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United States Court of Appeals for the Federal Circuit

01-1453,-1454

THE READ CORPORATION,
F.T. READ & SONS, INC., and NORDBERG-READ, INC.,

Plaintiffs-Cross Appellants,

v.

POWERSCREEN OF AMERICA, INC.,
POWERSCREEN INTERNATIONAL DISTRIBUTION, LTD.,
and POWERSCREEN INTERNATIONAL, PLC,

Defendants-Appellants.

DECIDED: August 7, 2002

Before CLEVINGER, BRYSON, and PROST, Circuit Judges.

Opinion for the court filed by Circuit Judge BRYSON. Dissenting opinion filed by Circuit Judge PROST.

BRYSON, Circuit Judge.

Powerscreen of America, Inc., Powerscreen International Distribution, Ltd., and Powerscreen International, PLC (“Powerscreen”) appeal the judgment of the United States District Court for the District of Massachusetts, finding Powerscreen liable for infringement of U.S. Patent No. 4,237,000

(“the ’000 patent”) and awarding enhanced damages and attorney fees to plaintiffs Read Corp., F.T. Read & Sons, Inc., and Nordberg-Read, Inc. (“Read”). Read cross-appeals the district court’s judgment that Powerscreen did not infringe U.S. Patent No. 4,256,572 (“the ’572 patent”). We affirm in part and reverse in part.

I

Before the trial court, the parties focused on whether the centerplate structure of Powerscreen’s portable earth-sifting device, the Powergrid, infringed claim 1 of the ’000 patent and whether the front jacking legs of the Powergrid infringed claim 1 of the ’572 patent. The jury returned a verdict that the Powergrid did not infringe the ’572 patent and did not literally infringe the ’000 patent, but that the Powergrid infringed the ’000 patent under the doctrine of equivalents and Powerscreen induced others to infringe that patent. The jury found that Powerscreen’s infringement was willful and awarded damages of \$14,483,320 to Read. The trial court denied Powerscreen’s motion for JMOL or a new trial, doubled the jury’s damages award pursuant to 35 U.S.C. § 284, awarded attorney fees under 35 U.S.C. § 285, and added prejudgment interest. The court also denied Read’s motion for JMOL with respect to the jury’s verdict of non-infringement of the ’572 patent. The court entered judgment for Read in the amount of \$34,921,739.09. Both parties appeal the district court’s denial of their respective motions for JMOL.

II

Before reaching the merits, we first address a procedural issue raised by Read. Read asserts that Powerscreen waived its challenge to the sufficiency of the evidence of the jury’s verdict of infringement under the doctrine of equivalents because Powerscreen failed to raise that issue with sufficient specificity in its pre-verdict Rule 50(a) motion for JMOL. The district court ruled that Powerscreen did not waive the issue, and we agree.

The primary focus of Powerscreen’s Rule 50(a) motion with respect to the ’000 patent was that Read failed to present evidence of the direct infringement that is necessary to support a finding of inducement. In particular, Powerscreen argued that there was no evidence that users of the Powergrid infringed the ’000 patent by installing a bolted connecting plate between the two screens of the Powergrid shaker assembly. In the introduction, in a section heading, and in the conclusion of its motion, however, Powerscreen broadly asserted that the evidence did not support a finding that Powerscreen infringed the ’000 patent. Those assertions, although presented without elaboration, were sufficient to preserve Powerscreen’s legal challenge to the sufficiency of the evidence with respect to infringement, including infringement under the doctrine of equivalents. See Malta v. Schulmerich Carillons, Inc., 952 F.2d 1320, 1324-25, 21 USPQ2d 1161, 1164 (Fed. Cir. 1991) (holding that a barebones motion for directed verdict on the issue of noninfringement was adequate to support a post-verdict JNOV motion concerning the doctrine of equivalents); Texas Instruments, Inc. v. Cypress Semiconductor Corp., 90 F.3d 1558, 1566 n.6, 39 USPQ2d 1492, 1498-99 n.6 (Fed. Cir. 1996) (same).
[1]

III

A

On the merits, we review the district court’s denial of the parties’ respective motions for JMOL without deference. See Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172

(Fed. Cir. 1998) (en banc). We review the jury's resolution of all factual disputes for substantial evidence. Id. "Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." Consol. Edison Co. v. NLRB, 305 U.S. 197, 229 (1938). In performing that task, we must consider all the evidence in the light most favorable to the Read, the nonmoving party, without weighing the credibility of witnesses and without substituting our judgment for that of the jury in deciding factual issues on which there is conflicting evidence. Biodex Corp. v. Loredan Biomedical, Inc., 946 F.2d 850, 859, 20 USPQ2d 1252, 1259 (Fed. Cir. 1991)

B

To establish infringement under the doctrine of equivalents, Read was required to show that the accused Powergrid device contains elements that are identical or equivalent to each limitation recited in claim 1 of the '000 patent. Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 39 (1997). An element of an accused device is equivalent to a limitation of the claimed invention if the differences between them are insubstantial or if each element of the accused device performs substantially the same function in substantially the same way to obtain the substantially the same result as the corresponding limitation of the asserted claim. Id.

In arguing that the evidence was sufficient to support the jury's finding of infringement under the doctrine of equivalents, Read relies principally on the testimony of two witnesses, Alexander Slocum and Neill Suitor. After carefully reviewing the testimony of those two witnesses, we conclude that Read failed to elicit the evidence necessary to support the jury's finding of infringement under the doctrine of equivalents.

Read introduced its inducement case through its expert, Mr. Slocum, who testified extensively as to the disadvantages of the Powergrid's centerplate structure. Specifically, he testified that Powergrid's dual centerplate structure allowed displacement between the screen decks, which resulted in cracking problems in the Powergrid shaker assembly. Accordingly, he advanced the theory that in 1997 Powerscreen introduced its "bolt hole" design to induce users to overcome the displacement between the Powergrid screen decks by bolting a connecting plate that joined the centerplates of each deck. Mr. Slocum articulated that theory as follows:

How would I reduce the deflection? The logical thing is when you see this large breathing mode [the movement of the centerplates and front crossbeams in opposite directions] is to pin it. The way I would stop the displacement between the upper and lower decks from happening to make the machine behave like we want to there is I would put a connection between the ends.

Mr. Slocum's theory was that the Powerscreen drilled bolt holes at the front ends of Powergrid centerplates in 1997 in order to induce users to install connecting plates (or "side plates") to join the ends of the upper and lower screen decks and thus solve the cracking problem.

The record makes clear that most of Mr. Slocum's testimony was directed to supporting Read's inducement theory, rather than showing equivalence. Evidence on the doctrine of equivalents, however, cannot merely be "subsumed" in Read's inducement case, Lear Siegler, Inc. v. Sealy Mattress Co., 873 F.2d 1422, 1425, 10 USPQ2d 1767, 1770 (Fed. Cir. 1989); rather, Read was required to offer particularized testimony and argument in support of its theory of equivalence on a limitation-by-limitation basis, see Texas Instruments, 90 F.3d at 1567, 39 USPQ2d at 1999. The only portion of Mr.

Slocum's testimony that relates to the doctrine of equivalents is the following colloquy on his redirect examination:

Q: Does the structure perform the function of that element [the "rigid longitudinal center plate"] of the claim?

A: It inefficiently performed the function.

Q: And what was the way in which it performed that function?

A: The way in which it performed it was it actually had portions of metal that connected, physically, part of the top center plate to the bottom centerplate, and that it also had the capability to very efficiently, almost 100 percent, couple it, should the side bolts be added back on to where they apparently were before.

Q: And what was the result of that structure?

A: Well, the way I saw the machine, without the side plates on, the machine clearly functioned. They sold it. It vibrates, it shakes. The warranty discussions I had read as part of my background for this had said there was cracking. And when I also saw the paint that had been imprinted by side plates bolted on after the machine had been built, told me that someone said this is a problem and let's make it a more efficient coupling by bolting on those plates.

We find no fault in Read's reliance on the "function-way-result" test, because that test is particularly suitable for analyzing mechanical devices such as the claimed shaker assembly. See Warner-Jenkinson, 520 U.S. at 39. We conclude, however, that Mr. Slocum's testimony on function, way, and result did not provide an adequate evidentiary basis to support the jury's finding of infringement.

With respect to "function," Mr. Slocum testified that the accused structure "inefficiently performed the function" of the claimed centerplate. That is, he testified that the centerplates of the Powergrid performed the function of the claimed centerplate but that they did so poorly, which undermines rather than supports a finding of equivalence.

As to "way," Mr. Slocum's testimony was wholly deficient. He did not compare the accused structure to the claim or offer any explanation as to whether or how it would perform in substantially the same way as the claimed invention in the absence of connecting plates installed at the front end of the centerplates. See Texas Instruments, 90 F.3d at 1568, 39 USPQ2d at 1500 (expert testimony delivered

in “conclusive fashion” was insufficient because “there was no discussion of whether or how the way the [element of the accused device] operates was similar to the patent claim, nor was there any particularized testimony explaining why the function and result were the same”).

Finally, as to “result,” Mr. Slocum’s statement that the Powergrid achieved the same result as the claimed invention because “they sold it” is clearly directed to the screening device as a whole and not to the claim limitation of the rigid longitudinal centerplate that is disputed in this appeal. Testimony that the Powergrid as a whole performed the same function as the claimed shaker assembly cannot support a finding of equivalence. “[G]eneralized testimony as to overall similarity” between the claims and the accused infringer’s product or process “cannot support a finding that the differences are ‘insubstantial.’” Id.

The purpose of requiring particularized testimony with respect to equivalence is to ensure that the jury is provided with the proper evidentiary foundation from which it can conclude that a disputed claim limitation has been met by an equivalent. Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1188, 48 USPQ2d 1001, 1006 (Fed. Cir. 1998). Mr. Slocum’s testimony does not provide such a necessary foundation. If anything, the import of Mr. Slocum’s testimony is that without a connecting plate the accused device was substantially inferior to the device recited in the patent. That is not evidence of equivalence but evidence of nonequivalence.

Read also directs us to the testimony of Powerscreen’s expert witness, Mr. Sutor. Although Mr. Sutor did not testify at trial, portions of his deposition testimony were read to the jury. Read argues that Mr. Sutor “admitted” that the Powergrid centerplates were equivalent to the “rigid longitudinal centerplate” claimed in the ’000 patent. We disagree and instead conclude that Mr. Sutor’s testimony, like Mr. Slocum’s, is insufficient to support the jury’s conclusion that Powerscreen infringed under the doctrine of equivalents.

Much of Mr. Sutor’s testimony was directed to a comparison between two different Powergrid centerplate designs. The first design, built for the U.S. market, is the two-centerplate device accused of infringement in this case. The second design, built for the European market, consisted of a single centerplate. Powerscreen admits that the European-style single centerplate design would have literally infringed if it had been deployed in the U.S. market. Read cites the following excerpts from Mr.

Suitor's testimony:

Q: Why is that plate [the centerplate of the U.S. version of the Powergrid][2] included in the screen box at all?

A: It's used to connect the cross beams which run transversely to each other.

Q: Does it strengthen the screen?

A: Yes.

Q: How does it strengthen the screen box?

A: It rigidly connects the cross beams on each deck and transmits the force from one to the other and into the back plate.

Contrary to Read's contention, Mr. Suitor's testimony does not constitute an admission that the accused U.S. centerplate design satisfies the claim requirement that the invention "join[s] the upper and lower levels of structural cross beams such that forces applied to the screen assembly are transmitted through the centerplate to the joined cross beams." Rather, his testimony states only that the U.S. centerplate design connects the crossbeams within each level; that is, one centerplate connects the upper crossbeams and the other centerplate connects the lower crossbeams. The dissent argues that Mr. Suitor's testimony could be interpreted to mean that the centerplates transmit the forces "from one [deck] to the other [deck] and into the back plate." That interpretation, which requires insertion of the critical terms, is contrary to Mr. Suitor's words. He made quite clear that each centerplate connected the cross beams "on each deck," i.e., that each centerplate simply transmitted force from one cross beam to another within the same deck. Mr. Suitor's testimony is silent as to whether, and to what extent, forces on the crossbeams of each deck were transmitted through the back plate and to the crossbeams of the other deck. The cited testimony therefore does not constitute evidence that the centerplates in the accused device transmit forces between the two decks.

Mr. Suitor next testified as follows regarding the accused U.S. Powergrid and its European counterpart:

Q: Do the screens that are built in accordance with Suitor Exhibit 1 [the U.S. design] perform any differently to the screens built in accordance with Suitor Exhibit 2 [the European design]?

A: No.

Q: You say no?

A: No.

Q: Do they perform substantially the same way?

A: Yes.

....

Q: And do both those screens screen material?

A: Yes.

Q: Do they achieve substantially the same result?

A: Yes.

It is clear that both the questions posed by counsel and Mr. Suitor's responses are directed solely to a comparison of the reliability and performance of the large and small mesh screens of the U.S. and European Powergrid models, not to a comparison of the two different centerplate designs. It cannot be interpreted as an admission that the U.S. Powergrid centerplates infringe the '000 patent under the doctrine of equivalents. In fact, two transcript pages earlier, Mr. Suitor expressly testified that the U.S. centerplates did not achieve substantially the same function as their European counterpart:

Q: What is the function of Exhibit 2 [the European centerplate]?

A: That is the center division plate that joins [the] top and bottom deck together on the Powergrid screen box.

Q: And what was the result achieved by that?

A: There is a slight improvement in the structure, structure integrity.

Q: And what is the way in which that improvement is achieved?

A: By making the connection towards the front of the screen box it causes two parts to be rigidly connected.

Q: Does the center plate of [the U.S. design] achieve substantially the same function?

A: No.

Q: Because -- and why do you say that?

A: Because there is no connection at the front part of the screen box.

That testimony is consistent with other portions of Mr. Suitor's testimony to the effect that the U.S. and European centerplate designs were in fact, very different:

Q: So now I'm confused. Prior to 1990?

A: There was one design.

Q: One design was what?

A: It has two individual centre plates.

Q: One bracing the top members to each other, cross members, and the other bracing the bottom cross members to each other?

A: Correct.

Q: Post 1990 what was the configuration of the centre bracing member method?

A: Post 1990 we have two designs which run concurrently. One is as discussed before, continue [sic] unchanged and we have a second design which essentially joins the top and bottom deck together by adding a piece of material in the gap between the upper and bottom bracing plates to finish up with one large plate it [sic] covers both sets of cross members.

Q: Now why do you have a design -- for what purpose do you have a design for bracing member that attaches the top cross members to the bottom cross members?

A: Because it is structurally superior.

Q: And what makes it structurally superior?

A: The vibration between the top deck and the bottom deck is in a different phase or a different style of vibration and the net result is that you have only about half of the problematic or out of phase vibration experienced between the two crossbeams and surrounding structure. In fact what it does is it reduces the problem by 50 percent.

Given the extent to which Mr. Suitor testified as to the differences between the U.S. and European centerplates, it would be unreasonable to infer that his “function-way-result” testimony was directed to a comparison of those centerplates, rather than to a comparison of the mesh screens on the U.S. and European devices. Like Mr. Slocum’s testimony, then, Mr. Suitor’s testimony does not provide sufficient evidence for a jury to determine that the Powergrid centerplates are equivalent to the claimed “rigid, longitudinal center plate.”

Because we conclude that the evidence was not sufficient to support the jury’s finding that Powerscreen infringed the ’000 patent under the doctrine of equivalents, we hold that Powerscreen is entitled to judgment as a matter of law on that issue. For that reason, it is unnecessary for us to address Powerscreen’s argument that a finding of equivalence in this case is precluded as a matter of law because it would vitiate the claim limitation requiring that the longitudinal centerplate be “rigid.” See Warner-Jenkinson, 520 U.S. at 29 (“It is important to ensure that application of the doctrine [of equivalents], even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.”).

C

Read's theory of infringement under the doctrine of equivalents was directed to all 508 Powergrid devices sold in the United States between 1990 and early 1999, and the jury's verdict was based on finding infringement with respect to all of those devices. Read offered a second theory of liability at trial, that Powerscreen placed bolt holes in its Powergrid design to induce customers to install connecting plates between the two screen decks. That theory of induced infringement applied only to those devices sold in the United States after 1997, when Powerscreen introduced the bolt-hole design.

A finding that a claim is infringed is a necessary prerequisite to a finding that there has been an act constituting inducement to infringe under 35 U.S.C. § 271(b). Zenith Labs., Inc. v. Bristol-Myers Squibb Co., 19 F.3d 1418, 1423 n.5, 30 USPQ2d 1285, 1289 n.5 (Fed. Cir. 1994). Therefore, to sustain the jury's finding of inducement, Read was required to offer evidence sufficient to show that someone in the United States actually inserted the connecting plate so as to constitute direct infringement (either literal or by equivalence) of claim 1 of the '000 patent. Based on the trial record, it is clear that no reasonable jury could have found an underlying act of direct infringement.

Read's witnesses, Mr. Read and Mr. Slocum, both admitted that they had never seen a Powergrid with connecting plates in the United States. No other witness testified that even a single Powergrid machine in the United States had connecting plates. The only evidence of direct infringement cited by Read was the testimony of Mr. Slocum, who inspected a Powergrid in Louisville, Kentucky in 1999 and observed a paint pattern on its centerplates that suggested that a connecting plate had once been installed on the machine. Mr. Read offered similar testimony concerning a Powergrid he inspected in Chelmsford, Massachusetts. Powerscreen does not dispute that the connecting plates were installed on Powergrid machines during their manufacture in Northern Ireland. The evidence was that those connecting plates remained on the units that were shipped to Europe, but were removed from the units destined for the United States, allowing Powerscreen to have a single screen box that it could manufacture for anywhere in the world, but which it could convert for the American market if necessary. In light of that evidence regarding the reason for the bolt holes, there is no basis in the record for inferring that an act of direct infringement occurred in the United States.

The dissent suggests that many of Powerscreen's customers may have installed the connecting plates, but there is no probative evidence to support that contention. Read produced no direct evidence that even a single machine had been modified in that manner in the United States; the only evidence that Read could muster in support of its inducement theory was the paint mark evidence suggesting that a connecting plate once had been attached to two Powergrid devices. In light of the evidence that the

connecting plates were placed on the machines during manufacture overseas but removed prior to their importation into the United States, the “paint marks” evidence is insufficient as proof of even a single act of infringement in the United States.

The dissent discusses Mr. Slocum’s testimony that the Powergrid devices would have a tendency to crack without the inclusion of the connecting plates, as well as the fact that of the more than 500 devices sold in the United States, fewer than 10 customers submitted warranty claims based on cracking. The dissent relies on those two pieces of evidence to support the inference that most, if not all, of Powerscreen’s customers installed the connecting plate. Because Powerscreen did not introduce the “bolt hole” design until late in 1997, the warranty claim evidence cannot support a finding of inducement with respect to any Powergrid devices manufactured prior to 1997. Furthermore, as to those devices manufactured after 1997, the inference that the dissent draws from the small number of warranty claims is unconvincing. At the same time that Powerscreen introduced the bolt holes in 1997, it also strengthened the screen box by introducing a substantially stronger front cross member into its Powergrid design. Mr. Suitor’s testimony suggests that this single design change solved the cracking problem and did so in a different way by cutting the vibration of the screen box in half, bringing it down to the same level of vibration as that found in the pre-1997 European design with the single, solid centerplate. The absence of warranty claims would not in any event serve as a basis for inferring that those customers who did not submit warranty claims installed connecting plates on their Powergrid machines, but the inference is even weaker in light of the different measures that Powerscreen took to address the cracking problem.

We thus conclude that Read did not present substantial evidence to support the jury’s finding that Powerscreen induced others to infringe the ’000 patent, and we therefore hold that Powerscreen is entitled to judgment on that issue as a matter of law.

D

Because Powerscreen is entitled to judgment as a matter of law with respect to infringement under the doctrine of equivalents and inducement, we reverse the award of damages and attorney fees. We do not address Powerscreen’s arguments regarding laches and the statutory limitation on damages

under 35 U.S.C. § 286.

IV

Read cross-appeals from the district court's denial of its motion for JMOL that Powerscreen infringed the '572 patent. According to Read, the district court's jury instruction with respect to the "moveable wheels" limitation in the asserted claims of the '572 patent compelled a verdict of infringement.

U.S. Patent No. 4,197,194 ("the '194 patent"), which is the parent of the '572 patent, shares the same "moveable wheels" limitation that is at issue in this case. In Read Corp. v. Portec Inc., 970 F.2d 816, 23 USPQ2d 1426 (Fed. Cir. 1992), this court upheld a jury's finding of infringement of the '194 patent because there was substantial evidence that the retractable footpad in Portec's accused device was equivalent to the same "movable wheels" limitation that is disputed in this case. In the course of holding that the claim language permitted such a finding of equivalence, this court stated:

Read's moveable wheels allow for the heavy weight of the loaded machine to be taken off the wheels and provide for stability of the machine during screening operations by placing the frame "flush on the ground." . . . The claim does not exclude some weight remaining on the wheels.

Portec, 970 F.2d at 823-24, 23 USPQ2d at 1433. In accordance with this court's holding in Portec, the district court instructed the jury that in order to find equivalence, the claim "does not require that all the weight be taken off the wheels. It's enough that the bulk of the weight be shifted from the wheels."

At trial, Read presented undisputed evidence that, while transitioning the Powergrid from transport to operating position, a large amount of weight is transferred off the fixed wheels and onto the front jacking legs. Specifically, Read's weight measurements indicated that the Powergrid weighs a total of 34,480 pounds, that the Powergrid's fixed wheels bear 20,440 pounds of weight in transport mode, and that they bear 14,220 pounds of weight in screening mode. Under the district court's jury instruction, Read argues that the evidence regarding the transfer of weight required the jury to return a verdict of infringement. We disagree.

We read this court's statements in Portec and the trial court's jury instructions as establishing that the jury was permitted, but not required, to find equivalence in the event that it concluded that the "bulk of the weight" was shifted off the fixed wheels of the Powergrid. Even in the absence of contrary evidence, the jury was free to conclude that the transfer of 6,220 pounds out of a total of 20,440 pounds of weight from the wheels did not constitute the "bulk of the weight." Thus, the jury could permissibly find that the Powergrid's fixed wheels and jacking legs were more than insubstantially different from the "moveable wheels" limitation claimed in the '572 patent, and the district court properly denied Read's

motion for JMOL with respect to that patent.

Because the jury was permitted to conclude that the Powergrid did not infringe the '572 patent under the doctrine of equivalents, it is unnecessary for us to consider whether the prosecution history of the '572 patent and the '194 patent would preclude any finding of equivalence as a matter of law under the Supreme Court's recent decision in Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 122 S. Ct. 1831 (2002).

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Defendants-Appellants.

PROST, Circuit Judge, dissenting.

I respectfully dissent. After a fifteen-day trial where the parties presented the testimony of thirteen witnesses and introduced dozens of exhibits into evidence, a unanimous jury found that Powerscreen induced infringement of the '000 patent and that the Powergrid device infringed under the doctrine of equivalents. The presiding Chief Judge, having also observed all the trial evidence and considered additional briefing and arguments of counsel, denied Powerscreen's motion to overturn the jury's verdict. According to the district court, "If the doctrine of equivalents has any remaining vitality, this is a case where the doctrine of equivalents is appropriately applied." I agree.

"It is not the province of an appellate court to second guess the jury's credibility determinations or to reevaluate the weight to be given to the evidence." Comark Communications, Inc. v. Harris Corp., 156 F.3d 1182, 1192, 48 USPQ2d 1001, 1009 (Fed. Cir. 1998). Our job is determine whether there is substantial evidence from which the jury could find infringement by a preponderance of the evidence standard, in light of all the evidence presented at trial, as well as reasonable inferences therefrom. Id. "Upon full trial, upon agreed and correct jury instructions, upon substantial evidence in the form of testimony and exhibits and demonstrations, a reasonable jury could have reached the verdict of infringement. That ends our review." Malta v. Schulmerich Carillons, Inc., 952 F.2d 1320, 1331, 21

USPQ2d 1161, 1170 (Fed. Cir. 1992) (Newman, dissenting). With all due respect to the majority, I understand the evidence as clearly supporting the jury's verdict in this case, particularly when issues of credibility and all reasonable inferences from the evidence are resolved in Read's favor.

The jury's verdict can be most readily understood by starting with the evidence supporting inducement to infringe, because once the jury's finding of inducement is accepted, it is easy to see how the jury then found infringement under the doctrine of equivalents. As discussed below, my view of the evidence is that the Powerscreen device, once modified by customers who were so induced to make the relevant modification, is insubstantially different from the claimed center plate.

I. Inducement to Infringe

Only one limitation of the claimed shaker assembly is at issue in this case: the "at least one rigid longitudinal center plate generally parallel to and between the side plates and joining the upper and lower levels of structural cross beams such that forces applied to the screen assembly are transmitted through the center plate to the joined cross beams." '000 Patent, col. 5, l. 6 – col. 6, l. 2. The Powergrid shaker accused of infringement includes two center plates: an upper plate that joins the structural cross beams of an upper screen, and a lower center plate that joins the structural cross beams of a lower screen. Each center plate is welded to the back side of the screen box, and a gusset runs between the plates where they connect to the back of the screen box. Each of the center plates is drilled with five bolt holes at their front ends.

One of Read's theories at trial was that Powerscreen induced customers to infringe claim 1 of the '000 patent by bolting an additional plate into these holes, thereby connecting the upper and lower center plates of the screen box at their front ends. Read's evidence included engineering diagrams of the upper and lower center plates showing the bolt holes, as well as a diagram of the plate that could be used to connect the upper and lower center plates using the bolt holes. According to Mr. Read, it would be trivial for a customer to add the connecting plate. "It would be about \$40 for material and couple hours of labor, and it wouldn't take that much to do."

In addition, Powerscreen arranged for Mr. Read, Read's expert Professor Slocum, and a special master appointed by the court to inspect a representative Powergrid device located in Kentucky. The expert took a series of photographs of the device, which he discussed during his testimony and were admitted into evidence. These photographs show the upper and lower center plate structure of the Powergrid device—with bolt holes but without a connecting plate. Read's expert testified that at some point in time, the device had been modified to include the connecting plate. Pointing to one of the photographs of the device, he showed the jury where "you can see the mark, painting mark where the plate has been bolted in the past."

Notably, Powerscreen presented no witness to deny that the representative Powerscreen device once had a connecting plate. Nor did Powerscreen present a witness to deny that customers in general add these connecting plates. Rather, Powerscreen relies on Mr. Read's and Mr. Slocum's admissions that they never actually observed a machine in the United States with the connecting plate installed. In response to this admission, Professor Slocum testified as follows on redirect:

Q. Okay. And did you – in your opinion, are the bolt holes there for the purpose of manufacturing the machine? . . . What do you think they're there for?

THE WITNESS: Well, I've designed a lot of big iron, which is what this is called. The only reason I could possibly fathom why those holes are there for manufacturing purposes is to manufacture the upper and lower deck so they are aligned perfectly so you could later easily add the plate.

If there was no design intent to ever have a plate afterwards, you would never, ever spend the money to put the holes in there.

The only other evidence on this issue presented by Powerscreen was the following excerpt from the deposition transcript of Mr. Suitor, a Powerscreen engineer: "Machines going to the US of A have no center plate" (emphasis added). While this statement may or may not be true (the jury was free to believe or disbelieve Mr. Suitor), this denial says nothing about what customers in the United States do once the machines are here.

In fact, warranty evidence shows that customers do indeed install the connecting plate. According to

Professor Slocum, when a device does not have the connecting plate installed, the upper and lower screen decks are

inefficiently coupled together, so they're only welded a little bit at the back, to – which created a condition, I believe that the warranty reports called for, where there was cracking and they had to fix the cracking, to where you bolt a plate into the front through the bolt holes that are provided in the upper and lower middle plates, again, you increase the stiffness or you decrease the deflections by a factor of five to ten. And, therefore, you'll get rid of your cracking problems.

In other words, if customers did not install the connecting plate, their machines would crack apart. Yet of the over 500 devices sold in the United States, fewer than 10 customers submitted warranty claims based on cracking. The logical inference from this evidence is that most, if not all, of Powerscreen's customers installed the connecting plates.

Read's counsel summarized the import of all this evidence during his closing argument:

[T]here's evidence that the plate was in the machines in America. You will see the outline of the plate in this photograph that's projected. You see the red, it's been there. . . . And knowing Mr. Read was going to come in and see it, [Powerscreen] took it [the connecting plate] off for the inspection, got a little careless. So they see there's no plate. But there is clear evidence that in this region here, and this region here, there was no paint, which means the plate was there and had been taken off. They knew Mr. Read was going to see it.

Based on my review of the record and the parties' arguments on appeal, I understand the jury to have found that customers in the United States have indeed modified Powerscreen's devices by adding the connecting plate using the existing bolt holes, an obvious and easy modification. The district court apparently shares my understanding of the evidence, stating that "there may be infringement by the doctrine of equivalents by bolting those things [the upper and lower plates] together, if anyone was doing that. But I think they can infer that people were."

In my opinion, the jury's verdict of inducement to infringe is supported by substantial evidence, including reasonable inferences that can be drawn from the evidence, and should be affirmed.

II. Infringement Under the Doctrine of Equivalents

Assuming that customers in the United States have been induced to add connecting plates to the Powergrid, as was found by the jury, then the next question is whether substantial evidence supports the jury's verdict that the Powergrid, as modified, infringes under the doctrine of equivalents. In addition to the evidence already discussed, the testimony of Neil Sutor and Professor Slocum proves infringement under the doctrine of equivalents.

Sutor testified that Powerscreen "provided a series of bolt holes which we fit the two plates we've talked about with high tensile bolts originally connecting the top and bottom deck together and that gives us virtually a one piece center plate design, and by doing that we reduce the vibration of that design by a further 50 percent" (emphasis added). Powerscreen concedes that its one piece center plate design, allegedly only sold in Europe, would infringe claim 1 of the '000 if sold in the United States; Sutor's testimony concedes that the center plate design with the connecting plate is virtually the same thing. Likewise, Professor Slocum testified as follows:

Q. And when the plate is bolted in place, visualizing that structure, could you compare that with the plate as defined by the Court in the definition that the Court gave?

A. And when the front center plates are bolted to the top and the bottom plates, and now we've got one, two, there's two side plates, three, four plates, all assembled, I think it will match, literally the judge's interpretation. And you will have a structure that has 95 percent the efficiency of, if we just took one single plate like Read uses and welded it in there.

In addition, Mr. Read, who appeared at trial as both a fact witness and an expert, testified as follows:

Q. Now, what would that plate do if it were bolted up?

A. Well, it would form – it would certainly serve as a – the strength of a full center plate, because it was attached on the back side, came all the way to the front, attached on the front side, it would transmit the strength from the top deck, those big beams, down to the bottom deck. Because the plate underneath the bottom went all the way down, it stuck down quite a bit, it was quite a strong plate underneath the whole structure there.

This testimony, along with the documentary evidence and testimony previously discussed with respect to inducement, in my opinion, establishes that the Powerscreen device is insubstantially different from the claimed centerplate, when its upper and lower centerplates are bolted together at the front end. The jury's verdict of infringement under the doctrine of equivalents should be affirmed based on this evidence.

In addition, I believe the jury's verdict of infringement under the doctrine of equivalents can be affirmed even without the addition of a connecting plate. While the majority correctly notes that Professor Slocum conceded that such a structure would be inefficient, he did not concede that such a structure was not equivalent. In addition to the testimony identified in the majority opinion, Professor Slocum also testified as follows:

THE COURT: You've read over that claim, correct?

THE WITNESS: Yes, I have, sir.

THE COURT: Now, you think you've got an understanding of it?

THE WITNESS: Yes, I do, sir.

THE COURT: And is it correct to say that you don't find exactly that plate in the Kentucky machine?

THE WITNESS: You mean the plate that's in the claim?

THE COURT: Right.

THE WITNESS: It's not –

THE COURT: You don't find that in the Kentucky machine?

THE WITNESS: It's not an exact literal plate.

THE COURT: Okay. Now, what do you find in the Kentucky machine that's like that plate and how like is it?

THE WITNESS: Okay. Can I use my laser pointer?

THE COURT: Go ahead.

THE WITNESS: What I find is here is a center plate that joins together all the upper cross beams. . . . But in the back lever is where – okay, then you see the center plate here joining the lower, the lower beams? And this fin that sticks up, so now it splits the lower screen into two, two individual screens. And right in the back here is where, if you will, the center plate for the top screen and the center plate for the bottom screen are actually welded together back there.

So what you get is a very inefficient, if you will, structure that will partially couple, via this particular center plate, the upper screen to the lower screen.

In my view, this testimony explains Mr. Slocum's later testimony on redirect that the unbolted center plate structure "inefficiently performed the function" of the claimed centerplate. See Opinion p. 7 (discounting this testimony as merely conclusory). Mr. Slocum's testimony taken as a whole provides sufficient evidence for the jury to conclude that the unbolted center plate design performs the function of the claimed center plate through their connection to the back of the screen box. In addition to this testimony about the function of the unbolted center plate design, Mr. Slocum (and other witnesses) thoroughly explained the structure of the center plate design, pointing to photographs of the center plates and explaining their operation. These photographs and the diagrams of the center plates are additional evidence of infringement from which the jury could clearly understand the structure of the center plates.

My interpretation of Mr. Suitor's testimony also differs from the majority's interpretation. Mr. Suitor

testified that the center plate design “rigidly connects the cross beams on each deck and transmits the forces from one to the other and into the back plate.” The majority interprets this statement as meaning that one center plate connects the upper crossbeams and another center plate connects the lower crossbeams. But Mr. Suitor’s testimony could be interpreted to mean that the center plates transmit “the forces from one [deck] to the other [deck] and into the back plate.” So understood, Suitor’s testimony is evidence that the center plate design transmits forces among the upper and lower decks’ cross beams. Mr. Suitor also testified about the result of using a center plate: to strengthen the screen box. While Mr. Suitor would not concede that using the unbolted center plates provided as much strength as a single center plate, he did testify as follows:

Q. Why is that plate included in the screen box at all?

A. It’s used to connect the cross beams which run transversely to each other.

Q. Does it strengthen the screen?

A. Yes.

Thus, while Mr. Suitor and Mr. Slocum may have provided testimony that appears ambiguous or conflicting at times, our perception of these ambiguities may be a result of our having only a transcript to read. The witnesses’ live testimony at trial, accompanied by reference to documents and photographs, may have been abundantly clear to the jury, and it is their job, not ours to evaluate the contradictory evidence and draw inferences therefrom.

In my opinion, when all of the evidence is considered in this case, substantial evidence supports the jury’s verdict of infringement. I would therefore affirm the judgment of infringement.

[1] In determining the effect of a party’s failure to move for JMOL, this court looks to the law of the applicable regional circuit. See Delta-X Corp. v. Baker Hughes Prod. Tools, Inc., 984 F.2d 410,

412, 25 USPQ2d 1447, 1449 (Fed. Cir. 1993). This case, however, involves not the general question of the effect of a failure to move for JMOL, but the specific question whether a JMOL motion directed to patent infringement is sufficient to preserve the party's appellate rights to contest a verdict of infringement under the doctrine of equivalents. That issue, which relates particularly to patent law, has been treated as a matter governed by this court's law. See Texas Instruments, 90 F.3d at 1566 n.6, 39 USPQ2d at 1498-99 n.6; Malta, 952 F.2d at 1324-25, 21 USPQ2d at 1164; cf. Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1579, 1 USPQ2d 1081, 1091 (Fed. Cir. 1986) (holding that infringement and willful infringement are not the same, and that a motion for a directed verdict of noninfringement did not encompass willful infringement).

[2] On the face of the record, it would appear that this testimony refers to Suitor Exhibit 2, which corresponds to European single centerplate design. See J.A. at 101192, ln.19, 101594, ln.17 (“Does the center plate of Suitor 2 achieve substantially the same function?”) (emphasis added). The parties have clarified, however, that there is a typographical error on the record, and that this testimony actually refers to Suitor Exhibit 1, which corresponds to the U.S. centerplate design.