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United States Court of Appeals for the Federal Circuit

04-1059,-1071

SUNNY FRESH FOODS, INC.,

Plaintiff-Cross Appellant,

v.

MICHAEL FOODS, INC.,
and NORTH CAROLINA STATE UNIVERSITY,

Defendants-Appellants.

DECIDED: April 15, 2005

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

Michael Foods, Inc. (Michael Foods) is the exclusive licensee of United States Patent Nos. 4,808,425 (issued Feb. 28, 1989) ('425 patent), 4,957,759 (issued Sept. 18, 1990) ('759 patent), 5,994,291 (issued Nov. 30, 1999) ('291 patent) and RE37,225 (issued June 12, 2001) ('225 patent). These patents claim ultrapasteurized liquid egg products and methods for making the same. Sunny Fresh Foods, Inc. (Sunny Fresh) sought declaratory judgment in the District of Minnesota that the claims of these patents are invalid, unenforceable, and not infringed by Sunny Fresh's liquid egg products. Michael Foods counterclaimed infringement of thirty-six method claims and three product claims. A jury found the asserted claims valid and not infringed. Sunny Fresh

Foods, Inc. v. Michael Foods, Inc., No. 00-CV-2117 (JMR/FLN) (D. Minn. Aug. 21, 2003). The district court denied Michael Foods' motions for judgment as a matter of law or for a new trial on the issue of infringement. Sunny Fresh Foods, Inc. v. Michael Foods, Inc., No. 00-CV-2117 (JMR/FLN) (D. Minn. Sept. 25, 2003). Because substantial evidence supports the jury's findings that the accused products do not infringe the asserted claims and the district court did not abuse its discretion denying Michael Foods a new trial, this court affirms.

I

The patents-in-suit all share a common written description for ultrapasteurized liquid eggs. Normal pasteurization of a liquid egg product involves heating the egg product to a temperature sufficient to kill Salmonella, but does not significantly reduce the number of organisms capable of spoiling egg products at refrigerated temperatures. '425 patent, col. 1, l. 20. Consequently, pasteurized liquid egg products must be frozen to extend their shelf life. Id. at col. 1, ll. 20-27. Ultrapasteurization reduces the number of spoilage microorganisms by increasing the temperature to which the eggs are heated and reducing the product's exposure time at that temperature. Id. at col. 1, l. 55 – col. 2, l. 5. Decreasing these spoilage microorganisms increases the shelf life of liquid egg products at refrigeration temperatures. Id. at col. 3, ll. 8-11. However, heating and holding liquid egg products at high temperatures can deteriorate their functional qualities. Id. at col. 1, ll. 49-54.

Plotting the temperature of eggs against time during pasteurization produces a thermal curve. See id. at Fig. 2. These patents claim a method to ultrapasteurize liquid egg products by

passing the liquid whole egg product as a continuous stream through a pasteurizing apparatus, during which the liquid whole egg product is heated to a predetermined real temperature. The method is practiced so that the total thermal treatment received by the liquid whole egg product is described by an equivalent temperature and an equivalent time

Id. at col. 2, l. 66 – col. 3, l. 4. Essentially, the effects of an entire thermal curve on the liquid egg product are reduced to a single “equivalent point.” Id. at col. 4, ll. 30-39. In other words, a liquid egg product instantaneously heated to the temperature indicated by the equivalent point (equivalent temperature), held at that temperature for the time indicated by the equivalent point (equivalent time), and then instantaneously cooled receives the same benefits as treatment for the entire thermal curve. Id. at col. 5, ll. 1-14. When plotted on a graph of time over temperature, the equivalent points of a thermal curve form a line. See id. at Fig. 5 & col. 4, l. 66 – col. 5, l. 13.

These patents teach that the ultrapasteurization should limit the soluble protein loss (SPL) in the liquid egg product to preserve the product’s functional characteristics. Id. at col. 5, ll. 18-47. Ultrapasteurization processes using higher equivalent temperatures or longer equivalent times prolong the shelf life of the liquid egg product over processes performed at lower equivalent temperatures or shorter equivalent times, but also cause higher SPL in the product. Id. at Fig. 5. To obtain the maximum shelf life while preserving the functional characteristics of the liquid egg product, the patents claim ultrapasteurization at equivalent points above the five percent SPL line. Id. at col. 5, ll. 18-47, Fig. 3. Thus, the patents teach a method of ultrapasteurizing a liquid egg product while preserving the functional characteristics of the product.

II

Michael Foods appeals the district court's denial of its motion for summary judgment as a matter of law and denial of a new trial. Specifically Michael Foods seeks a new trial for alleged admission of improper evidence and for errors in the jury instructions.

A.

First, Michael Foods appeals the district court's denial of its motion for judgment as a matter of law that the accused products infringe the asserted claims. The parties' dispute focuses on the "equivalent point," "aseptic packaging, and "shelf life" limitations of the asserted claims. This court reviews a denial of a JMOL motion without deference. Thus, this court will only reverse "if substantial evidence does not support a jury's factual findings or if the law cannot support the legal conclusions underpinning the jury's factual findings." Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1312 (Fed. Cir. 2003) (citing Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc)). "This court accords substantial deference to a jury's factual application of a claim construction to the accused device in an infringement determination." Id. (citing Embrex, Inc. v. Serv. Eng'g Corp., 216 F.3d 1343, 1348-49 (Fed. Cir. 2000)).

i

Claim 1 of the '225 patent is representative of the process claims at issue in this appeal:

1. A method of ultrapasteurizing a liquid whole egg product, comprising passing the liquid whole egg product as a continuous stream through a pasteurizing apparatus, during which the liquid whole egg product is (a) heated to a predetermined holding temperature by contacting said liquid

whole egg product to a heated surface, then (b) maintained at said predetermined holding temperature for a predetermined holding time, and then (c) cooled, wherein the total thermal treatment received by the liquid whole egg product is defined by an equivalent temperature and an equivalent time defining a point above the 5% SPL (Batch) line of FIG. 3, but insufficient to cause coagulation of the liquid whole egg product, and then (d) aseptically packaged to provide a packaged liquid whole egg product characterized by a refrigerated shelf life of about four weeks to about 36 weeks.

'225 patent at col. 15, ll. 51-67 (emphasis added). All of the asserted process claims¹ require ultrapasteurization at an equivalent temperature and an equivalent time defining a point above the 5% SPL (Batch) line of Figure 3.

Michael Foods presented the expert testimony of Dr. Heldman to show that the equivalent temperatures and equivalent times used by Sunny Fresh fell above the five percent SPL (Batch) line as required by the claims. Sunny Fresh asserted, during cross-examination, that Dr. Heldman had chosen unrealistic activation energies for his calculations that Sunny Fresh's ultrapasteurization process met the equivalent point limitation of the claims. Sunny Fresh also presented its own expert witness, Dr. Labuza, who criticized Dr. Heldman's methodology in arriving at Sunny Fresh's equivalent point. Lastly, Sunny Fresh presented evidence that it purposely performs its ultrapasteurization process at an equivalent temperature and equivalent time below the five percent SPL (Batch) line of Figure 3. In sum, the record shows adequate evidence to support the jury's findings. The jury was free to credit the testimony of Dr. Labuza over that of Dr. Heldman, and to accept Sunny Fresh's evidence that it performs its ultrapasteurization below the five percent SPL (Batch) line of Figure 3. Thus,

¹ The process claims asserted by Michael Foods are: claims 1, 4-7, 9, 15, 17, 18, 20 and 25 of the '425 patent; claims 1, 4-7, 9, 16, 18, 19 and 21 of the '291 patent; claims 1, 3, 4 and 6 of the '759 patent; and claims 1, 3-6, 8, 9, 12, 14, 15 and 18 of the '225 patent.

substantial evidence supports the jury's finding that Michael Foods did not prove by a preponderance of the evidence that Sunny Fresh's ultrapasteurization process meets the equivalent point limitation of the asserted process claims.

ii

Claim 20 of the '225 patent shows the product claims in this appeal:

20. A packaged liquid whole egg product having a shelf life of from about 16 to 36 weeks under refrigerated conditions, wherein the liquid whole egg product comprises liquid whole egg product out of the shell and wherein said liquid whole egg product is liquid whole egg.

'225 patent at col. 18, ll. 20-25 (emphasis added). All of the asserted product claims² require a shelf life of sixteen to thirty-six weeks under refrigerated conditions. The patents-in-suit use organoleptic characteristics for assessing when eggs are spoiled. Id. at col. 13, ll. 57-61. Specifically, eggs are considered spoiled if (1) the color is outside the expected range of color for eggs immediately post-processing; (2) the aroma is objectionable; (3) the flavor is objectionable; or (4) the pH value is lower than seven. Id. at col. 13, l. 63 – col. 14, l. 5.

Michael Foods's expert witness, Dr. Ball, presented testimony regarding the shelf life of Sunny Fresh's liquid egg products. Dr. Ball tested the sample products with "sensory properties" and concluded that each sample product from Sunny Fresh had a shelf life exceeding sixteen weeks.

Sunny Fresh challenged Dr. Ball's testimony on several points. Sunny Fresh faults Dr. Ball for not testing the flavor of the eggs. Sunny Fresh also faults Dr. Ball for not providing control samples from Sunny Fresh for comparison of acceptable color

² The product claims asserted by Michael Foods are claims 20, 21, and 26 of the '225 patent.

variations during testing. Sunny Fresh asserts error in Dr. Ball's experiments because the eggs were stored at temperatures below refrigeration temperatures for at least part of the minimal sixteen week period. Sunny Fresh also asserts that Dr. Ball intentionally limited the number of samples tested to minimize the chance of finding spoilage. Lastly, Sunny Fresh attacked Dr. Ball's credibility by raising Dr. Ball's million-dollar financial interest in Michael Foods.

Sunny Fresh's expert witness, Dr. Lechowicz, offered testimony that Sunny Fresh's accused liquid egg products had a shelf life of less than sixteen weeks. Dr. Lechowicz testified that experiments performed under his direction showed that Sunny Fresh's accused products spoiled by fourteen weeks or earlier. Dr. Lechowicz tested the samples' color, odor, flavor, pH, viscosity and microbial count to determine spoilage. Michael Foods faults Dr. Lechowicz's experiments for considering viscosity and microbial counts because those criteria are not taught in the patent. Sunny Fresh counters that the viscosity and microbial counts merely confirmed the spoilage detected with organoleptic criteria.

Infringement of the asserted product claims boiled down to a proverbial "duel of experts." Given the substantial evidence offered and the vigorous cross-examination of adversary expert witnesses, the record once again supplies adequate evidence to support the jury's verdict. The jury was free to credit the expert and evidence of either party over that of the opposing party. Thus, substantial evidence supports the jury's

determination of no infringement. This court declines to reweigh the competing evidence on a cold record at the appellate level.³

B

Michael Foods also appeals the district court's denial of a new trial for the admission of irrelevant and prejudicial evidence and for improper jury instructions. Because the evidentiary issue is procedural and not unique to patent law, this court applies the law of the regional circuit to review that aspect of the district court's denial of the JMOL motion. Sulzer Textil A.G. v. Picanol N.V., 358 F.3d 1356, 1463 (Fed. Cir. 2004). In the Eighth Circuit, the decision to grant or deny a motion for a new trial on evidentiary issues receives review under an abuse of discretion standard. Manus v. Am. Airlines, 314 F.3d 968, 973 (8th Cir. 2003). Jury instructions on patent issues receive de novo review as a matter of Federal Circuit law. Sulzer, 358 F.3d at 1363. "A jury verdict will be set aside based on erroneous jury instructions, if the movant can establish that those instructions were legally erroneous, and that the errors had prejudicial effect." Id. (internal citations omitted).

i

Michael Foods asserts that the district court erred by admitting the following evidence: two questions regarding Sunny Fresh's desired shelf life based on USDA requirements; expert testimony about whether the activation energies used in determining the equivalent point were realistic; expert testimony about microbiological data regarding the issue of shelf life; and the FDA definition of aseptic. Id.

³ Because all of the asserted claims require the "equivalent point" or "shelf life" limitations discussed previously, the parties' arguments regarding the "aseptically packaged" limitation are moot.

Sunny Fresh's evidence regarding its desired shelf life based on USDA requirements merely supports Sunny Fresh's contention that it specifically operated at an equivalent point below the five percent SPL (Batch) line. Sunny Fresh could also offer its evidence about activation energies used by Michael Foods to calculate the equivalent point as relevant rebuttal evidence on the proper calculation. Sunny Fresh's microbiological data merely verified the results of its organoleptic tests. Lastly, any evidence regarding the FDA definition of aseptic was addressed by the district court's claim construction explicitly defining that term. The procedural context of the trial supports the admission of each of these contested points of evidence. Moreover, Michael Foods has not shown that this evidence could have affected the jury's determination of no infringement. Eighth Circuit law requires such a showing to prevail on a motion for a new trial. See Sulzer, 358 F.3d at 1363. Consequently, the district court did not abuse its discretion of denying Michael Foods's motion for a new trial based on the admission of improper evidence.

ii

Michael Foods asserts error in the district court's instructions to the jury regarding the district court's construction of the claim terms. Specifically, Michael Foods argues that the district court erred by not informing the jury that its construction of "aseptic packaging" expressly provided for the extended shelf life (ESL) packaging used by Sunny Foods. The district court, however, stated in the explanation accompanying its full claim construction order that the claim term "aseptic packaging" "may include ESL." Sunny Fresh Foods, Inc. v. Michael Foods, Inc., 205 F. Supp. 2d 1077 (D. Minn. 2002) (emphasis added). The trial court need not explain the implications of its claim

construction rulings to the jury. This court discerns no error in the district court's exclusion of the contested statement from the jury instruction on that claim term.

Lastly, Michael Foods argues that the district court erred by providing the jury with "a short synopsis" of the claim construction order. The district court, in fact, provided a copy of the district court's claim constructions with the jury instructions. Stated more accurately, Michael Foods's complaint is that the district court provided the jury with merely the disputed claims and their respective definitions but excluded the dicta in the district court's claim construction order setting forth the reasoning accompanying the actual definitions. This court finds no error in this practice. The district court clearly instructed the jury on the meaning of the disputed claim terms. The law requires no more.

III

In conclusion, this court finds that substantial evidence supports the jury's findings of no infringement of the patents-in-suit. The district court did not abuse its discretion in denying Michael Foods's motion for a new trial because the evidence complained of did not affect the jury's findings. The district court did also not err in denying Michael Foods's motion for a new trial for erroneous jury instructions because the district court's jury instructions regarding the claim construction were both proper and adequate. In light of the foregoing, this court affirms. Because this court affirms the district court, it does not address the issues raised by Sunny Fresh on cross-appeal because those issues are moot.