary judgment as to all of Sturman's counterclaims, which the district court resolved in Caterpillar's favor. With respect to the fraudulent inducement claim, the district court held that the evidence produced was insufficient to create a genuine issue of material fact and thereby preclude summary judgment. In particular, the court found that Mrs. Sturman's contemporaneous notes from the negotiations of the terms of the amendment demonstrated that Caterpillar clearly "communicated to Sturman that the release was to cover anything from the JDA that Caterpillar was utilizing or would utilize in the future." It further found Mr. Sturman's

³ Notably, Sturman did not have to use a peremptory challenge to correct the district court's error. United States v. Martinez-Salazar, 528 U.S. 304, 316 (2000).

⁴ Based on our decision, we do not address two other issues raised by Sturman on appeal: (1) whether the district court properly denied Sturman's motion for judgment as a matter of law; and (2) whether the district court properly excluded DX410 from evidence. Finally, we do not address the cross-appeal issue of whether the district court properly limited state unjust enrichment remedies as preempted by federal law.

affidavit self-serving and insufficient to create a genuine issue of material fact. It therefore concluded that Caterpillar did not fraudulently induce Sturman into signing the JDA amendment.⁵

We review the district court's grant of summary judgment de novo. See Davis v. Con-Way Transp. Cent. Express, Inc., 368 F.3d 776, 782 (7th Cir. 2004). Summary judgment is appropriate "if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). "The evidence of the non-movant is to be believed, and all justifiable inferences are to be drawn in his favor." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986).

On appeal, Sturman argues that the district court improperly granted summary judgment because there were genuine issues of material fact as to whether Caterpillar fraudulently induced Sturman to enter into the amendment, which contained the release. Sturman contends that Caterpillar falsely represented that it was considering only two inventions (not including the integrated spool valve technology) to be within the scope of the JDA. Given its repeated inquiries into which technology was covered by the JDA, Sturman argues, it was misled, in part, by Anthony Woloch's November 16, 1993, letter, which identified only two Sturman poppet-valve designs as "arising under the JDA." Sturman avers it understood this response to be a representation that

⁵ Because the spool valve technology was covered under the JDA—having been disclosed by Sturman to Caterpillar as an alternate solution—and the release applied to all actions arising out of the JDA, the court found that Sturman released all its claims regarding the integrated spool valve design.

Caterpillar did not consider Mr. Sturman's integrated spool valve design to have been made or conceived pursuant to the JDA. According to Sturman, had it known Caterpillar was using the design, it would have negotiated different terms for the amendment. Furthermore, Sturman contends, the district court erred by dispositively resolving the issue on the basis of Mrs. Sturman's contemporaneous notes; at best, it argues, they provide evidence for arguments to a jury. Finally, Sturman notes, a release is not effective against a claim of fraudulent inducement of that release under Illinois law.

Caterpillar contends otherwise, arguing that the district court properly granted summary judgment on Sturman's counterclaims as released under the amendment to the JDA. Focusing on the necessary elements of a fraudulent inducement claim, Caterpillar asserts that Sturman did not raise a genuine issue as to whether Caterpillar made a knowingly false statement of material fact for the purpose of inducing reliance, and that Sturman actually relied to its detriment. In particular, Caterpillar focuses, as did the district court, on Mrs. Sturman's contemporaneous notes, which it contends demonstrate that Sturman knowingly and willingly released all future claims. According to Caterpillar, because Sturman reviewed and signed the unambiguous release language, it cannot contend that Caterpillar misrepresented its scope, which is a legal and not a factual question. In addition, Caterpillar avers, Anthony Woloch's letter does not amount to a false statement because it never suggested that the two inventions over which Caterpillar asserted its rights were the only inventions it believed were conceived under the JDA.

We hold that the district court erred by granting summary judgment in Caterpillar's favor because, in one limited respect, we think that sufficient allegations of fraudulent inducement have been made to create a genuine issue of material fact. The amendment to the JDA, which contained the release, provided, in pertinent part, that Sturman

release and forever discharge Caterpillar, Inc. . . . from any and all claims, demands, actions or causes of actions at law or equity relating to or arising out of i) ACTUATORS and/or DRIVER CIRCUITS created under the PROGRAM (including derivatives thereof) which are manufactured by CATERPILLAR, . . . and/or ii) any subject matter of the [JDA].

There is a genuine issue as to whether, during the negotiations of the terms of the amendment, Caterpillar knowingly and falsely created the impression that it considered only two inventions to have been developed under the JDA, and that the integrated spool valve design was not one of them.

First, drawing all justifiable inferences in favor of Sturman, there are genuine issues of material fact as to whether Anthony Woloch's letter to Sturman was false or misleading with respect to the contemporaneous negotiation of the JDA amendment. Anthony Woloch, in his letter to Sturman on November 16, 1993, stated that "Exhibit A lists the inventions naming [Mr. Sturman] as a co-inventor and arising under the [JDA] between our companies." But Exhibit A listed only the patent applications that matured into the '131 and '219 patents and never mentioned the spool valve technology.

While we agree with Caterpillar that Woloch's letter did not state that Exhibit A listed the only inventions Caterpillar then believed were created under the JDA, one can justifiably infer that Sturman may have been lulled into thinking that this was then

Caterpillar's belief. Likewise, Caterpillar argues that Woloch's letter left open the question of what the JDA covered by asking Sturman if it knew of any other inventions that arose thereunder. But one might also reasonably infer that Woloch's letter suggested that Caterpillar otherwise had a complete list of the technology created pursuant to the JDA, only to be supplemented by Sturman.

Second, Mrs. Sturman's contemporaneous notes also demonstrate the existence of genuine issues of material fact. Drawing all justifiable inferences, these notes show that Sturman understood Caterpillar's representation regarding the technology at issue to be the "2 applications w/ Eddie as co-inventor," and that Mrs. Sturman asked "Would it be just these two applications as spelled out [in the] Nov. 16 letter from [Anthony Woloch]?" Mrs. Sturman's notes thus reflect the confusion that arose from the language in Anthony Woloch's letter; they suggest that Sturman understood Caterpillar to lay claim to only those two inventions under the JDA mentioned in Woloch's letter.

In conclusion, applying the standard for summary judgment and drawing all inferences in favor of Sturman, we conclude that the district court improperly granted summary judgment in favor of Caterpillar on the issue of Sturman's counterclaim of fraudulent inducement. Specifically, material issues of fact exist regarding whether Caterpillar knowingly intended to deceive Sturman with false statements to induce Sturman's signing of the amendment. In particular, as discussed above, one could justifiably infer from both Anthony Woloch's letter of October 16, 1993, and Mrs. Sturman's contemporaneous notes from the JDA amendment negotiations that Sturman was led to believe that Caterpillar understood the JDA to cover only the two patent applications and not the integrated spool valve technology. It is on this limited basis

that we reverse the district court's grant of summary judgment as to the fraudulent inducement counterclaim. Sturman's other allegations of fraudulent inducement concerning the scope of the release raise no material issues of fact, as, under Illinois law, interpretation of the language of the release is a question of law governed by the "traditional rules of contract interpretation." Hoseman v. Weinschneider, 322 F.3d 468, 473 (7th Cir. 2003). Contrary to arguments advanced by Caterpillar, however, the language of the release cannot be used to prevent a court from inquiring into whether the release itself may have been fraudulently induced. "As with any contract, a release may be set aside if there is fraud in the inducement." Id. at 476 (internal quotations and citations omitted); see also Lawrence v. Muter Co., 171 F.2d 380, 384 (7th Cir. 1940) (noting that fraudulent inducement can serve to vitiate a release even when the release language was unequivocal). We therefore reverse the grant of summary judgment on Sturman's fraudulent-inducement counterclaim in favor of Caterpillar and remand for trial.⁶

C. Caterpillar's Claims of Joint inventorship of the '329 and '987 Patents

At trial, the court found in favor of Sturman on Caterpillar's claims seeking correction of inventorship to the '329 and '987 patents. Following detailed factual findings, see Caterpillar Opinion at slip. op. 5-21, the district court arrived at this legal conclusion based primarily on the fact that the specific materials identified by Maley and

⁶ If, upon remand, Sturman is unable to demonstrate that the release was fraudulently induced, the district court's findings (not appealed by Sturman) that the release covered all of Sturman's claims arising under the JDA would stand. Apart from the fraudulent inducement issue, there has been no contention on appeal that the district court's holding that "Sturman's misappropriation of trade secrets claims with respect to the spool valve (Count I), fraud claim (Count V), and breach of contract claim (Count XX) have been released" was erroneous.

Tharp were not significant to the claimed spool valve technology. See id. at slip op. 44-45. While the district court agreed that Maley and Tharp’s research into 52100 and 4140 steels was important for the poppet valve design developed under the JDA, it found the demands of the integrated spool valve claimed in the ’329 patent to be far less. See id. at slip op. 41-42. In particular, the district court found that the spool valve did not require sixty pounds of latching force over a 0.002 inch air gap; it was a zero-air-gap system that, consequently, required much less latching force. See id. at slip op. 42-43. The district court also found that the ’898 patent taught that “substantially any magnetic material” would latch in a system with zero air gap. See id. at slip op. 43-44. Thus, the court concluded:

Given the existence of the ’898 patent, the existence of texts in the public domain separately detailing the physical and magnetic properties of these materials . . . and the claimed design of the ’329 patent, Caterpillar’s selection of 52100 and 4140 was merely the exercise of ordinary skill in the art and therefore not a significant addition to the conception of the ’329 patent.

Id. at slip op. 44. The district court therefore denied Caterpillar’s co-inventorship claim. For the same reasons, it denied Caterpillar’s request regarding the ’987 patent. See id.

Inventorship is a question of law that we review without deference. See Sewall v. Walters, 21 F.3d 411, 415 (Fed. Cir. 1994). We review the underlying findings of fact for clear error. See Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 980 (Fed. Cir. 1997).

On appeal, Caterpillar contends that the district court erred in denying Caterpillar’s claims that engineers Maley and Tharp were co-inventors of the ’329 and ’987 patents. With respect to the ’329 patent, Caterpillar notes that the claims include

the limitation “a material with enough residual magnetism to maintain [the] spool position” through residual magnetic latching. Moreover, Caterpillar argues, the preferred materials are the steels researched by Maley and Tharp. According to Caterpillar, because the ’329 patent claims were only allowed after being amended to include the “material with enough residual magnetism . . .” limitation, Maley and Tharp materially contributed to the claimed invention. In addition, Caterpillar argues, the district court applied an incorrect inventorship analysis. By finding that the contribution of Maley and Tharp “was not significant as compared to” the spool valve design, Caterpillar asserts, the district court failed to apply the proper test—whether the contribution was “not insignificant in quality” as measured against the whole. Caterpillar also argues that the district court incorrectly found that knowledge regarding which materials would work to achieve residual magnetism was public information that any person of ordinary skill in the art could apply in accordance with the teachings of Sturman’s ’898 patent.

With respect to the ’987 patent, Caterpillar also asserts that Maley and Tharp made a “not insignificant” contribution. In particular, Caterpillar points out, Sturman amended its patent claims to cover residual magnetism in the spool and housing, arguing that the invention relied on hard steel, a feature Sturman learned from Maley and Tharp. Caterpillar notes, however, that Sturman argued over a rejection by saying that the use of hard steels was not taught in the prior art, which included Sturman’s ’898 patent. In light of the amendments and arguments, Caterpillar avers, the district court erred by finding that Maley and Tharp’s contribution did not make a “not insignificant contribution.”

In response, Sturman argues that the district court correctly determined that Mr. Sturman is the sole inventor of the '329 and '987 patents. According to Sturman, the only contribution Maley and Tharp claim to have made—identifying 52100 and 4140 steel for residual magnetic latching—is not actually a claimed feature of either patent; thus, they do not qualify as co-inventors. And while the claims do generally recite a “material with enough residual magnetism to maintain said spool in position” (emphasis added), Sturman points out that Maley and Tharp never worked with Sturman on spool valves. In addition, Sturman avers, their materials search related to a fundamentally different type of design—a poppet valve that requires sixty pounds of latching force across a 0.002 inch air gap. With respect to spool valves, notes Sturman (echoing the district court’s findings), the choice of materials would have been an exercise of ordinary skill after the teachings of the '898 patent; the lesser demands of such a valve did not require specific materials.

Patent issuance creates a presumption that the named inventors are the true and only inventors. Hess, 106 F.3d at 980. To rebut this presumption, a district court must find clear and convincing evidence that the alleged unnamed inventor was in fact a co-inventor before correcting inventorship under 35 U.S.C. § 256. Pannu v. Iolab Corp., 155 F.3d 1344, 1350 (Fed. Cir. 1998). “[T]o be a joint inventor, an individual must make a contribution to the conception of the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention” Fina Oil & Chem. Co. v. Ewen, 123 F.3d 1466, 1473 (Fed. Cir. 1997). This requires more than merely exercising ordinary skill in the art—“a person will not be a co-inventor if he or she does no more than explain to the real inventors concepts that are well

known [in] the current state of the art.” Id. Finally, an alleged co-inventor’s testimony cannot, standing alone, provide clear and convincing evidence. Ethicon, Inc. v. United States Surgical Corp., 135 F.3d 1456, 1460 (Fed. Cir. 1998). Instead, an alleged co-inventor must supply evidence to corroborate his or her testimony. Id.

We agree with the district court that Caterpillar has not presented clear and convincing evidence to rebut the presumption that Mr. Sturman is the true and only inventor of the ’329 and ’987 patents. With respect to the ’329 patent, we defer to the district court’s findings of fact. In particular, we defer to its findings that: (1) neither Maley nor Tharp nor anyone else at Caterpillar had conceived of an integrated spool valve prior to being shown Mr. Sturman’s Jumers Drawing, Caterpillar Opinion, ¶ 9, at slip op. 9; (2) Caterpillar’s only claimed contribution to the ’329 patent was the identification of 52100 and 4140 steel for residual magnetic latching, id. ¶ 10, at slip op. 9; (3) an integrated spool valve such as that claimed in the ’329 patent has no air gap and requires significantly less than sixty pounds of latching, id. ¶ 11, at slip op. 10; (4) the contribution of suitable materials for the design claimed in the ’329 patent was not significant, id. ¶ 13, at slip op. 11; (5) the ’898 patent teaches that “substantially any magnetic materials” will work for residual magnetic latching in a zero-air-gap system such as the ’329 patent, id. ¶ 19, at slip op. 14; and (6) various publicly available texts and patents describe the basic magnetic properties of 52100 and 4140 steel, id. ¶¶ 24-25, at slip op. 16-17.

On the basis of the district court’s factual findings, we agree with its ultimate legal conclusion that Maley and Tharp should not be named as co-inventors of the ’329 patent. As Sturman argues on appeal, the facts found by the district court demonstrate

that they neither developed nor worked on an integrated spool valve under the JDA, that such a design does not require as much latching force, and, finally, that the teachings of the '898 patent together with information in the public domain regarding material properties would have made the choice of materials an exercise of ordinary skill in the art. Thus, the use of 52100 and 4140 steels was an insignificant contribution and does not support their claims of co-inventorship. In addition, we agree with the district court's legal conclusion because the '329 patent claims do not mention either 52100 or 4140 steel and Fina Oil requires that one contribute something to the claimed invention. 123 F.3d at 1473.

Caterpillar's arguments to the contrary are not persuasive. First, we disagree with Caterpillar that Sturman's amendments to the '329 patent claims demonstrate that Maley and Tharp made an inventive contribution. The addition of the "material with enough residual magnetism . . ." limitation is broad; it is not limited to the specific steels identified by Maley and Tharp. Moreover, as the district court found, when used in an integrated spool valve such as claimed in the '329 patent, the teachings of Sturman's '898 patent provide all that is necessary for one of skill in the art to identify the appropriate materials. We also reject Caterpillar's argument that the district court employed the incorrect legal standard. In considering whether Maley and Tharp contributed anything to the '329 patent, the district court specifically weighed the quality of their identification of 52100 and 4140 steel against the value of the whole design, concluding that the contribution was insignificant.

For the reasons discussed above, we also affirm the district court's decision to deny Maley and Tharp co-inventorship of the '987 patent. Specifically with respect to

Caterpillar’s arguments, we again note that the amendment of the claims was not relevant because the additional language broadly claimed residual magnetism and the ’898 patent taught those skilled in the art to identify the appropriate materials. In addition, the distinct hard steel limitation is also irrelevant because the ’898 patent teaches that “substantially any magnetic materials” will work for residual magnetic latching in a zero-air-gap system, whether hard or soft.

D. Caterpillar’s Claim of Joint inventorship of the ’901 Patent

With respect to Caterpillar’s ’901 patent, the trial court found in favor of Mr. Sturman as to his claim of sole inventorship. Caterpillar Opinion at slip op. 46. As the district court explained, Caterpillar’s ’901 patent generally claims a three-way integrated spool valve for use in a HEUI, in addition to other, more specific features. See id. Noting that Mr. Sturman originated the concept of a two-way integrated spool valve in the Jumers Drawing, the district court evaluated whether the additional features claimed by Caterpillar in the ’901 patent “were either significant or more than merely the exercise of ordinary skill in the art.” Id. In particular, the district court addressed Caterpillar’s arguments that a three-way configuration for use in a HEUI was a significant improvement. See id. at slip op. 47.

The court found that Mr. Sturman first developed this idea, as demonstrated by slides from a presentation to Caterpillar on October 14, 1992. See id. In this presentation, during which Mr. Sturman proposed an “integrated product line” of valves, the court found that Sturman revealed to Caterpillar an idea for a three-way spool valve configuration. See id. at slip op. 47-48. As for Caterpillar’s other alleged improvements—hollowing the spool valve, narrowing the waist of the spool, and partially

blocking the channels in the spool—the court found that these were either an exercise of ordinary skill in the art or disclosed in the Jumers Drawing. See id. at slip op. 48-49. Consequently, the district court held in favor of Sturman on its counterclaim seeking sole inventorship of the '901 patent. See id. at slip op. 49.

We apply the same standard of review and legal rules detailed above in our discussion regarding Caterpillar's co-inventorship claims to the '329 and '987 patents.

Caterpillar appeals the district court's conclusion that Mr. Sturman was the sole inventor of the '901 patent. In keeping with its arguments regarding the '326 and '987 patents, Caterpillar generally argues that the court erroneously focused on the “heart” of the invention—a spool valve—as opposed to other claimed features, which were not old or disclosed in the Jumers Drawing. First, Caterpillar contends, Sturman never worked with Caterpillar on a three-way spool valve for a HEUI, and certainly never had a “definite and permanent idea” of such a device such that he could be considered the sole inventor. Second, according to Caterpillar, the Jumers Drawing and Sturman's October 14, 1992, presentation mentioning a three-way valve do not evidence conception of the invention claimed in the '901 patent. Specifically with respect to the marketing presentation, Caterpillar argues that nothing suggests that Sturman was introducing a new design for a three-way integrated spool valve for a HEUI. Third, Caterpillar asserts, the district court erred in failing to find any suggestion for combining the claim features it considered within the skill of the art, thereby failing to appreciate the novelty of the combination. Consequently, Caterpillar asks that we reverse the district court's inventorship conclusion because, it insists, Mr. Sturman did not clearly and convincingly show that he alone conceived everything claimed in the '901 patent.

In response, Sturman argues that the district court correctly determined that Mr. Sturman is the sole inventor of the '901 patent. Contrary to Caterpillar's assertions, Sturman contends, Mr. Sturman need not have shown he conceived of everything claimed in the '901 patent. Instead, according to Sturman, Mr. Sturman need only satisfy the inventorship test described above. As it did with respect to the '326 and '987 patents, Sturman counters Caterpillar's arguments that the district court erroneously focused on the "heart" of the invention by asserting that the court correctly applied the law and measured Caterpillar's contribution against the "full measure of the invention," concluding that they did not meet the standard for inventorship. Moreover, according to Sturman many of Caterpillar's arguments relate to findings of fact, which it fails to demonstrate were clearly erroneous. In particular, Sturman points out, the district court found both that Mr. Sturman conceived the idea for a spool valve and suggested the idea for a three-way valve, only after which Caterpillar developed a three-way integrated spool valve for a HEUI and claimed it in the '901 patent.

As the district court found, all the claims generally cover a three-way, dual-solenoid, integrated spool valve used to control the flow of working fluid in a HEUI. Caterpillar Opinion at slip op. 23-24. Notably, we agree with the court's finding that Mr. Sturman conceived of a two-way integrated spool valve. Id. ¶¶ 9-11, at slip op. 25-26. We note also that the district court found that a three-way valve is more complex than the two-way valve conceived by Mr. Sturman. Id. ¶ 13, at slip op. 26. Given this difference in complexity, we conclude that the idea for a three-way valve was "not insignificant in quality, when . . . measured against the dimension of the full invention," Fina Oil, 123 F.3d at 1473, and, consequently, was worthy of an inventorship claim.

We conclude that the district court clearly erred in finding that, in addition to conceiving the design for an integrated spool valve, Mr. Sturman presented clear and convincing evidence that he also conceived the idea of a three-way version of the valve applied to a HEUI. In particular, the district court clearly erred in finding that Mr. Sturman disclosed the idea as part of a proposal for an integrated product line in his October 14, 1992, presentation. Caterpillar Opinion ¶¶ 14-15, at slip op. 26-27. Having reviewed the slides from the presentation, we agree with Caterpillar that they do not demonstrate that Mr. Sturman conceived of the idea of a three-way integrated spool valve. These slides relate to a presentation entitled “Advanced Solenoid Valve Manufacturing,” and one slide particularly related to Mr. Sturman’s proposal for an integrated product line. Although that slide does mention both a “2-way valve” and “3-way valve,” it does not refer to an integrated spool valve. Nor is there any reference to such a valve elsewhere in the presentation. Instead, as Caterpillar points out, the presentation as a whole relates to plans to continue with the initial proposal for a traditional solenoid valve (such as the one described above in relation to the ’898 patent). Consequently, we conclude that the district court’s finding that Mr. Sturman disclosed the idea for a three-way integrated spool valve in his presentation to Caterpillar on October 14, 1992, was clearly erroneous.

Accordingly, we reverse the district court’s ultimate legal conclusion that Mr. Sturman was the true and sole inventor of the invention claimed in the ’901 patent. Because Mr. Sturman did not present clear and convincing evidence that he conceived of the idea for a three-way integrated spool valve in his presentation, there is insufficient

corroborating evidence proving that Mr. Sturman was the sole inventor of the '901 patent.⁷

III. CONCLUSION

For the reasons stated above, we:

(A) REVERSE the district court's decision to allow Juror No. 3 to sit on the jury, and therefore VACATE the jury's verdict and resultant remedies and REMAND for a new trial on the state common law and statutory claims (rendering moot Sturman's issues regarding the denial of JMOL in favor of Sturman, assignment of the '329 and '987 patents to Caterpillar, and exclusion of DX410 from evidence);

(B) REVERSE the grant of summary judgment in favor of Caterpillar on Sturman's fraudulent-inducement counterclaim;

(C) AFFIRM the decision that Mr. Sturman is the sole inventor of the '329 and '987 patents; and

(D) REVERSE the decision naming Mr. Sturman the sole inventor of the '901 patent.

⁷ As Caterpillar points out, Mr. Sturman only sought to have himself declared the sole inventor. We therefore decline to address whether he might be a joint inventor.