

# United States Court of Appeals for the Federal Circuit

02-1588, -1589, 03-1008

STATE CONTRACTING & ENGINEERING CORPORATION,

Plaintiff-Appellant,

v.

CONDOTTE AMERICA, INC. (formerly known as Recchi America, Inc.),  
THE MURPHY CONSTRUCTION COMPANY,  
THE HARDAWAY COMPANY, HUBBARD CONSTRUCTION COMPANY,  
BALFOUR BEATTY CONSTRUCTION, INC.,  
COMMUNITY ASPHALT CORPORATION,  
and HANSON PIPE & PRODUCTS SOUTHEAST, INC.  
(formerly known as Joelson Concrete Pipe Company, Inc.),

Defendants-Cross Appellants.

Richard S. Ross, of Ft. Lauderdale, Florida, argued for plaintiff-appellant. Of counsel on the brief was John H. Faro, Faro & Associates, of Miami, Florida.

Stefan V. Stein and Steven L. Brannock, Holland & Knight LLP, of Tampa, Florida, argued for defendants-cross appellants. With them on the brief was Harvey S. Kauget.

Appealed from: United States District Court for the Southern District of Florida

Judge William P. Dimitrouleas

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DECIDED: October 7, 2003

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Before MICHEL, BRYSON, and DYK, Circuit Judges.

BRYSON, Circuit Judge.

State Contracting & Engineering Corporation ("State Contracting") sued the State of Florida and a number of private contractors in the United States District Court for the Southern District of Florida, charging them with patent infringement. The State was dismissed from the case, and after an appeal to this court and a jury trial on remand, the district court entered judgment for State Contracting. Although it obtained an award of damages, State Contracting has appealed the district court's ruling that the contractors' infringement was not willful. For their part, the contractors have appealed from the judgment on a number of grounds, including State Contracting's standing to assert infringement of the two patents-in-suit, the district court's rejection of the contractors' defenses of laches and

patent invalidity, and the jury's award of reasonable royalty damages. We uphold most of the district court's rulings, but reverse and remand for further proceedings on the issue of obviousness.

### I. Background

This action stems from work done under a contract in which State Paving Corporation ("State Paving") constructed a set of sound barrier walls for the Florida Department of Transportation ("FDOT"). Sound barrier walls serve to reduce the level of highway noise reaching surrounding neighborhoods. During the construction, State Paving submitted a Value Engineering Change Proposal ("VECP") for a new integrated column and pile design to be used to support the sound barrier walls. FDOT accepted the proposal and incorporated it into the specifications for the project. In accordance with the VECP contract, FDOT paid State Paving half of the cost savings realized from the use of the VECP in the project.

Subsequently, State Paving applied for and was issued two patents related to the subject matter of the VECP: U.S. Patent No. 5,234,288 ("the '288 patent") and U.S. Patent No. 5,429,455 ("the '455 patent"). The '288 patent contains method claims directed to the formation of an integrated column and pile for use in building structures in sandy soil. Claim 1 of the '288 patent, the only independent claim, provides:

A method of forming a ground-supported column or post, comprising the steps of providing a ground situs of suitable depth and width, filling said situs with a cementitious slurry, providing a reinforced, precast concrete member whose reinforcing bars extend out of the bottom of said member a substantial length beyond said bottom to form an exposed portion, inserting said exposed portion into said slurry until said member merges with said slurry, and permitting said slurry to harden, thus providing an integral column and pile set in the ground.

'288 patent, col. 4, ll. 2-12. Dependent claim 2 adds the limitation of using auger casting for the ground situs and slurry, while dependent claim 3 adds the use of falsework to keep the concrete member in position while the slurry hardens. Id., col. 4, ll. 13-19. According to the written description, an auger rotates to cut through the soil and create the hole. Cementitious

material can then be pumped through the central channel of the auger so that when a retaining means or valve in the auger is opened, the cementitious material fills the hole. Id., col. 1, l. 61, to col. 2, l. 4.

The '455 patent contains three apparatus claims. Claim 1 is representative:

A precise reinforced concrete member containing reinforcing bars which have exposed portions extending beyond one end of the member and parallel to the longitudinal dimension of the member; the number, size and length of such exposed portions being such as to provide sufficient strength when the end of said concrete member is merged with and the bars inserted into a foundation pile of initially wet, cementitious material, which material is then allowed to set; said exposed portions being further characterized in being completely surrounded by said cementitious material; said concrete member and said pile being merged without mechanical attachment.

'455 patent, col. 3, l. 23, to col. 4, l. 3.

On May 9, 1997, State Paving entered into an agreement to transfer the invention disclosed in the two patents to State Contracting. State Contracting then sued FDOT and several highway construction contractors for infringement of the two patents. State Contracting alleged that FDOT had improperly incorporated the VECP into subsequent requests for bids and that the contractors had then infringed the patents when they carried out the construction contracts that resulted from those bids. The district court granted the defendants' motions for summary judgment with respect to State Contracting's claims of patent infringement, holding that, when it executed the VECP contract, State Paving had granted FDOT a license that authorized FDOT and its contractors to practice the asserted patents.

On State Contracting's appeal, we affirmed the district court's ruling in favor of FDOT, but we held that the district court had erred in granting summary judgment to the private contractors on the patent infringement claims. State Contracting & Eng'g Corp. v. Florida, 258 F.3d 1329, 1340 (Fed. Cir. 2001). We held that the VECP contract did not grant FDOT a license to practice the patents in future soundwall construction projects.

After the case was remanded to the district court, the contractors filed a motion to dismiss, arguing that State Contracting lacked standing to sue for patent infringement because State Paving had not validly assigned the patents to State Contracting. The district court denied that motion. In a joint pretrial stipulation, the contractors then admitted literal infringement of both of the asserted patents, subject to their affirmative defenses. At the close of the evidence at trial, the district court ruled as a matter of law that the contractors' infringement was not willful, that the asserted patent claims were not invalid, and that the contractors did not have a valid defense of laches.

The jury returned a verdict in favor of State Contracting. Although the jury declined to award lost profits, it assessed damages against four of the contractors in the form of a reasonable royalty to State Contracting. The district court denied the contractors' motion for a new trial or remittitur of the jury verdict award.

## II. Standing

We first address the issue of standing raised by the contractors in their cross-appeal. The contractors contend that State Contracting lacked standing to seek recovery for patent infringement because it did not have the requisite interest in the patents-in-suit at the time the action was filed. According to the contractors, the May 9, 1997, contract between State Paving and State Contracting merely granted a license under the asserted patents and did not transfer ownership of the patent rights.

Section 281 of the Patent Act, 35 U.S.C. § 281, authorizes a "patentee" to bring an action for patent infringement. A patentee "includes not only the patentee to whom the patent was issued but also the successors in title to the patentee." 35 U.S.C. § 100(d). We have held that "[a] conveyance of legal title by the patentee can be made only of the entire patent, an undivided part or share of the entire patent, or all rights under the patent in a specified geographical region of the United States." Rite-Hite Corp v. Kelley Co., 56 F.3d 1538, 1551

(Fed. Cir. 1995) (en banc) (citing Waterman v. Mackenzie, 138 U.S. 252, 255 (1891)). Such a transfer is an assignment, vesting the assignee with both title in the patent and the right to sue infringers. Rite-Hite, 56 F.3d at 1551. In contrast, less than a complete transfer of those interests constitutes a license and generally affords the licensee no right to sue for infringement. Id. We must therefore determine whether the transfer from State Paving to State Contracting was an assignment or a license.

“To determine whether a provision in an agreement constitutes an assignment or a license, one must ascertain the intention of the parties and examine the substance of what was granted.” Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A., 944 F.2d 870, 873 (Fed. Cir. 1991). A party that has been granted all substantial rights under the patent is considered the owner regardless of how the parties characterize the transaction that conveyed those rights. Speedplay, Inc. v. Bebop, Inc., 211 F.3d 1245, 1250 (Fed. Cir. 2000). The relevant contract in this case specifies that State Paving “sells, assigns, and transfers” to State Contracting

the entire right title and interest in the inventions relating to an Integrated Column & Pile, to any component part and subassemblies thereof, and to any improvements in the foregoing Integrated Column & Pile, component part and subassemblies thereof, including, but not limited [to] subject matter disclosed in [the '288 patent and the '455 patent].

It is understood that this assignment is inclusive of all claims against third parties for infringement, past and present; and, that the recovery for infringement, if any, is and remains the property of the assignee.

That language has the effect of conveying full legal title in the patents to State Contracting and thus makes clear that State Contracting is the assignee of the two patents. The defendants contend that the contract omits language explicitly assigning the patents and that it does not transfer all rights in the patents. We disagree. The contract’s transfer of the “entire right title and interest in the inventions,” including the subject matter of the two patents, constitutes an assignment because it transfers the “exclusive right to make, use and vend the

invention through the United States,” Waterman, 138 U.S. at 255. The contract grants State Contracting the right to exclude others from making, using, or selling the claimed invention by transferring the right to sue third parties for infringement. See Vaupel, 944 F.2d at 875 (it is “particularly dispositive” that the agreement included the right to sue for infringement).

In determining whether a grant of all substantial rights was intended, it is useful to examine what rights, if any, were retained by the transferor. Vaupel, 944 F.2d at 875. State Paving did not expressly retain any rights in the patents; indeed, it did not even reserve the right to practice the patent itself. See Abbott Labs. v. Diamedix Corp., 47 F.3d 1128, 1131 (Fed. Cir. 1995) (requiring transferor to be joined in suit when transferor retained, inter alia, a limited right to make, use, and sell the patented product as well as the option to sue for infringement if the transferee declined to do so).

The contractors contend that State Paving retained the right to sue for future infringement, having expressly granted the right to sue only for past and present infringement. That argument rests on a strained reading of the agreement. The most reasonable interpretation of the agreement is that the right to sue for future infringement is subsumed within the right to sue for present infringement. It is unlikely that the parties included the reference to “present” infringement only to transfer the right to sue for infringement occurring at the precise moment the agreement was executed, and the contractors have not put forward any reason to conclude that the parties intended State Paving to retain the right to sue for future infringement. Accordingly, we affirm the district court’s holding that State Paving transferred all substantial rights to State Contracting and that State Contracting had standing to bring this infringement suit against the contractors.

On a related matter, after the contractors raised the standing issue, State Paving executed a new assignment to State Contracting, and State Contracting filed a new action designed to avoid the loss of potential damages if this court reversed the district court’s ruling

on standing. The district court dismissed that new action on res judicata grounds, and State Contracting appealed from that dismissal. In light of our conclusion that the May 9, 1997, document transferred ownership of the asserted patents to State Contracting, we need not address State Contracting's appeal on that issue.

### III. Willfulness

At trial, the district court granted the contractors' motion, pursuant to Federal Rule of Civil Procedure 50, to dismiss State Contracting's claim that the contractors' infringement was willful. State Contracting appeals from that ruling.

"To establish willful infringement, a plaintiff must prove by clear and convincing evidence that the defendant acted without a reasonable belief that its action avoided infringement." Crystal Semiconductor Corp. v. Tritech Microelectronics Int'l, Inc., 246 F.3d 1336, 1351 (Fed. Cir. 2001). State Contracting argues that the evidence supports its contention that the contractors failed to exercise due care to avoid infringement. We disagree and hold that a jury could not find by clear and convincing evidence that the contractors acted without a reasonable belief that their conduct was lawful.

From the outset, the contractors' principal defense to infringement was that they were acting under a license granted to FDOT. It was entirely reasonable for FDOT and the contractors to construe the VECP contract as granting FDOT a license to practice the inventions recited in the asserted patents. See Paper Converting Mach. Co. v. Magna-Graphics Corp., 745 F.2d 11, 20 (Fed. Cir. 1984) ("An increase in damages for willfulness . . . is generally inappropriate when the infringer mounts a good faith and substantial challenge to the existence of infringement.").

The VECP agreement states that State Contracting "hereby grants to [FDOT] all rights to use, duplicate or disclose, in whole or in part, in any manner and for any purpose whatsoever, and to have or to permit others to do so, data reasonably necessary to fully utilize



such proposal on this and any other Department contract.” While we did not sustain the contention that FDOT obtained a license as a result of the agreement, it was reasonable for the contractors to believe, based on the language of that agreement, that FDOT had a license to practice the VECP inventions. Significantly, the district court so concluded in its ruling that led to the first appeal in this case.

State Contracting does not dispute that, because of communications with FDOT, the contractors believed the VECP contract had given FDOT a license to practice the inventions recited in the two patents. Erol Clay McGonagill, Jr., FDOT’s special counsel for construction claims, testified that “[w]hen we got the VECP it was fully understood that we were going to incorporate this design into the remainder of our projects. It was not only the reasonable thing to do, it was exactly what the VECP spec provided for us, and State Paving knew that because they had been involved in our project for a long time.” Because the contractors had a substantial defense to infringement, the trial court correctly concluded that State Contracting could not prove by clear and convincing evidence that the contractors had no reasonable belief that they were not infringing.

State Contracting argues that the district court should have denied the contractors’ Rule 50 motion on willfulness because the contractors failed to produce and rely on a written opinion of counsel. In addition, State Contracting contends that because at trial the contractors did not rely on the opinion of FDOT’s in-house counsel as to the effect of the VECP agreement, it should be inferred that the opinion was adverse to the contractors’ interests.

While we have stated that due care is often achieved by seeking the advice of competent counsel and receiving exculpatory advice, Vulcan Eng’g Co., Inc. v. FATA Aluminum, Inc., 278 F.3d 1366, 1378 (Fed. Cir. 2002), we have not held that obtaining the advice of counsel is the only means to avoid a finding of willfulness, regardless of the

circumstances. See Kloster Speedsteel, AB v. Crucible, Inc., 793 F.2d 1565, 1579 (Fed. Cir. 1986) (“[N]ot every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness.”). In the circumstances of this case, it was reasonable for the contractors not to seek the advice of counsel. This is not a case in which the contractors concluded, without seeking the advice of counsel, that their actions fell outside the scope of the patents or that the patents were invalid. Instead, FDOT made a specific representation that it had a license to practice the invention, and it incorporated the invention in the contract specifications, thus requiring the contractors to use the patented process. It was not unreasonable for the contractors to rely on FDOT’s representation without seeking the advice of counsel to confirm the accuracy of that representation. As for the contractors’ failure to rely at trial on the opinion of FDOT’s counsel, there is no evidence that the contractors were even aware of the existence of the opinion. Accordingly, no adverse inference can be drawn from the contractors’ failure to introduce evidence regarding the contents of that opinion. Because it was reasonable for the contractors to conclude that they were licensed to practice the VECP design, and because they had no obligation to introduce evidence regarding the advice of FDOT’s counsel, we uphold the district court’s ruling on the willfulness issue.\*

#### IV. Laches

The contractors initially raised four affirmative defenses: laches, equitable estoppel, implied license, and acquiescence and consent. The trial judge submitted only the latter two to the jury. The judge granted State Contracting’s Rule 50 motion to dismiss the equitable estoppel defense because he deemed that defense duplicative of the acquiescence and

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\* These circumstances distinguish this case from Knorr-Bremse Systeme für Nutzfahrzeuge GMBG v. Dana Corp., No. 01-1357, in which the court has recently granted en banc review to address issues relating to the relationship between the advice of counsel and willfulness. It is therefore unnecessary to suspend disposition of this case pending that decision.

consent defense. Later in the same hearing, the judge stated that he had also granted a Rule 50 motion on laches, although he did not explain his reasons for rejecting that defense.

The contractors assume that the district court rejected the laches defense because the court believed that defense was duplicative of the other affirmative defenses the contractors raised at trial. Based on that assumption, they argue that the district court should not have rejected their laches defense because laches, unlike the other defenses raised at trial, does not require an affirmative act by the plaintiff other than delay in filing suit. See A.C. Aukerman Co. v. R.L. Chaides Constr. Co., 960 F.2d 1020, 1041 (Fed. Cir. 1992) (en banc) (“laches focuses on the reasonableness of the plaintiff’s delay in suit . . . [while] equitable estoppel focuses on what the defendant has been led to reasonably believe from the plaintiff’s conduct”; equitable estoppel requires misrepresentation by the plaintiff and reliance on the misrepresentation by the alleged infringer).

State Contracting argues that we should affirm the trial court’s ruling on laches because the contractors failed to present any evidence of material prejudice, which is an element of laches. To successfully invoke laches, a defendant must prove that the plaintiff delayed filing suit an unreasonable and inexcusable length of time after the plaintiff knew or reasonably should have known of its claim against the defendant and that the delay resulted in material prejudice to the defendant. Gasser Chair Co., Inc. v. Infanti Chair Mfg. Corp., 60 F.3d 770, 773 (Fed. Cir. 1995). Once those factual premises are established, the court weighs the equities in order to assess whether laches should apply to bar those damages that accrued prior to suit. See Advanced Cardiovascular Sys., Inc. v. SciMed Life Sys., Inc., 988 F.2d 1157, 1161 (Fed. Cir. 1993); Aukerman, 960 F.2d at 1041.

Because the period of delay in this case was less than six years, prejudice is not presumed. See Aukerman, 960 F.2d at 1035-36. The earliest that an infringement suit could have been brought was the ’288 patent’s issuance date, which was approximately four years

before suit was actually filed. See Meyers v. Asics Corp., 974 F.2d 1304, 1307 (Fed. Cir. 1992) (laches period does not begin to run until the patent issues). Accordingly, in order to establish their defense of laches, the contractors had to prove that the delay materially prejudiced them.

We have stated that material prejudice may be either economic or evidentiary. Aukerman, 960 F.2d at 1033. The contractors do not allege evidentiary prejudice, so the prejudice inquiry in this case is directed solely to economic prejudice. Economic prejudice arises when a defendant suffers the loss of monetary investments or incurs damages that likely would have been prevented by earlier suit. Id. A nexus must be shown between the patentee's delay in filing suit and the expenditures; the alleged infringer must change his position "because of and as a result of the delay." Hemstreet v. Computer Entry Sys. Corp., 972 F.2d 1290, 1294 (Fed. Cir. 1992); see also Gasser Chair, 60 F.3d at 775 ("We reiterate that a change in the economic position of the infringer during the period of delay must be as a result of the delay; the infringer must prove that the change in economic position would not have occurred had the patentee sued earlier.").

The contractors contend that they were prejudiced because, as a result of the delay in filing suit, FDOT continued to incorporate the invention from the VECP into bids and contracts with them. If State Paving had promptly notified FDOT of the patent, the contractors argue, FDOT and the contractors could have avoided the controversy entirely simply by changing the soundwall specifications or returning to the original design. The contractors point to testimony by Mr. McGonagill, FDOT's special counsel, who said that State Paving was aware that it was FDOT's practice to incorporate VECP improvements in future projects. They also point to his testimony that FDOT may not have agreed to the VECP in the first place if it had known that State Paving intended to seek patent protection for the invention.

The evidence adduced by the contractors does not establish the kind of prejudice that is required to support a finding of laches. First, the contractors have failed to show that they changed their economic position during the period of delay by making the types of expenditures that are recognized as giving rise to material prejudice. “Such damages or monetary losses are not merely those attributable to a finding of liability for infringement. Economic prejudice would then arise in every suit. The courts must look for a change in the economic position of the alleged infringer during the period of delay.” Aukerman, 960 F.2d at 1033 (internal citations omitted). The economic prejudice asserted by the contractors is limited to the amount of their infringement liability and thus is not sufficient to support the laches defense.

Second, the contractors have failed to establish a nexus between the delay in filing suit and their asserted economic injury. Mr. McGonagill’s testimony that FDOT may not have entered into the VECP had it been made aware of the pending patent application is irrelevant to a finding of laches, which applies only to the period after patent issuance when suit could have been brought. The contractors also have failed to show that they would not have entered into the contracts with FDOT to construct the sound barrier walls if suit had been brought earlier. Mr. McGonagill did not testify that an earlier filing would have led FDOT to adopt a non-infringing alternative, and the contractors have not directed us to evidence that an earlier filing would have led them to alter their behavior or avoid incurring certain expenditures.

To the contrary, the evidence indicates that it is unlikely that FDOT or the contractors would have ceased using the VECP design in the construction projects even if the lawsuit had been filed earlier. See Gasser Chair, 60 F.3d at 775 (“[T]he evidence of record showed that [the alleged infringer] was indifferent to whether [the patentee] would sue because of his personal belief that the patent was invalid.”); Meyers v. Brooks Shoe, Inc., 912 F.2d 1459, 1463 (Fed. Cir. 1990) (failure to show prejudice from delay in filing suit when evidence

indicated that the accused infringer would have continued its activity anyway; “From all that appears, [the accused infringer] would have followed the same course regardless of what [the plaintiff] did or did not do.”). In 1992 and 1995, for example, State Paving contacted several contractors and told them about either the pending patent application or the issued ’288 patent, yet the contractors continued to construct the sound walls in accordance with FDOT’s specifications. See Hemstreet, 972 F.2d at 1294 (the infringer’s prejudice argument was “severely undercut” by the patentee’s provision of notice of other litigation and “implicit suggestion that CES would soon face litigation if it refused to license.”). Because the contractors have failed to put forward sufficient evidence of material prejudice to support a finding of laches, it was not error for the court to reject that defense.

#### V. Validity

The contractors contend that the district court erred in granting judgment as a matter of law (“JMOL”) to State Contracting with respect to the contractors’ contention that the asserted claims of the patents-in-suit are invalid. A party seeking to establish that particular claims are invalid must overcome the presumption of validity in 35 U.S.C. § 282 by clear and convincing evidence. Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 725 (Fed. Cir. 2002). The contractors argue that the asserted claims are invalid because they are both anticipated and obvious in light of the prior art. Although the contractors contend that the district court erred in denying their pretrial motion for summary judgment with respect to validity, the denial of a pretrial motion for summary judgment is not reviewable on appeal from a final judgment. Novo Nordisk A/S v. Becton Dickinson & Co., 304 F.3d 1216, 1221 (Fed. Cir. 2002). Accordingly, our inquiry will be directed solely to whether the district court erred in granting State Contracting’s motion for JMOL at the conclusion of the trial.

The district court did not issue a written order explaining its ruling when it granted State Contracting’s Rule 50 motion on validity. The extent of the record of the court’s ruling with

respect to validity was to say: “I think it’s a new invention. I think that the defendant hasn’t shown by clear and convincing evidence that the patent was invalid, so I am going to grant the Rule 50 on the counterclaim and on the affirmative defenses.” The court also did not construe any of the disputed claim terms before entering its JMOL order with respect to validity, even though we have held that a claim “must be construed before determining its validity just as it is first construed before deciding infringement.” Markman v. Westview Instruments, Inc., 52 F.3d 967, 997 n.7 (Fed. Cir. 1995) (en banc), aff’d, 517 U.S. 370 (1996); Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1351 (Fed. Cir. 2001). The parties raised questions at least with respect to the meaning of the claim terms “substantial length” and “length . . . providing sufficient strength.” There also appears to be disagreement as to the meaning of the term “mechanical attachment.” It was incumbent upon the court to set forth its construction of the disputed terms prior to ruling on validity, or at least to explain why resolution of the claim construction would not impact the court’s ruling.

State Contracting argues that the district court did construe the claims. However, characterizing the invention as an integrated column and pile (which is simply the title of the two patents) does not constitute a construction of the pertinent limitations. As a part of our validity analysis, we must examine whether the absence of a claim construction is harmless error or whether the construction could impact the conclusion of anticipation or obviousness.

#### A

With respect to anticipation, the contractors contend that Petro Xanthakos’s book “Slurry Walls” anticipates the claims of the patents-in-suit. State Contracting responds that the Xanthakos reference cannot anticipate because it is non-analogous art and does not disclose every limitation of the asserted claims.

We reject State Contracting’s argument that the Xanthakos reference cannot anticipate the asserted claims because it is non-analogous art. “[T]he question whether a

reference is analogous art is irrelevant to whether that reference anticipates.” In re Schreiber, 128 F.3d 1473, 1478 (Fed. Cir. 1997). To the contrary, “a reference may be from an entirely different field of endeavor than that of the claimed invention or may be directed to an entirely different problem from the one addressed by the inventor, yet the reference will still anticipate if it explicitly or inherently discloses every limitation recited in the claims.” Id.

Nonetheless, we conclude that the Xanthakos reference cannot be found to anticipate the asserted claims. While anticipation is a question of fact, Scripps Clinic & Research Found. v. Genentech, Inc., 927 F.2d 1565, 1576 (Fed. Cir. 1991), a factfinder could not reasonably find, on the present record, that Xanthakos discloses every limitation of the claims of the patents-in-suit.

The process described in Xanthakos begins with the step of filling a hole with a bentonite slurry. The bentonite apparently preserves the shape of the hole and keeps the walls from caving in. A steel column or a column of precast concrete with “starter bars” protruding from the bottom is then lowered into the hole. Concrete (cementitious slurry) is then added, displacing the bentonite slurry, so that the column is embedded in the concrete once it hardens. The Xanthakos reference differs from the asserted claims in at least one respect: In Xanthakos, the cementitious slurry is poured over the starter bars after they are already in the hole, while the asserted claims require that the exposed portions of the reinforcing bars be inserted into the cementitious slurry. Claim 1 of the ’288 patent, for example, recites the limitation of “inserting said exposed portion [of the reinforcing bars] into said slurry.” Similarly, claim 1 of the ’455 patent requires that the bars be “inserted into a foundation pile of initially wet, cementitious material.” While the district court did not construe the term “inserting into,” that limitation cannot be construed in a way that would include pouring the slurry over the exposed bars after they were already in the holes. That conclusion is supported by the inventor’s statement in the prosecution history that, “in the present invention,



a hole is indeed formed in the ground but the hole is first filled with cementitious slurry. It is only after the slurry has filled the hole that a precast column or post having its reinforcing rods extending out from the bottom is placed in position in the slurry.” Thus, the claims require that the bars be inserted into the slurry, which is not taught by Xanthakos. Because Xanthakos does not disclose that step, it does not anticipate the asserted claims.

## B

Obviousness presents a more difficult question. Whether a claim is invalid for obviousness is a legal conclusion that is based on underlying questions of fact. Beckson Marine, 292 F.3d at 725. The underlying factual inquiries include the scope and content of the prior art; the differences between the claimed invention and the prior art; the level of ordinary skill in the art; and objective evidence of nonobviousness, including commercial success, copying, and long-felt need. See Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966).

## 1

A prerequisite to making a finding on the scope and content of the prior art is to determine what prior art references are pertinent. In re Clay, 966 F.2d 656, 658 (Fed. Cir. 1992). Whether a prior art reference is analogous is a question of fact. Id. A reference is analogous if it is from the same field of endeavor as the invention. Id. at 658-59. Similarity in the structure and function of the invention and the prior art is indicative that the prior art is within the inventor’s field of endeavor. In re Deminski, 796 F.2d 436, 442 (Fed. Cir. 1986). If a reference is outside the inventor’s field of endeavor, it is still analogous art if the reference “is reasonably pertinent to the particular problem with which the inventor is involved.” Clay, 966 F.2d at 659.

At a minimum, the record presents a factual question as to whether Xanthakos is analogous art. George Tamaro, an expert in civil and structural engineering who testified for

the contractors, stated that the different pieces of prior art that he discussed, which included Xanthakos, are in the same field of endeavor as the two patented inventions. Based on Mr. Tamaro's testimony and other evidence in the record, a factfinder could reasonably conclude that the inventor's field was the use of integrated column and pile structures to provide support. The written descriptions of the two patents indicate that the inventions are directed to an integral column and pile for use in building structures in sandy soil, and there is at least a question of fact as to whether Xanthakos is within the field of integral column and pile support structures, since Xanthakos teaches a "prefounded column" consisting of a column that merges with the pile when the concrete of the pile hardens around the column, and explains that the prefounded columns are used to support a superstructure.

State Contracting looks to the title of Xanthakos's book and most of the teachings in the book to conclude that the book is solely within the scope of "slurry wall art" and thus is outside the pertinent field of endeavor. State Contracting's expert, Thomas J. Tepper, described slurry wall technology as "a method that is utilized to stabilize excavation side walls and bottoms to enable that excavation to receive a subterranean structure." Mr. Tepper testified that the patents did not involve slurry wall technology, "[s]imply due to the fact that the foundation element that is part of the patent is an auger cast pile that involves the use of a fluid grout to fill in excavation once it's been made." State Contracting, however, is mistaken in looking to the general scope of the Xanthakos reference to assess whether it contains disclosures in the pertinent field of endeavor. The relevant part of Xanthakos deals with creating an integral column and foundation pile as support for a larger structure in construction. The fact that Xanthakos also describes the formation of slurry walls does not negate its teaching of integrated columns and piles for use as support in construction.

State Contracting characterizes the relevant field of endeavor as being limited to the use of auger casting in the formation of the situs for the integrated column and pile. An auger,

however, is specified only in claim 2 of the '288 patent. Moreover, the summary of the invention of both patents addresses the subject of integrated column and pile designs within which, it states, "One method of providing the mass of cementitious material in a hole of suitable depth and width is to use an auger having a central channel." '288 patent, col. 1, ll. 61-63; '455 patent, col. 1, ll. 61-63. Thus, in this respect as well, there is at least a factual dispute as to the relevant field of art.

A factfinder could also conclude that the cited prior art references are reasonably pertinent to the problem that the patents address. "A reference is reasonably pertinent if . . . it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. Thus, the purposes of both the invention and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve." In re Clay, 966 F.2d at 659.

In its response to the contractors' motion for summary judgment, State Contracting suggested that the problem the patents address is "the complexity, cost, exposed metal fittings required for the mechanical coupling of a pre-cast column to a cap or plate on a foundation pile." In support of that characterization, State Contracting cites portions of the '288 patent, including the statement that the described method "avoids the necessity for attaching a column or post to a set of reinforcing bars and/or anchor bolts separately inserted into the pool of cementitious material," '288 patent, col. 2, ll. 9-13, and the statement that the invention "provides a unitary, integral column and pile seated in the ground, with no anchor bolts or the like being required," id., col. 1, ll. 38-44. Even if that is a fair characterization of the problem the invention addresses, a factfinder could reasonably conclude that the pertinent portion of the Xanthakos reference is relevant to and directed to that problem, as it provides a column and pile merged without anchor bolts or separately installed reinforcement.

In their briefs to this court, the contractors point to references that disclose particular limitations in the asserted claims. For example, they point to Xanthakos for the integrated column and pile formed by merging a concrete column having exposed bars with a cementitious slurry in a ground situs; to Kubota's Japanese Patent No. 62-194,319 for full-depth exposed reinforcement; to Kubota and U.S. Patent No. 3,654,767, owned by Raymond International, Inc., for filling the holes with cementitious slurry without pre-filling the hole with bentonite slurry; and to the Raymond patent for the use of auger casting. Upon review of the record, we conclude that there are factual questions as to the scope of the prior art references and the differences between the prior art and the claimed invention, as well as whether there was a "motivation, teaching, suggestion, or reason" to combine the prior art references to derive the patented inventions. See Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579 (Fed. Cir. 1997).

In particular, there is a factual question as to the scope of the Kubota and Raymond references. A finder of fact could understand Kubota to disclose integrating a steel tube having reinforcing bars with a concrete pile by penetrating the steel tube and bars into concrete in an excavation pit before the concrete hardens. A finder of fact could understand Raymond, which discloses a concrete column with reinforcement, to teach the use of an auger in forming the ground situs, as provided in claim 2 of the '288 patent.

State Contracting argues that Kubota teaches away from the claimed invention because it discloses a steel column that is welded to a steel extension. According to State Contracting, welding is a form of mechanical attachment and the asserted claims exclude a mechanical connection between the concrete column and the pile. To resolve that question, the district court will have to determine whether the "without mechanical attachment" limitation excludes only bolt-type joints or also excludes welded connections. State Contracting also argues that references dealing with steel columns, such as Kubota, have no application to the

concrete structures of the asserted claims. However, evidence at trial, such as Mr. Tamaro's testimony that the choice of concrete or steel extensions is a design decision, raises a factual question as to that issue.

There is also a factual question whether the starter bars disclosed in the Xanthakos reference are "reinforcing bars," as that term is used in the asserted claims. The resolution of that factual question, moreover, depends on the proper construction of critical terms in the asserted claims. The '288 patent claims "reinforcing bars" of "substantial length," and claim 1 of the '455 patent recites "reinforcing bars" with exposed portions "being such as to provide sufficient strength." In order to determine whether the Xanthakos starter bars satisfy those limitations, the district court will have to determine whether the Xanthakos starter bars can be considered reinforcing bars and, if so, whether those bars satisfy the claim limitations as to length and strength.

In sum, viewing the evidence in the light most favorable to the contractors, we conclude that there is a genuine factual dispute as to what the prior art references teach and what the differences are between the prior art and the asserted claims. To be sure, claim construction may narrow those factual issues. Because the trial court has not yet construed the critical limitations, we leave that task to the court on remand. The question whether there is a motivation to combine the pertinent elements of the prior art references in a manner that would read on the asserted claims depends, in turn, on the resolution of the factual questions and claim construction issues discussed above. If those issues are resolved in the contractors' favor, the evidence in the record, such as Mr. Tamaro's testimony that the decision to insert the columns before adding cementitious slurry was simply a scheduling decision, is sufficient to raise a factual question as to the presence of a motivation or suggestion to combine the elements of the prior art. We also leave to the district court the question whether, as State Contracting argues, the contractors have waived their right to a

jury trial on obviousness and thus consented for that issue to be decided by the court on the basis of the record made at trial.

## VI. Damages

The jury rejected State Contracting's lost profits theory of damages, but awarded State Contracting \$5,199,429 on a "reasonable royalty" theory. The contractors raise several objections to the damages award based on the evidence presented and the jury instructions given by the court. The contractors seek a new trial on damages or, at a minimum, a reduction in the award to \$1,103,284.40.

### A

The contractors argue that State Contracting's evidence related only to lost profits and did not support the jury's reasonable royalty award. In particular, the contractors contend that State Contracting's expert failed to analyze and apply the traditional factors bearing on reasonable royalty that were set out in Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116 (S.D.N.Y. 1970).

A jury's decision with respect to an award of damages "must be upheld unless the amount is 'grossly excessive or monstrous', clearly not supported by the evidence, or based only on speculation or guesswork." Brooktree Corp. v. Advanced Micro Devices, Inc., 977 F.2d 1555, 1580 (Fed. Cir. 1992). We agree with the district court in rejecting the contractors' argument that the reasonable royalty award was clearly unsupported by evidence or based only on guesswork. State Contracting's expert, Dr. John Leslie Livingstone, provided testimony on reasonable royalty and addressed the Georgia-Pacific factors, albeit at times in abbreviated fashion. Although Dr. Livingstone found some of those factors irrelevant to the case at hand, the contractors are incorrect to suggest that he did not "apply the Georgia-Pacific test." Dr. Livingstone provided testimony about a hypothetical negotiation between the plaintiff and accused infringers. While Dr. Livingstone used the contractors' profit margins in his royalty determination, that was not legal error, because "an actual

infringer's profit margin can be relevant to the determination of a royalty rate in a hypothetical negotiation." Interactive Pictures Corp. v. Infinite Pictures, Inc., 274 F.3d 1371, 1385 (Fed. Cir. 2001).

Although the contractors disagree with some of the assumptions and analysis that Dr. Livingstone used in constructing his hypothetical negotiation, they have not pointed to any legal flaw that fatally infected his testimony. The contractors contend that Dr. Livingstone erred in assuming that they would be forced to use the patented invention in the construction projects, ignoring the fact that the hypothetical contractors could have chosen to use an alternative design rather than pay a royalty. We disagree. Because FDOT incorporated the patented process into its bid specifications, the contractors were not free to disregard the bid specifications and implement an alternative design. The contractors' choice was therefore to use the patented process or to decline to bid on the contracts.

The contractors also allege that Dr. Livingstone erred by basing his royalty calculation on the entire construction project, rather than on just the soundwall. The contractors argue that even though FDOT sought a single bidder for the project, FDOT would have specified an alternative design to allow for competitive bids if it had known that the designated design infringed. The contractors, however, point to no evidentiary support for their theory. In that respect as well, they have not shown that Dr. Livingstone's testimony was so seriously flawed that it may not be used as evidentiary support for the jury verdict.

The contractors further object to the jury's award of a royalty much larger than the royalty that State Paving requested at one time. It is true that in 1995 State Paving sent letters to various contractors requesting a royalty of only \$0.95 per square foot of soundwall. That request was made early in the process and by a party other than the plaintiff in this case. Dr. Livingstone's testimony that a reasonable royalty was considerably higher suggested, in effect, that State Paving's offer was very favorable to the contractors. The jury was entitled to

weigh Dr. Livingstone's testimony in concluding that a reasonable royalty was larger than the amount for which State Paving would have settled. We cannot say that the jury's award, which was, in turn, substantially smaller than the amount calculated by Dr. Livingstone, was grossly excessive or clearly unsupported by the evidence, especially in light of the contractors' failure to present competing expert testimony as to a reasonable royalty.

The contractors contend that the district court erred in barring its damages expert, Herbert W. Larson, from testifying as to a reasonable royalty. On the record before us, however, we cannot conclude that the court abused its discretion in rejecting Mr. Larson's testimony, especially in light of Mr. Larson's statement that he had no experience in placing a value on a patent and did not have any knowledge regarding reasonable royalties for construction-related patents. See Gen. Elec. Co. v. Joiner, 522 U.S. 136, 141-42 (1997) (review of a trial court's decision to exclude expert testimony is for an abuse of discretion).

## B

The contractors object to the jury instructions with respect to damages on two grounds. First, they contend that the court failed to instruct the jury properly as to the date that damages could begin to accrue. The district court instructed the jury: "You must calculate damages from the moment of infringement, either August 10, 1993 [the issuance date of the '288 patent], or the moment the individual defendants were put on actual notice, whichever is later, but no later than August 21, 1997 [the date the lawsuit was filed]." The contractors contend that the instruction impermissibly allowed the jury to award damages for the time period prior to actual notice of the issued patents because it did not specify that the notice must be of an issued, rather than a pending, patent. They contend that the instruction could lead the jury to award damages based on notice of the pending patent application.

Section 287 of the Patent Act provides that patentees shall give notice of infringement by marking "any patented article" and that damages shall be limited to the time period



subsequent to that notice. 35 U.S. C. § 287(a). It is “settled in the case law that the notice requirement of this statute does not apply where the patent is directed to a process or method.” Bandag, Inc. v. Gerrard Tire Co., 704 F.2d 1578, 1581 (Fed. Cir. 1983).

We conclude that the jury instruction at issue is not legally erroneous, at least with respect to the '288 patent. The instruction correctly barred the accumulation of damages prior to the issuance date of the '288 patent, a method patent for which no notice is required. In this case, the parties did not separate the charge of infringement of the '288 patent and the '455 patent or assert them independently. The jury verdict form did not differentiate between the two patents for the award of damages, nor did the defendants' proposed verdict form. Accordingly, the damages could begin accruing as of the issuance date of the '288 patent, regardless of when there was notice of either a pending or issued patent. In fact, if there was any harm done by the wording of the instruction, then it is more likely to have been done to State Contracting because the jury could have determined, for example, that damages could not accrue for a specific contractor until a 1995 letter giving notice of the '288 patent. There is no contention that eliminating damages as to the '455 patent would reduce the overall damages awarded to State Contracting. Therefore, we need not address the notice issue as to the later-issued '455 patent.

The contractors cite American Medical Systems v. Medical Engineering Corp., 6 F.3d 1523 (Fed. Cir. 1993), for the proposition that “[w]here the patent contains both apparatus and method claims, to the extent that there is a tangible item to mark by which notice of the asserted method claims can be given, a party is obliged to do so if it intends to avail itself of the constructive notice provisions of 35 U.S.C. § 287(a).” Id. at 1538. That case is inapposite because here an asserted patent—the '288 patent—contains only method claims, and we look to the asserted patents independently. We have not previously held that a patent containing only method claims is examined to see if something could have been marked in

order to assess whether the notice provision applies, and we decline to do so now. Cf. Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1083 (Fed. Cir. 1983) (upholding decision that section 287 did not apply when only process claims were found infringed and the patent contained apparatus claims).

The contractors' second claim of instructional error as to damages is that the trial court erred in rejecting their proposed instruction on convoyed sales. The contractors argue that the court's reasonable royalty instruction directed the jury to award a royalty on the entire soundwall, including the unpatented components, rather than on just the integrated column and piling covered by the patent. As State Contracting notes, the trial court made clear that the patents were restricted to the integrated column and pile. Moreover, the court instructed the jury that

State Contracting may receive damages for lost construction work only on those products or methods that compete with defendants' products or methods that you find to infringe, and that are functionally part of the competing product or method. In this regard, if you find that an entire construction job is functionally a part of the patented inventions used on that job, then you may award lost profits to State Contracting for that entire construction job.

The contractors have not shown how that instruction failed to address the issue of convoyed sales as well as their proposed instruction, which stated that to award damages on the unpatented components, the jury must be convinced "that the patented integrated column and pile functions with the unpatented [components] in some manner so as to produce a desired end product or result." Because the court's instructions conveyed the correct legal principle to the jury, they were not fatally flawed. See Advanced Display Sys. v. Kent State Univ., 212 F.3d 1272, 1282 (Fed. Cir. 2000). Accordingly, we discern no reversible error in the district court's treatment of the damages issues and affirm the court's denial of both a new trial and a remittitur.

AFFIRMED-IN-PART, REVERSED-IN-PART, and REMANDED.

