

**United States Court of Appeals  
for the Federal Circuit**

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**CHEESE SYSTEMS, INC.,**  
*Plaintiff/Counterclaim Defendant-Appellant,*

AND

**CUSTOM FABRICATING AND REPAIR, INC.,**  
*Counterclaim Defendant-Appellant,*

v.

**TETRA PAK CHEESE AND POWDER SYSTEMS,  
INC. AND TETRA LAVAL HOLDINGS & FINANCE  
S.A.,**  
*Defendants/Counterclaimants-Appellees.*

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2012-1463, -1501

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Appeals from the United States District Court for the  
Western District of Wisconsin in No. 11-CV-0021, Senior  
Judge Barbara B. Crabb.

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Decided: August 6, 2013

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JOHN P. FREDRICKSON, Boyle Fredrickson, S.C., of  
Milwaukee, Wisconsin, argued for plaintiff/counterclaim  
defendant-appellant and counterclaim defendant-

appellant. With him on the brief were JAMES F. BOYLE, MICHAEL T. GRIGGS, and ERIC J. LALOR.

PHILIP L. HIRSCHHORN, Buchanan Ingersoll & Rooney PC, of New York, New York, argued for defendants/counterclaimants-appellees. With him on the brief were S. LLOYD SMITH and RACHEL ELSBY, of Alexandria, Virginia. Of counsel on the brief were JEFFREY S. WARD, EDWARD J. PARDON, and SHANE BRUNNER, Merchant & Gould P.C., of Madison, Wisconsin.

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Before RADER, *Chief Judge*, REYNA, *Circuit Judge*, and  
DAVIS, *District Judge*.\*

RADER, *Chief Judge*.

In this declaratory judgment action, the United States District Court for the Western District of Wisconsin granted the summary judgment motion of Tetra Pak Cheese and Powder Systems (Tetra Pak Cheese) and Treval Laval Holdings & Finance S.A (Treval Laval) (collectively, Tetra Pak) against Cheese Systems, Inc. (CSI). In an unpublished fifty-four page opinion, the trial court determined that CSI infringed under the doctrine of equivalents and had not proven the '347 patent invalid. *Cheese Sys., Inc. v. Tetra Pak Cheese and Powder Sys., Inc. and Tetra Laval Holdings & Fin. S.A.*, No. 11-cv-21-bbc (W.D. Wis. May 15, 2012); J.A. 1–54 (Slip Op.). By stipulation, the district court also entered a permanent injunction against CSI. Slip Op. at 55–58. Because the District Court correctly applied the law to these facts, this court affirms.

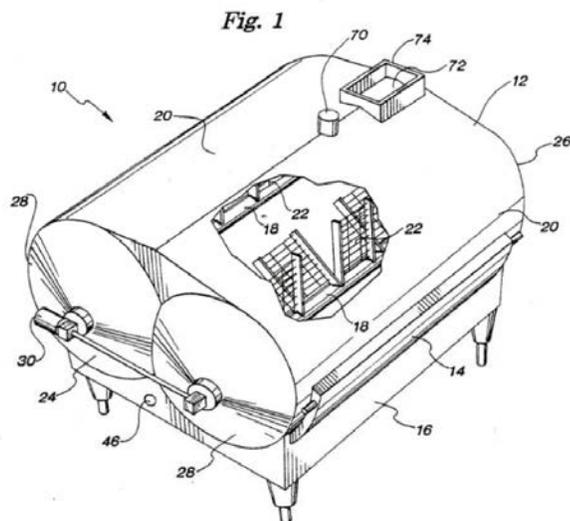
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\* Honorable Leonard Davis, Chief District Judge, United States District Court for the Eastern District of Texas, sitting by designation.

## I.

The subject matter of this patent involves commercial cheese-making vats. To make cheese, the technology combines milk and other additives in a vat. That process heats, cools, cuts, and stirs the ingredients to make cheese. At length, the ingredients solidify into a semi-solid mass called “coagulum.” Slip Op. at 5.

The panels inside the vat that cut and stir the coagulum are called “agitators,” “agitator panels,” or “paddles.” Agitator panels are two-sided panels, one side with relatively sharp cutting edges, and the other side with comparatively blunt stirring edges. Electric motors drive the panels via long shafts that pass through the vat walls. During operation the electric motors rotate the shafts, causing the attached panels to stir, or to cut, the coagulum. The panels have ample openings between the cutting or stirring blades to allow coagulum to pass through the panels as they move through the coagulum. This cut-away view from a prior art patent illustrates the general structure of a horizontal vat:



U.S. Pat. No. 4,989,504, Fig. 1 (the Jay '504 Patent).

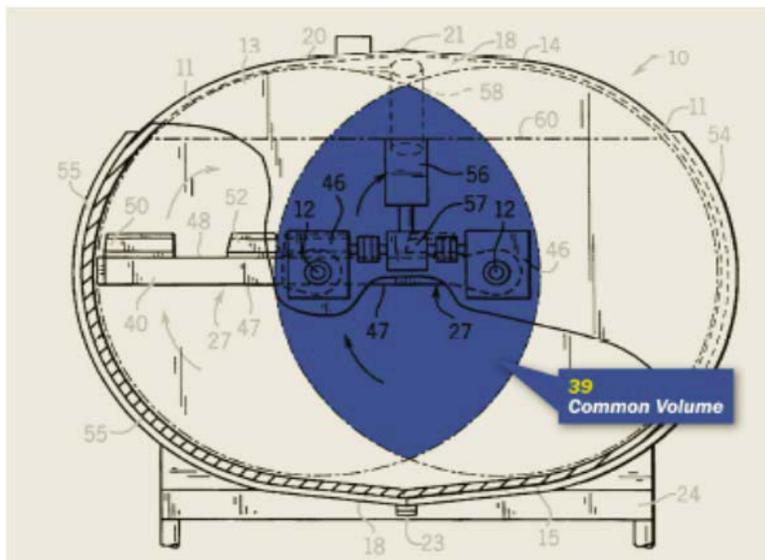
In cheese-making parlance, vats may be open or closed, and horizontal or vertical. A vat is “closed” if it has no large opening at its top. *See id.* at col. 1, ll. 17–25. The key distinction between horizontal and vertical cheese vats is the orientation of the agitator shafts: in vertical vats, agitator shafts are generally perpendicular to the ground, while in horizontal vats, they are generally parallel to the ground. (Figure 1, above, depicts a horizontal vat.) Horizontal vats may not lie literally horizontal to the floor, but instead may tilt slightly toward one end in order to facilitate draining. *See, e.g., id.* Fig. 2.

Until somewhat recently, cheese vats were predominantly oriented vertically. *See id.* at col. 1, ll. 25–60. However, cheese-makers recognized that vertical vats suffered efficiency and quality losses as the size of the vats increased. *See id.* To cure these ills, cheese makers essentially turned closed vertical vats on their sides, to become horizontal vats. *See id.* at col. 1, ll. 50–60.

In these horizontal vats, prior art taught that the shafts should “co-rotate” meaning turn in the same direction. Co-rotating horizontal vats improved vertical vats, but still presented problems. For instance, curds piled up on the bottom side of the vat where the agitator panels would both be moving upward. *See* ’347 patent col. 22, ll. 44–49. Also, co-rotation caused the coagulum to flow in the same direction, which required quicker rotation of the panels in order to “catch up” with and cut the coagulum. Often the co-rotating horizontal vats suffered from inefficient cutting and other quality problems. *See id.* at col. 1, l. 64 to col. 2, l. 8.

The ’347 patent addressed these problems with two improvements. First, the patent teaches contra-rotating the shafts (also called counter-rotating) not co-rotating. *See* ’347 patent col. 3, ll. 28–31. The ’347 patent describes counter-rotation by referring to the movement of the

blades through the space where the two interconnected chambers overlap, called the “common volume:”



When shafts co-rotate, they move in opposite directions through the common volume; with counter-rotation, they move in the same direction through the common volume. With co-rotation, because the agitator panels have cutting faces on the same side, this means that when one set of agitator panels goes upward and cuts through the common volume, the other goes downward and cuts through the common volume, and *vice versa* in the stirring mode. Put another way, co-rotating agitator panels perform the same task (cutting or stirring), while going the opposite direction through the common volume. With counter-rotation, the panels move the same direction through the common volume: both downward, or both upward.

Second, the patent arranges the panels so that during contra-rotation, both panels present only cutting or only stirring faces to the common volume. *See id.* at col. 18–17. In the claimed vat, the panels are fitted so that, even though the shafts turn in opposite directions, only cutting

or only stirring action occurred as they passed through the common volume. Without this change, a vat with contra-rotating shafts would both cut and stir at the same time.

These innovations operated to ensure that only cutting or only stirring would occur as the panels move in opposite directions through the common volume. The '347 patent explains that the key is not just that the shafts contra-rotate, but instead it is the combination of contra-rotation combined with presenting only cutting or only stirring edges while moving the same direction through the common volume. *Id.* at 27–31. The patent explains that the panels' direction through the common volume—moving upward while cutting or downward while cutting—can be determined according to the desired qualities of the cheese product. *Id.* at 10–31.

The '347 patent was filed in March, 1998 and issued in November, 1999. CSI brought this declaratory judgment action in January 2011. J.A. 84. In the district court, Tetra Pak asserted that CSI infringed claims 1, 2, 3, 9, 10, 11 and 12 of the '347 patent. Claims 1 and 10 are independent. Claim 1 defines an apparatus; claim 10 a method. This appeal focuses on claim 1:

In a cheese processing vat having a pair of interconnected generally cylindrical wall portions with horizontally disposed axes, the axes of the generally cylindrical wall portions positioned in parallel horizontally spaced relation, and common opposite end walls forming with the generally cylindrical wall portions an enclosed vat containing a mixture of cheese curd solids and liquid whey, said vat having a generally oval cross section in a plane perpendicular to said axes, the improvement comprising:

An agitator panel rotably mounted on the axis of each wall portion to sweep a generally cylindrical volume;

each agitator panel including a cutting face having a plurality of sharp cutting edges disposed in a generally common first plane and an opposite stirring face having a plurality of blunt stirring edges disposed in a generally common second plane;

a drive for rotating said panels in the opposite rotational direction through the mixture in the vat such that said panels move through the common volume in the same direction, and means for mounting said panels with the respective cutting and stirring edges oriented such that during rotation only the stirring edges of the panels or only the cutting edges of the panels are moving toward the common volume and such that one of said panels trails the other of said panels during movement through said common volume.

'347 patent, col. 8, ll. 28–57.

As noted, Tetra Pak accused CSI's High Solids Cheese Vat (HSCV) of infringement. CSI's HSCV is an enclosed cheese vat, with two shafts running generally horizontal to the ground, with the counter-rotational shafts driven by an electric motor. J.A. 1424, 1429. When the shafts rotate, only cutting, or only stirring, takes place. J.A. 1425–26. Each shaft holds a series of curved “paddles,” which have one side sharpened to cut and the other side relatively blunt to stir. A 1427–28. The first photo below shows the outside of the accused vat, and the second shows the interior, including CSI's curved paddles:



Appellants' Br. 16, 15.

As noted earlier, CSI filed this declaratory judgment action and pled that it did not infringe and that the

asserted claims were invalid. Tetra Laval owns the '347 patent and Tetra Pak is its exclusive licensee. Tetra Pak filed a counterclaim, alleging that CSI infringed the '347 patent. Along with striking a portion of a CSI expert's declaration, the district court granted summary judgment that the claims were not invalid and were infringed. Slip Op. at 1–54.

CSI appeals, arguing the district court erred in three aspects of claim construction, in finding infringement as a matter of law, and in denying summary judgment of invalidity based upon CSI's defenses of anticipation and obviousness. CSI also challenges the striking of CSI's late-filed expert testimony relating to obviousness. The court has jurisdiction under 28 U.S.C. §§ 1292(a)(1) and (c)(1).

## II.

This court reviews a grant of summary judgment in accordance with regional circuit law. *Serdarevic v. Advanced Med. Optics, Inc.*, 532 F.3d 1352, 1362 (Fed. Cir. 2008). Under controlling Seventh Circuit precedent, a district court must draw every reasonable inference in favor of the non-moving party and grant summary judgment only if no reasonable jury could find in favor of the non-moving party. *See Stoner v. Wisc. Dep't of Agric., Trade & Consumer Prot.*, 50 F.3d 481, 484 (7th Cir. 1995). This court reviews the grant of summary judgment without deference, applying the same standard as the district court. *See Lexion Med., LLC v. Northgate Techs., Inc.*, 641 F.3d 1352, 1357 (Fed. Cir. 2011).

Claim construction presents only legal questions. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455 (Fed. Cir. 1998). Anticipation and infringement are questions of fact. *Osram Sylvania, Inc. v. Am. Induction Tech., Inc.*, 701 F.3d 698 (Fed. Cir. 2012) (anticipation); *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1125 (Fed. Cir. 1996) (infringement). A determination of obviousness is

based on underlying factual findings, including “(1) the scope and content of the prior art; (2) the level of ordinary skill in the pertinent art; (3) the differences between the claimed invention and the prior art; and (4) the evidence of secondary factors, such as commercial success, long-felt need, and the failure of others.” *Daiichi Sankyo Co. v. Matrix Labs., Ltd.*, 619 F.3d 1346, 1352 (Fed. Cir. 2010) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966)). The factual findings underlying summary judgment of nonobviousness are reviewed under the summary judgment standard, and the ultimate determination of obviousness is a legal conclusion reviewed without deference. *See Golight, Inc. v. Wal-Mart Stores, Inc.*, 355 F.3d 1327, 1336 (Fed. Cir. 2004).

In examining whether a district court properly grants a motion to strike testimony as a discovery sanction, this court applies regional circuit law. *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002). The Seventh Circuit reviews for abuse of discretion. *Musser v. Gentiva Health Servs.*, 356 F.3d 751, 755 (7th Cir. 2004). Likewise, a district court's decision to preclude expert testimony is an evidentiary issue that is reviewed for an abuse of discretion. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 141–43 (1997) (“[A]buse of discretion is the proper standard of review of a district court's evidentiary rulings.”); *Flex-Rest, LLC v. Steelcase, Inc.*, 455 F.3d 1351, 1357 (Fed. Cir. 2006) (applying *Joiner*).

### III.

Direct infringement requires proof by preponderant evidence that the defendant performs (if a method claim) or uses (if a product claim) each element of a claim, either literally or under the doctrine of equivalents. *See BMC Resources, Inc. v. Paymentech, L.P.*, 498 F.3d 1373, 1381 (Fed. Cir. 2007). The district court found no disputed issue of material fact and that CSI's HSCV vats infringed at least claims 1 and 10 of the '347 patent.

On appeal, CSI argues three grounds to reverse. First, it asserts that its HSCV does not have cutting panels that meet the “generally common plane” limitation. Second, it asserts that its paddles do not satisfy the “agitator panel” limitation. And, third, that the accused vat does not satisfy the “horizontally disposed axes” limitation.

The claims require that the agitator panel have “a plurality of sharp cutting edges disposed in a generally common first plane,” and “a plurality of blunt stirring edges disposed in a generally common second plane.” The district court construed the phrase “generally common plane” to require panel “surfaces that are on the whole flat but include some degree of curvature.” Slip Op. at 23. This claim language requires each agitator panel to have a *plurality* of sharp (or blunt) edges in a generally common plane. The district court correctly assessed that a plurality simply means two or more. Slip Op. at 28. A plane refers to a flat surface. With these understandings, a requirement that the entire panel be “on the whole flat” is too restrictive because it requires far more than a *plurality* of edges in the same general plane. This court instead concludes that the claim language does not require the panel to have any particular shape beyond the requirement that more than two cutting and stirring edges lie in respective generally common planes.

The claim also requires that only the stirring, or only the cutting, edges of the panel move through the common volume in a given operation. This court also finds nothing in the specification giving any special meaning to this claim phrase. Moreover, the prosecution history does not show any surrender of claimed subject matter, let alone clear and unmistakable evidence of such disavowal.

On infringement of this limitation, Tetra Pak argues that this court can affirm either via the doctrine of equivalents or by finding literal infringement as a matter of

law. Appellee's Br. 31–35. This court affirms on the ground that the accused products literally infringe this element and so does not reach the alternative ground of infringement under the doctrine of equivalents. *Hydril Co. LP v. Grant Prideco LP*, 474 F.3d 1344, 1351 (Fed. Cir. 2007) (noting that it is within this court's discretion to "affirm a district court judgment on any ground shown by the record, even though that was not the basis of the district court's decision.").

The district court found a fact question on literal infringement, and so denied Tetra Pak summary judgment on that ground. Slip Op. at 26. The district court reached this conclusion only by unduly limiting the language to require that the panels be "on the whole flat." To the contrary, this element requires only that a plurality of cutting edges lie in a generally common plane. In the accused device, a plurality of stirring edges falls in the same plane. Thus, the record amply supports that the accused products meet that limitation, as a visual inspection confirms:



Appellants' Br. 16. Accordingly, this court reverses the denial of summary judgment of no literal infringement. This court need not reach the questions of equivalency or prosecution history estoppel.

Claim 1 also uses the word "agitator panel" and "panels" at least once in every element of the claim. '347 patent, col. 8, ll. 38–57. Those skilled in the art, including CSI's own expert, Mr. Jay, acknowledged that multiple panels can be present on a single shaft, and that in this art each separate panel is, not surprisingly, a separate "agitator panel." Slip Op. at 28–29; *see also* J.A. 1793. The specification also stated that the shaft provides "a pair of radial support arms by which the panel is mounted for rotation." '347 patent col. 5, ll. 33–34. Based upon this, the district court construed the phrase "agitator panel" to include "a structure of blades rotably mounted on the axis of the cylindrical vat to cut and stir the coagulum." Slip Op. at 29.

The record amply supports the district court's interpretation of this claim term. CSI's alternative would have construed "agitator panel" to mean the entire structure that rotates to agitate the mixture, which includes some panels presenting cutting edges and some panels presenting stirring edges when rotated in a given direction. *See* Slip Op. at 27; Appellants' Br. 41. As a consequence, the cutting edges from two adjacent panels would not be "disposed in a generally common . . . plane," as, for example, in the photo of CSI's accused vat, above. The district court correctly dismissed those arguments. Slip Op. at 27. The district court correctly held no reasonable juror could find that CSI's agitator panels do not meet this limitation. Slip Op. at 30. Therefore, the record shows that the district court properly entered summary judgment of literal infringement with respect to this limitation.

This court next addresses the emphasized language in the phrase, a cheese vat with “a pair of interconnected generally cylindrical wall portions with *horizontally disposed axes*.” ’347 patent col. 8, ll. 29–31 & col. 9, ll. 25–26 (emphasis added). The record shows, and the district court found, that “[m]any horizontal cheese vats have a slight incline relative to the ground to facilitate draining, which they achieve by placing the vat body on a stand with longer legs at one end.” Slip Op. at 31. CSI’s expert witness described vats with slight inclines as “horizontal vats.” See Slip Op. at 31–32.

Relying on this evidence, the district court held that a person of ordinary skill would read this limitation to mean “oriented generally with respect to the ground, as compared to axes generally vertically with respect to the ground.” Slip Op. at 31. Thus, the district court found that a person of ordinary skill in this art “would distinguish horizontal from vertical cheese vats *in comparative terms, rather than requiring horizontal vats to be precisely horizontal*.” *Id.* (emphasis added). In addition, Figure 8 from CSI’s own Jay ’540 Patent describes the depicted vat as “horizontal” even though it has a slight angle. ’540 patent Fig. 8.

Despite the abundant record on this point, CSI argues that the axes must be “exactly parallel to the ground.” Appellants’ Br. 47. CSI notes that some horizontal vats have a concave bottom and are drained through it and are truly horizontal to the ground. *Id.* In addition, CSI emphasizes that in some places the patent uses the “generally” as a modifier, but it does not do so for this limitation. *Id.* at 47–51.

This court concludes that the record supports the district court’s interpretation. Indeed, a person of ordinary skill in this art would understand “horizontal” as a term used to distinguish horizontal vats from vertical ones, not to require precise horizontal orientation of the shafts.

Thus, the claim term “horizontal” in this art permits some degree of incline. Thus, this court affirms the trial court’s determination that the term means “generally oriented horizontally with respect to the ground.” Moreover, the district court correctly held that no reasonable jury could fail to find that the HSCV product meets this limitation. *See id.* at 31. Accordingly, the district court properly granted summary judgment to Tetra Pak of literal infringement with respect to this element.

#### IV.

The court turns to CSI’s invalidity defenses. While CSI raised other grounds of invalidity below, it appeals only the grant of summary judgment to Tetra Pak concerning anticipation and obviousness.

Anticipation requires clear and convincing proof that a single prior art reference “not only disclose[s] all of the elements of the claim within the four corners of the document, but . . . also disclose[s] those elements arranged as in the claim.” *Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). CSI asserts that two of the Jay patents discussed in the specification of the patent-in-suit and considered by the examiner—the ’559 and the ’907 patents—each anticipates every asserted claim. *See* Appellants’ Br. 51; Reply Br. 18–22.

The Jay ’559 patent issued off an application filed in May 1995; the Jay ’906 patent issued off a CIP of that application, filed in May, 1996. So far as is pertinent here, they have identical disclosures. Appellants’ Br. 52 n.4. These two patents relate to improvements to horizontal vats for semi-liquid food products, including, but not limited to, cheese. *Id.* Specifically, the patents relate to an improved blade structure. *See* Jay ’559 Patent Fig. 2.

These patents describe the benefits that the new blade structure brings to solving one problem caused by

co-rotation. They explain that the “overall agitation pattern is such that the contents of the vat will be induced to rotate in the same direction as the agitator with significant cross-cutting action and other interactions in the zone where the agitator panels overlap.” Jay ’559 patent at col. 2, l. 65 to col. 3, l. 2. The patents explain that cross-cutting occurs because the panel on one axis cuts the common volume in an upward direction while the panel on the other axis cuts it in a downward direction—precisely the circumstance of co-rotation. The patent emphasizes that the improved blade increases cross-cutting and so improves cheese production because the shafts can spin at lower speeds.

Though extolling the virtues of the improved blade in a co-rotating environment, the Jay patents do mention counter-rotation, stating that “[a]gitators normally rotate co-directionally but can be arranged for counter rotation where specific production criteria demand it.” *Id.* at col. 3, ll. 26–28. The specification, including the claims, makes no further mention of counter-rotation. The patents make no mention—at all—of switching the orientation of the panels on one shaft so that, if counter-rotated, the cutting surfaces of one set of agitator panels will be moving through the common volume in the same direction as the cutting faces of panels on the other shaft.

The district court correctly recognized that neither patent discloses means to mount panels so that during counter-rotation only cutting or only stirring edges move through the common volume. Slip Op. at 41 (correctly stating that the two Jay patents “say nothing about reorienting the panels”). CSI does not address this glaring shortcoming in its anticipation argument. Instead, CSI notes that the panels depicted in Figure 2 of the Jay ’559 patent are very similar to those depicted in Figure 2 of the ’347 patent. *See* Appellants’ Br. 52. CSI argues that a person of ordinary skill would read these Jay patents, see they mention that the panels “can be

arranged” for contra-rotation if “specification production criteria demand it,” and argues that this can mean, only, to mount the panels so that only cutting or only stirring occurs. Appellants’ Br. at 54; Reply Br. 21.

Even construing ambiguities in CSI’s favor, the phrase “can be arranged” suggests altering the mounts for the panels rather than altering rotation of the shafts to allow for counter-rotation. Nothing in these Jay patents states that if counter-rotation is used, the panels on one shaft should be, let alone must be, reversed. The patents teach only that contra-rotation should be used if “specific production criteria” demand it, but these patents are not directed solely to cheese production, but instead include other food products. *See* Slip Op. at 41. Thus the Jay specification reads most consistently as suggesting that other food products benefit from simultaneous cutting and stirring. Without a clear and unambiguous teaching, a jury could only speculate, hardly a compelling case for anticipation.

CSI’s other arguments are equally unpersuasive. For these reasons, these Jay patents do not anticipate, either expressly or inherently. The district court correctly granted summary judgment to Tetra Pak. Slip Op. at 42.

The district court also granted summary judgment that the ’347 patent would not have been obvious at the time of invention. CSI asserted obviousness based on several combinations of art, including the three Jay patents along with the AT ’523 patent and EP ’587 patent. Slip Op. at 43. The examiner considered the three Jay patents before granting the patent. CSI produced testimony about the AT ’523 and EP ’587 patents largely after the discovery cut-off and, therefore, the district court excluded much of that evidence. *See* Slip Op. at 2–4, 45. After a careful analysis, the district court rejected CSI’s obviousness defense. *See* Slip Op. at 42–53.

Under 35 U.S.C. § 103(a), a patent is invalid “if the differences between the [claimed] subject matter . . . and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” While obviousness is a determination of law, it is based on the underlying determinations of fact mentioned above. See *Geo M. Martin Co. v. Alliance Mach. Sys. Int’l*, 618 F.3d 1294, 1300 (Fed. Cir. 2010); *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966)).

Whether a claim is invalid for obviousness is determined from the perspective of one of ordinary skill in the art. *Id.* at 420 (“The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a person with ordinary skill in the art.”). Even when all claim limitations are found in prior art references, the fact-finder must determine what the prior art teaches, whether prior art teaches away from the claimed invention, and whether there was motivation to combine teachings from separate references. See *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006); see *KSR*, 550 U.S. at 421–22 (discussing *Dystar*).

Among the difficult challenges of applying the doctrine of obviousness is avoidance of even a hint of hindsight. Obviousness “cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.” *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998). In this regard, objective evidence operates as a beneficial check on hindsight. As the court recently explained in describing these “essential components” of the obviousness analysis:

Objective evidence of nonobviousness can include copying, long felt but unsolved need, failure of others, commercial success, unexpected results created by the claimed invention, unexpected properties of the claimed invention, licenses showing industry respect for the invention, and skepticism of skilled artisans before the invention. These objective considerations can protect against the prejudice of hindsight bias, which often overlooks that “[t]he genius of invention is often a combination of known elements which in hindsight seems preordained.” *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001).

*Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1368 (Fed. Cir. 2013) (citations omitted).

At the outset, although the district court recognized that objective considerations of nonobviousness are a required part of this analysis, Slip Op. at 42 (citing *Graham v. John Deer Co.*, 383 U.S. 1, 17–18 (1966)), the district court did not expressly consider and make specific findings on those factors. Where a court holds a claim obvious without making findings of secondary considerations, the lack of specific consideration of secondary considerations ordinarily requires a remand. *OSRAM Sylvania, Inc. v. Am. Induction Techs., Inc.*, 701 F.3d 698, 708–09 (Fed. Cir. 2012). Even where, as here, a district court upholds a claim over an assertion of obviousness, a trial court may prevent remands by making these potentially crucial fact-findings. See *Ortho-McNeil Pharma., Inc. v. Myland Labs., Inc.*, 520 F.3d 1358 (Fed. Cir. 2008) (explaining that objective evidence of nonobviousness “is not just a cumulative or confirmatory part of the obviousness calculus but constitutes independent evidence of nonobviousness.”). Under some circumstances, this court may not be able to adequately review an appeal of even nonobviousness without fact findings on objective consid-

erations because they are a part of—not in addition to—the analysis. In this case, however, for the following reasons, this court affirms the grant of summary judgment without a remand.

CSI first asserted that the Jay '559 and '907 patents would have rendered the invention in the asserted claims of the '347 patent obvious in light of the Jay '504 patent. Appellants' Br. 56–59. CSI asserts that, because contra-rotation was disclosed in the art, it would have been obvious to flip the orientation of the panels on one shaft so that the panels did not cut and stir simultaneously. *Id.* at 57. Like the district court, this court rejects this argument.

As explained above, the Jay '559 and '507 patents have essentially identical disclosures. The third Jay patent, U.S. Patent No. 4,989,504 (the Jay '504 patent) discloses an improvement to enclosed horizontal vats to avoid air contamination and have less heat loss consisting of using a series of distinct “paddles” attached in staggered rows wrapped spirally around a shaft, with each paddle having a slight angle. The Jay '504 patent's specification states that the blades are sharpened on one side only and presented so that when rotated only cutting surfaces or only stirring surfaces are presented. Jay '504 patent at col. 2, ll. 45–52. A passage in the specification states:

The stirring action is further enhanced by means of an angle of impingement . . . such that when rotated in the stirring direction these blades act on the product in a propeller like manner creating a generally torroidal flow pattern around the shaft of each inner wall section. The direction of rotation of the shafts is normally the same such that the flow patterns collide in the common second portion of the swept volumes of the inner wall sections. *In another form the invention, the shafts*

*are arranged to contra rotate thereby creating opposite torroidal flow patterns around each of the shafts in the vat such that the flow patterns are in unison in the common second portion of the swept volumes of the inner wall sections.*

Jay '504 patent, Col. 2, ll. 52–66 (emphasis added). The specification makes no further mention of counter-rotation, but instead explains the benefits of co-rotation. Further, the Jay '504 patent makes no mention of switching the orientation of the panels so that, if counter-rotated, the cutting surfaces of one set of agitator panels will be moving through the common volume in the same direction as the other panels and only cutting or stirring. In other words, if a person of skill in the art followed the Jay '504 patent and arranged the shafts to contra-rotate, both cutting and stirring would occur at the same time.

The district court recognized that nothing in the patents discloses means to mount the panels in the opposite direction, let alone any guidance to do so. Slip Op. at 49–53. Further, the district court correctly noted that the '559 and '907 patents do not say anything else about counter rotation, do not explain what production criteria might require it, do not explain any benefit to counter-rotation (only why co-rotation is good), and do not expressly describe means to arrange the panels to avoid simultaneous cutting and stirring. *Id.* The district court also recognized the '504 patent has a passage specific to cheese production that mentions *only* co-rotation. *Id.*

To fill these voids, CSI points out that both the '559 and '504 patents refer to cutting and stirring as sequential, not simultaneous. CSI also notes that Mr. Jay testified that persons of ordinary skill in the art knew that cutting and stirring at the same time would damage the coagulum.

Of course, the primary difficulty with much of this testimony is that it arises years after the '347 invention at

a time of litigation-driven influences. Moreover, this after-the-fact testimony ignores the state of the prior art, including the sketchy nature of Mr. Jay's own patents. The district court thus correctly noted that the only suggestion to reorient the panels is in the '347 patent. Slip Op. at 51. And a complete view of the record confirms the district court's conclusion of nonobviousness over the three Jay patents.

CSI also contends that the Austrian Patent No. 384 523 B (the AT '523 patent) renders the asserted claims of the '347 patent obvious in light of the Jay '559 patent. Appellants' Br. 59. Analyzing this argument requires the court to first decide whether the district court abused its discretion when it struck portions of an expert declaration offered by CSI from Mr. Jay to oppose Tetra Pak's motion for summary judgment. *See* Slip Op. at 45.

Mr. Jay's initial report for CSI contained a single paragraph addressing invalidity. Before his deposition, his discussion of the AT '523 patent was based solely upon drawings, since the AT '523 patent is in German and he did not obtain a translation. His opinion was based upon his interpretation of a figure from the AT '523 with no understanding beyond the figure. *See* Appellants' Br. 60.

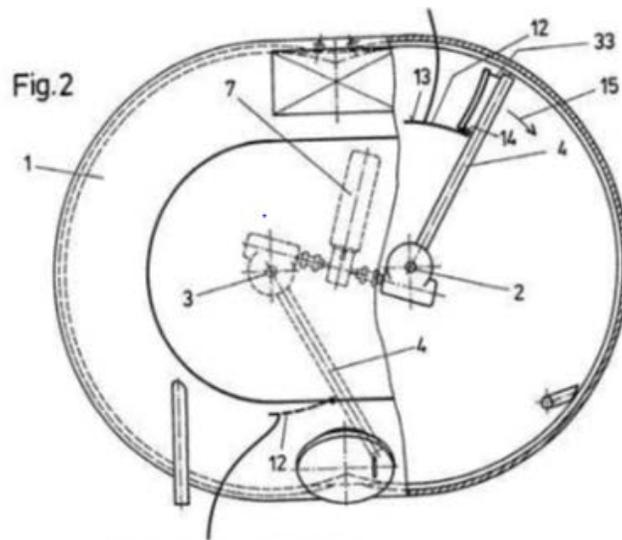
After his deposition, two months beyond the discovery deadline, and even after Tetra Pak had filed its motion for summary judgment on this defense, CSI filed a supplemental expert declaration from Mr. Jay. His supplemental report added another two pages of material based on a partial translation of the AT '523 patent. Slip Op. at 2–3.

Tetra Pak moved to strike Mr. Jay's supplemental report in its entirety. The district court granted in part Tetra Pak's motion. The district court considered the declaration (a) to the extent the opinions "rely on legal or common sense arguments that [CSI] has made in its brief;" and (b) with respect to certain details that, the

court found, were adequately disclosed prior to the deadline but which simply provided greater detail. *Id.* at 4. The court found CSI “offers no excuse for its untimely disclosures, and its arguments that they are not prejudicial are unconvincing.” *Id.* at 3.

This court holds that the district court did not abuse its discretion. Given that Tetra Pak had already deposed Mr. Jay, that the discovery deadline had long passed, and that Tetra Pak had already filed its own motion for summary judgment, the record shows apparent prejudice in permitting supplementation of the Jay deposition. Moreover, this decision lies well within the district court’s discretion. *See Musser*, 356 F.3d at 755 (explaining that no abuse of discretion arises so long as district court chose a reasonable option). The trial court’s care in administering its discretion is shown further by its thoughtful decision to permit some of the supplemental declaration to enter the record. *See David v. Caterpillar, Inc.* 324 F.3d 851 (7th Cir. 2004) (recognizing that a thoughtful analysis is one indicator of a lack of abuse of discretion). Thus, this court does not consider the excluded material on appeal.

With respect to the merits, the AT ’523 patent is an Austrian German language prior art patent issued in 1987 that was not considered during original prosecution. It describes a vertical cheese vat with a curved plate or valve affixed to the agitator panels on a hinge, and improvement on a similar hinged, flat plate:



AT '523 patent Figure 2. *See Op.* at 44.

Mr. Jay did not speak German. He thus relied upon this figure, which the district court aptly described as “not self-explanatory.” *Slip Op.* at 44. With only this as the evidence for his opinion, Mr. Jay opined that the AT '523 patent disclosed counter-rotation of agitator panels in vertical cheese vats, with only cutting or stirring edges moving through the common volume. *See Appellants' Br.* 60, 63. However, the AT '523 patent describes co-rotation. *J.A.* 1049; *see Slip Op.* at 46. Nonetheless, the district court correctly observed that the patent “never states that the panels rotate in opposite directions or that they are mounted facing opposite rotational directions,” but that if anything, the translation indicated they co-rotated. *Slip Op.* at 46.

This evidence hardly presents a clear and convincing case of non-obviousness. Further, the translated text combined with the figure is, at best, ambiguous as to whether the patent describes counter-rotation. Accordingly, the court affirms the district court's grants of summary judgment to Tetra Pak on nonobviousness.

V.

This court finds the remainder of CSI's arguments unpersuasive. Accordingly, this court affirms.

**AFFIRMED**