UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF ILLINOIS EASTERN DIVISION

BRANDEIS UNIVERSITY and GFA BRANDS, INC.,	)	
	)	Nos. 1:12-cv-01508
Plaintiffs,	)	1:12-cv-01509
v.	)	1:12-cv-01511
	)	1:12-cv-01513
KEEBLER CO.; FAMOUS AMOS CHOCOLATE CHIP COOKIE COMPANY, LLC; MURRAY BISCUIT CO. LLC; VOORTMAN COOKIES LTD.; BREMNER FOOD GROUP, INC.; COOKIE SPECIALTIES INC.; TOPCO ASSOCIATES LLC; and NESTLÉ USA, INC.,	)	Judge Richard A. Posner.
Defendants.	)	

ORDER OF JANUARY 18, 2013

POSNER, *Circuit* Judge, sitting by designation. I conducted a *Daubert* hearing on January 11, 2013, to consider challenges, based on Fed. R. Evid. 702 and pertinent judicial decisions, to the expert opinions offered in support of the parties' liability and damages theories against Keebler. (The plaintiffs are settling with Bremner and Topco, leaving Keebler as the only defendant with whom they are planning on going to trial.) I also instructed the parties to brief two issues of claim construction that arose in relation to the *Daubert* hearing. I address the issues of claim construction first.

Claim Construction

Weight of fatty acids. Many of the numerical ranges and ratios in the defendants' patents express the quantity of specific fatty acids as a percentage of the weight of the blended fat composition. For example, claim 1 of the '192 patent describes a "fat composition" that "comprises between 15% by weight and 40% by weight linoleic acid" and "between 20% and 40% by weight saturated fatty acids." My *Markman* order of August

24, 2012 addresses the denominator in these ratios, stating that the weight of the fat composition "describes the constituents' weight in terms of the weight of the triglycerides in the blended fat composition." My order does not address the numerator, the weight of the fatty acids themselves. Fatty acids contain a hydroxide group (an oxygen atom bonded with a hydrogen atom) that is lost when fatty acids combine with glycerol to form a triglyceride. The *Daubert* challenge to Dr. Peter Jones's testimony raises the question whether the weight of the hydroxide group should be included in the weight of the fatty acid. The defendants complain that Dr. Jones ignored the standard methodology used by nutritionists and food scientists when he excluded the weight of the hydroxide group from his calculations. The plaintiffs point out that this is a question of claim construction—what does the patent mean when it says "% by weight" of a type of fatty acid?—rather than, as the defendants suggest, a question about the reliability of Dr. Jones's methodology. But the defendants provide compelling evidence to support their construction.

The strongest support for the defendants' construction is in the patent. Patent claims "must be read in view of the specification, of which they are a part"; the specification is "the single best guide to the meaning of a disputed term." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005). Evidence from outside the patent is relevant only if it doesn't contradict the specifications. See *id.* at 1323.

The patent specifications support the defendants' construction. Tables I and II of the patent describe the fat composition of various oils. For example, Table I shows that sunflower oil is composed of 9.1% by weight saturated fatty acids, 12.1% by weight monounsaturated fatty acids, and 74.5% by weight polyunsaturated fatty acids. The tables further break down each oil into individual fatty acids. For example, Table I shows that sunflower oil is composed of 6.2% by weight palmitic acid, a type of saturated fatty acid, which is denoted as 16:0 on the chart. The fat compositions of each of these oils—except two (canola oil and palm olein)—are drawn from the U.S.D.A.'s. Agricultural Handbook No. 8-4, *Composition of Foods: Fats and Oils* (1979), http://naldc.nal.usda.gov/download/CAT87209368/PDF (visited Jan. 18, 2013).

The plaintiffs concede that the fat compositions for each oil, except canola oil and palm olein, were calculated by the method proposed by the defendants: dividing the total weight of all fatty acids in the oil (including the weight of the hydroxide group) by the total weight of all triglycerides in the oil (as explained by my *Markman* order). Fatty acids account for approximately 95% of the weight of a triglyceride if the hydroxide group is included, but only 90% if it is excluded. So if the sum of the saturated, monounsaturated, and polyunsaturated fatty acids in an oil add up to approximately 95% of the oil's weight, rather than 90%, this is proof that the weight calculations included the

weight of the hydroxide group—and sure enough, they do. For example, in sunflower oil, the saturated (9.1%), monounsaturated (12.1%), and polyunsaturated (74.5%) fatty acids add up to 95.7% of the weight of the oil.

The results are similar for every oil in the two tables except palm olein. In Table II its fatty acids are 100% of the oil's weight, which according to the plaintiffs means that the figures for palm olein were calculated by dividing by the total weight of fatty acids rather than the total weight of triglycerides. That method of calculation is inconsistent with my *Markman* order and with the method used to weigh all the other oils described in the patent. The proper method, advocated by Keebler, is the one used to calculate the fat composition of the other oils—dividing the total weight of the fatty acids, including the hydroxide group, by the total weight of the triglycerides.

This method is further supported by the examples of infringing oils described later in the patent. Examples 1, 2, and 3 describe three blends of oil that fall within the weight ratios claimed by the patent. Thus Example 1 describes a blend of "Two parts palm oil (44% palmitic, 9% linoleic acid) ... blended with one part corn oil (11% palmitic acid, 58% linoleic acid) to provide a balanced fat blend containing approximately 33% palmitic acid (16:0) and 25% linoleic acid (18:2)." The percentages used in all three examples are taken from Tables I and II, rounded to the nearest whole number. These examples confirm that the drafters of the patent had the same method in mind when they claimed a "fat composition" that "comprises between 15% by weight and 40% by weight linoleic acid" and "between 20% and 40% by weight saturated fatty acids."

The plaintiffs point out that the hydroxide group is not actually present in the fat composition. A fat composition is made up primarily of triglycerides, and triglycerides are composed of three fatty acids that have shed their hydroxide group bonded to a glycerol molecule that has shed its hydrogen atom, forming water. The plaintiffs complain that it is scientifically unsound to express the weight of fatty acids that comprise a fat composition in terms of a molecule that is not present in the fat composition. That might be persuasive if it were an unusual way to express the weight of fatty acids. But Keebler's method is used by the Department of Agriculture and the Food and Drug Administration, and endorsed by the Association of Analytical Communities; and the patent itself uses it to measure the percentage of fatty acids in various oils and blends.

I therefore construe "% by weight" of a fatty acid to mean the ratio of the weight of that fatty acid in the fat composition, including the hydroxide group, to the total weight of the triglycerides in the fat composition.

Stable Emulsion. My *Markman* order defines margarine as "a butter substitute, having flavorings or other additives, that constitutes an emulsion with a water phase and

an oil phase." The parties dispute whether an emulsion must be stable to qualify as a margarine, and if so, how stable. The plaintiffs are correct that stability is a matter of degree; a completely unstable emulsion would separate. But this does not mean that an emulsion must last forever. The patent defines "stable emulsion" as an emulsion that "does not physically separate to form a second liquid phase during the lifetime…of the product." To be a butter substitute, margarine must be an emulsion that retains its emulsion phase long enough to be a usable substitute, as the plaintiffs' own expert Mr. Harold Russell has conceded. Although this was implicit in my original *Markman* order, I now clarify that "margarine," as used in the '192 patent, means "a butter substitute, having flavorings or other additives, that constitutes an emulsion with a water phase and an oil phase, sufficiently stable to function as a butter substitute."

***Daubert* Challenges**

At the *Daubert* hearing I questioned a number of the challenged experts. Some were not challenged; I have looked at their reports and have no reason to doubt that they are indeed competent to testify.

Peter Jones. Dr. Jones is the plaintiffs' principal proposed expert witness on liability, addressing in his expert report both infringement and validity issues. Keebler has moved to exclude his testimony that the margarines used in Keebler's cookies are "cholesterol free," as claimed by the patent, and his method of weighing the ingredients in Keebler's cookies. I also questioned him about his testimony that Keebler's cookies produce the same health benefits as products containing the patented margarine.

1. My *Markman* order construed "cholesterol free" to mean "containing less than 2 mg cholesterol per serving, and containing no ingredient generally understood by consumers to contain cholesterol (such as cholesterol-containing milk solids or beef fat)." Dr. Jones is a biochemist; whether Keebler's ingredients (such as egg powder) are generally understood by consumers to contain cholesterol is not a biochemical issue. I therefore will not permit him to testify that Keebler's products contain no ingredients generally understood by consumers to contain cholesterol.

2. In my new *Markman* ruling, above, I conclude that the weight of a fatty acid includes the weight of the hydroxyl group that is lost when three fatty acids combine with glycerol to form a triglyceride. Because Dr. Jones's calculations exclude this hydroxyl group, they are irrelevant to whether Keebler infringed the patent.

3. The patent claims a margarine with a specific fat composition that is believed to have positive health benefits by increasing the amount of HDL ("good" cholesterol) in the blood and raising the ratio of HDL to LDL ("bad" cholesterol). It was on the basis of

those benefits that the patent was deemed useful and was granted. My *Markman* ruling interprets the patent to be infringed only by a margarine that produces those health benefits.

Dr. Jones's initial and rebuttal expert reports rely primarily, as evidence of the health effects of the patented margarine, on the Sundram study, in which a high dose of the patented invention was fed to 23 male Malaysian soldiers (a 24th started but did not complete the study) for 4 weeks in the early 1990s. This was a very small sample of persons who doubtless have very different diets from Americans, and a sample that included neither women nor civilians, nor children, nor elderly persons. And though the soldiers' diets were rotated to enable the health effects of the patented invention to be compared with the health effects of diets not containing it, all the soldiers were given the invention in their initial diet and their bodies may have adapted to it, which would have reduced the beneficial effect of the alternative diets. The patented invention accounted for a very high percentage of the soldiers' fat intake during the test period, and Dr. Jones is unable to estimate the health benefit that a margarine spread or cookie containing margarine would confer on a person having a normal diet. He said it would be "physiologically meaningful" but conceded that the effect could be extremely small. But none of these problems preclude his testifying about infringement; for as I explained in my *Markman* order, the patents require only that a described blend exhibit the stated HDL effects in a study similar to the Sundram study.

Dr. Jones relied on, besides the Sundram study, two studies conducted on human beings and two studies on various species of monkeys. One of the human studies [...REDACTED...] Dr. Jones's report and exhibits fail to provide enough detail about the study's methodology and results to conclude that it is a reliable study, so he may not testify about it. The other human study, published by Dr. Ana Maria Lottenberg in 1996, showed that a fat blend similar to the Sundram blend increased HDL, but did not say whether it also significantly increased the HDL/LDL ratio. Ana Maria P. Lottenberg et al., "Plasma Cholesterol Ester Synthesis, Cholesterol Ester Transfer Protein Concentration and Activity in Hypercholesterolemic Women: Effects of the Degree of Saturation of Dietary Fatty Acids in the Fasting and Postprandial States," 126 *Atherosclerosis* 256 (1996). This study provides some support for the Sundram study, and he may testify about it. Finally, Dr. Jones discussed two studies on different species of monkeys, but was unable to evaluate the significance of studies on monkeys for human consumption, other than to say that monkeys are genetically rather similar to human beings. "In order for animal studies to be admissible to prove causation in humans, there must be good grounds to extrapolate from animals to humans." *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 743 (3d Cir. 1994); see also *Allison v. McGhan Medical Corp.*, 184 F.3d 1300, 1314

(11th Cir. 1999). Dr. Jones hasn't offered any "good grounds," and so may not testify about the studies on monkeys.

Dr. Jones also supports his conclusions about health effects by identifying a biological mechanism that explains the results of the Sundram and Lottenberg studies. He says that a combination of saturated fatty acids and certain polyunsaturated fatty acids causes the liver to increase production of both HDL and LDL while simultaneously clearing LDL from the bloodstream. This mechanism provides a scientific basis for Dr. Jones's testimony that other fat blends would exhibit the same effects, since the liver would respond similarly to different fat blends. Therefore, he may testify that the claimed health effects would be generalizable to other fat blends.

Alice Lichtenstein. Dr. Lichtenstein is Keebler's expert on the claimed health effects of the patented invention. She opines that the Sundram study does not generalize to other populations or to persons whose diets contain only a small amount of the fat blend. And she argues that the study's finding regarding health effects cannot be generalized to all fat blends within the claimed range, and therefore that the patent does not enable reproduction of the patented product.

She cites five studies that she claims cast doubt on the Sundram study. Essi S. Sarkkinen et al., "Long-term Effects of Three Fat-modified Diets in Hypercholesterolemic Subjects," 105 *Atherosclerosis* 9 (1994); Ursel Wahrburg et al., "Comparative Effects of a Recommended Lipid-lowering Diet vs a Diet Rich in Monounsaturated Fatty Acids on Serum Lipid Profiles in Healthy Young Adults," 56 *Am. J. Clinical Nutrition* 678 (1992); Susan Learner Barr et al., "Reducing Total Dietary Fat Without Reducing Saturated Fatty Acids Does Not Significantly Lower Total Plasma Cholesterol Concentrations in Normal Males," 55 *Am. J. Clinical Nutrition* 675 (1992); Timo Kuusi, "Concentration and Composition of Serum Lipoproteins During a Low-fat Diet at Two Levels of Polyunsaturated Fat," 26 *J. Lipid Research* 360 (1985); Randall Wood et al., "Effect of Palm Oil, Margarine, Butter, and Sunflower Oil on the Serum Lipids and Lipoproteins of Normocholesterolemic Middle-aged Men, 4 *J. Nutritional Biochemistry* 286 (1993).

The plaintiffs argue that these studies do not contain enough data to enable a determination of whether the fat blends that were studied infringe the patent. Several of the studies are silent on whether the blends contain trans-fats, so it is not clear whether they contain "no more than 1% elaidic acid or other unnatural trans fatty acids by weight," as the patent requires. But Dr. Lichtenstein testified that under reasonable assumptions the studies' blends fall within the claimed ranges, and that even if they do not the studies challenge the existence and magnitude of the HDL/LDL effect claimed by the patent. The plaintiffs object to the experimental designs: some studies (Barr and

Kuusi) changed several variables in the subjects' diets at once while others (Sarkkinen and Wood) relied on participants to cook and record their own meals and could not guarantee that they followed directions precisely. These flaws limit the conclusions that can be drawn from these studies, but they do not show that the studies are worthless. Indeed, in several respects these studies are more trustworthy than Sundram: all of them were larger, and tested more varied samples; and each study randomized the order in which various diets were fed to the subjects, to account for the possibility that subjects might adapt to the diets that they were fed first.

Dr. Lichtenstein may testify that the studies she mentions indicate that some fat blends within the patent's ranges do not produce the claimed health effects, and also that the studies cast doubt on the validity of the Sundram study. She may not testify that the studies directly contradict the Sundram study, because of the differences in experimental designs.

Ira Walman. Mr. Walman is an industrial baker, offered to testify as an expert for the plaintiffs, primarily on whether the patented product is a margarine as defined in my original *Markman* order. His report precedes my new *Markman* order, but the order doesn't invalidate his testimony. His experience qualifies him to testify that Keebler uses a mixture of ingredients as a butter substitute—that Keebler could substitute butter for some of the ingredients in its cookies, and the butter would perform the same function as those ingredients, though possibly with a different effect on taste and/or texture. He testified at the *Daubert* hearing that the same mixture of ingredients forms an emulsion, and moreover an emulsion that is stable for the normal life of the cookies or other products in which the margarine is incorporated. He based this opinion not on tests that he conducted—he conducted no tests—but on the ingredients of the margarine and the process in which they are mixed to form the margarine. He said that as an industrial baker he has to know whether something is a stable emulsion and he forms that knowledge from a study of the ingredients and the process of mixing them. I accept that and therefore deny Keebler's motion to exclude him from testifying.

Harold Russell. Mr. Russell is a food-industry chemist. His testimony supported Mr. Walman's. I conclude that he is qualified to testify on the emulsion issue. Keebler's motion to exclude him is denied.

Allan Roden. Mr. Roden is another food-industry chemist, but testifying for Keebler. He claims that the fat mixture that Keebler produces during manufacturing is not a stable emulsion and therefore not a margarine. Oddly, he bases this conclusion mainly on

tests that he conducted in his home in Noblesville, Indiana, on a sample of Keebler's cookie batter, which had been shipped to him via UPS (apparently from Keebler's factory in Cincinnati). The shipment had taken a day and a half and was not temperature controlled, although he said it was "pretty cold outside" and denied there was any reason to suppose that the length or conditions of the transportation of the product to his house would have affected the tests he conducted. He concluded from his inspection of the batter in his home that it is not a stable emulsion, and reinforced his conclusion at his deposition by testifying that he had seen photos of the product as it is prepared, showing that the oils and water constituting the product separate immediately upon being mixed. The photographs are in the record, but they are not in his report. He tasted the batter and testified that it contained too much sugar to be considered a butter substitute.

Conducting a test in one's home of a product that has been in transit for 36 hours strikes me as unprofessional; there is no suggestion that it is an industry practice. Mr. Roden has offered no evidence that the mixture he tested was in the same condition it left Keebler's factory, and there has been ample time for him to visit the factory (which is not far distant from his home—Noblesville is only 126 miles from Cincinnati, approximately a two-hour drive) and test the accused mixture there, but he hasn't done so. I will not permit him to testify as to his personal examination of the mixture.

He also gives Keebler's recipes and manufacturing processes as evidence for his conclusion that it does not make a margarine. His report states that margarines may be made only with a votator (a machine, also called a scraped surface heat exchanger, which allows oil molecules to crystallize around water droplets), which Keebler doesn't use to mix its cookie batter. But Mr. Roden admitted at his deposition that margarines can be made in other ways, since the invention and sale of margarine predate the invention of the votator. He therefore may not testify that all margarines are made with votators, though he may describe the various methods of producing margarines and the likelihood that the methods used by Keebler produce a margarine.

He also opines that the margarine described in the patent is anticipated by two prior art references. The plaintiffs take issue with his interpretation of these references and his conclusions, not his methodology. He may testify about those prior-art references.

The plaintiffs' motion to exclude Mr. Roden's testimony granted with respect to his personal examination of the Keebler cookie batter and his claim that all margarines are made with a votator, but is otherwise denied.

Anne Layne-Farrar. Dr. Layne-Farrar is the plaintiffs' damages expert and is a highly qualified consulting economist. There is no doubt about her general competence to estimate damages, in this case in the form of a reasonable royalty for Keebler's alleged in-

fringing use of the plaintiffs' product during the roughly five years between the beginning of the alleged infringement and the scheduled date of trial (March of this year). The reasonable royalty is the price that Keebler would have paid to GFA (the plaintiff that does the licensing of the plaintiffs' patent) had it negotiated for a license before it started using the infringing blend rather than risk being sued for patent infringement. E.g. *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324 (Fed. Cir. 2009).

Keebler would not have paid a royalty higher than the cost to it of switching to a noninfringing substitute for the plaintiffs' margarine in its cookies or otherwise reworking its manufacturing process to avoid making the infringing margarine. Dr. Layne-Farrar testified (in her report and in answer to my questions) that there was no cheap and satisfactory substitute for the plaintiffs' fat blend that would not contain trans-fats. In order to avoid infringing while also avoiding trans-fats (the primary commercial value of the plaintiffs' margarine is not its effect on HDL and the HDL/LDL ratio but that it does not contain trans-fats), Keebler would have had to consider the possible effects of substituting a non-infringing oil blend on other elements of consumer demand besides aversion to trans-fats. These elements, she testified, include consumer aversion to sogginess in cookies (a possible result if the cookies contained a noninfringing oil blend that had a high ratio of unsaturated to saturated fat), and aversion to saturated fat (a result if for example butter, which contains no trans-fats, was used in place of the patented margarine).

Dr. Layne-Farrar is not an expert on consumer demand for cookies and how it is affected by a manufacturer's choice of ingredients. An expert witness is not bound by the hearsay rule, however, and it makes sense that an economist asked to calculate a reasonable royalty for a consumer product would consult an expert on sales or marketing. She testified that conversations with Dr. Jones persuaded her that increased sogginess would be a real problem for Keebler if it switched to any non-infringing oil blend and would induce it to pay a substantial royalty for a license from GFA rather than substitute some other ingredient for the plaintiffs' that would be free of trans-fats.

But Dr. Jones is not involved in the marketing of food products, and though as a biochemist specializing in the biochemistry of food he could discuss the properties of fats in general, he is not a food scientist. His report is silent on sogginess, and at the *Daubert* hearing he testified that there are substitutes for the plaintiffs' invention that wouldn't result in a soggy cookie. He mentioned beef fat, because it's high in stearic acid. Of course a cookie made of beef fat sounds exceedingly unappetizing. But Dr. Jones did not opine on whether the beef could be processed in a way consistent with maintaining the desired taste and texture of a cookie.

The plaintiffs' expert who would know about sogginess would be Mr. Walman, the industrial baker—but Dr. Layne-Farrar never discussed the issue with him. I don't understand her failure to discuss texture with him, or consumer demand for cookies more broadly with someone involved in the marketing or sale of cookies, and instead to have discussed it only with Dr. Jones. I conclude that she cannot rely on Dr. Jones for the conclusion that there are no noninfringing alternatives to the patented oil blend that would cost Keebler less, in production costs and loss of sales, than a hefty royalty to the plaintiffs.

Maybe there's no perfect substitute for the patented invention (or something quite like it) and that that's why Keebler risked being sued for infringement—which is not to say that it did infringe, only that it came close enough to doing so, as it must have known, to court an infringement suit. Maybe butter, which would neither infringe nor contain the dreaded trans-fats nor produce a soggy cookie, would have too much saturated fat to be suitable; this is a possible inference from the fact that Keebler did not return to using butter when it eliminated trans-fats. But even if there is no perfect substitute, this by itself would not allow the estimation of a reasonable royalty. For that royalty would depend on the cost, in higher production costs and loss of business to competitors, of the best imperfect substitute; and Dr. Layne-Farrar offered no evidence about either cost.

In fact she based her calculation of a maximum reasonable royalty not on costs, but on the maximum profits of Keebler that she deemed at risk if Keebler didn't get a license from GFA. On this basis she came up with a figure ($[#] a year) roughly [#] times what GFA had charged [Company A] for a similar license. She based this figure on the fact that between 2002 and 2005 (two to five years before the alleged infringement began), Keebler's market share had declined. She relies on an industry analyst who opined that the loss of market share was related to Keebler's failure to eliminate trans-fats. But she didn't determine the reliability of that sole analyst's opinion. Cf. *TK-7 Corp. v. Estate of Barbouti*, 993 F.2d 722, 732–33 (10th Cir. 1993). Nor does she provide any basis for assuming that the 2002 to 2005 trend—a mere three years—would have persisted for seven more years, an assumption essential to her $[#] calculation.

Besides the decline in market share, she relied on the royalty that [Company B] agreed to pay GFA in settlement of the patent infringement suit brought against it. [Company B] is [...REDACTED...], wholly dissimilar to Keebler [...REDACTED...]. [Company B] make just two cookies [...REDACTED...] alleged to infringe the '497 patent, which is not the patent that Keebler is alleged to infringe. The license fee was slight in absolute terms ($[#]-[#] a year, plus about a $[#] lump sum for past infringement). There was no basis for Dr. Layne-Farrar to apply the percentage that the fee represented

of [Company B's] sales to Keebler's vast sales. See *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 77–78 (Fed. Cir. 2012). Dr. Layne-Farrar's testimony as to the [Company B] license is excluded.

Like Keebler, [Company A] is a large food conglomerate that makes baked goods that are alleged to infringe. [Company A] has a non-exclusive license from GFA for the patents at issue for the flat rate of $[#] per year. Dr. Layne-Farrar points to it as the minimum royalty that GFA would accept, but argues that GFA would demand more from Keebler because changes since GFA negotiated the [Company A] license in 2005 would drive GFA to insist on a higher royalty. In 2006 GFA merged with Boulder Specialty brands, increased its sales, and is alleged to have been making plans to expand beyond the margarine-spreads business. Keebler's alleged infringement began in 2007, but that was too soon after the merger to enable even a minimally confident prediction of how hard GFA would have pushed Keebler. Her theory that GFA did not pursue an economically optimal deal with [Company A] in 2005 is pure conjecture, unanchored in any data. And even if GFA would have pressed harder in negotiating with Keebler, it doesn't follow that it would have succeeded in inducing a higher royalty than [Company A] had paid; for as we saw, there is no evidence of the cost to Keebler of substituting a noninfringing blend of oils for the patented margarine. Yet the similarity of [Company A's] products to Keebler's allows an inference, to which Dr. Layne-Farrar can testify, that Keebler would have paid as much as [Company A] did for a license.

Dr. Layne-Farrar discusses a license that GFA granted on [date] (in settlement of litigation), to [Company C], the parent of [Company D], one of the alleged infringers of the plaintiffs' patent. The stated payment for the license is a $[#] one-time payment to GFA, but the payment appears to have been returned to [Company C] as "consulting fees" over the next few months. The settlement also provides, however, for changing a strategic partnership between [Company C] and a GFA subsidiary [...REDACTED...] In return for these benefits, GFA agreed to dismiss its patent suit against [Company D] and grant [Company C] a license to [#] GFA patents, including the patent at issue in this case.

Dr. Layne-Farrar notes as bearing on the possible cost of the license to [Company C] a statement in the settlement agreement that the settlement's value "equals or exceeds $[#]" and a claim by the CEO of GFA that it may be as much as $[#]. Neither of these self-serving statements, apparently made for litigation purposes, can be the basis of a reliable calculation by an economist. Since [Company C] was persuaded as part of the settlement to give [...REDACTED...], Dr. Layne-Farrar opines that the license it received in return was also worth either $[#] or $[#]. But she has made no attempt to value any individual component of this complex settlement agreement, and so she cannot respon-

sibly value the patent license itself. Her testimony concerning the [Company D] license must therefore be excluded.

She has not used a reasonable methodology to calculate the plaintiffs' damages by reference to the [Company B] license, the [Company C] license, or profits at risk, or to assess the cost of noninfringing alternatives. The [Company A] license, however, remains a possible basis for estimating a reasonable royalty for a license to Keebler. She may testify to that, and also to general principles of patent damages. Thus Keebler's motion to exclude Dr. Layne-Farrar is granted in part and denied in part.

Eric Decker. The plaintiffs also challenged two Keebler experts who did not testify at the hearing, Drs. Decker and Keeley. Dr. Decker is a food science professor who opines that the sugary fat mixture made during the production of Keebler's cookies is not an infringing margarine because it is not "cholesterol free" as I have construed the term. He says the mixture contains more than 2 mg of cholesterol per serving, and contains ingredients generally understood by consumers to contain cholesterol, both limitations inherent in "cholesterol free". Dr. Decker is qualified to measure the cholesterol in the mixture and may testify on that subject. But like Dr. Jones he has no specialized knowledge about what ingredients consumers generally understand to contain cholesterol. He may not testify about that. The plaintiffs' motion to exclude Dr. Decker's testimony on noninfringement is therefore granted in part and denied in part.

Dr. Decker also opines that changing the order in which ingredients are mixed, by adding egg powder earlier in the process for example, would yield a non-infringing substitute for the current cookie dough. The plaintiffs contend that his failure to test whether these modifications would yield a commercially viable cookie is fatal to his opinion. But in lieu of testing he relies on his knowledge about food science and the fact that Keebler has previously used the modified manufacturing process. Those are reasonable bases for his opinion on the existence of non-infringing substitutes. The plaintiffs' motion to exclude Dr. Decker's testimony on non-infringing substitutes is denied.

Michael Keeley. Dr. Michael Keeley is an economist retained by Keebler whose opinion that the reasonable royalty for use of the patented oil blend is negligible is based primarily on Dr. Decker's opinion that acceptable non-infringing substitutes for it exist. Since I am permitting Dr. Decker to offer that opinion, Dr. Keeley can rely on it. The plaintiffs' motion to exclude Dr. Keeley's opinions is denied.

Motion to strike Exhibit H to the defendants' motion to exclude Dr. Jones's testimony

The plaintiffs want me to strike Exhibit H to the defendants' motion to exclude Dr. Jones's testimony. This exhibit presents a number of weight measurements at variance with Dr. Jones's. The plaintiffs claim that the submission was untimely; that the defendants should have submitted these measurements much earlier, and that the plaintiffs have been prejudiced by the delay. The defendants state that they don't intend to introduce Exhibit H at trial, that it is only relevant to their motion to exclude Dr. Jones's testimony. Because I am granting that independent of Exhibit H, the motion to strike the exhibit is denied.

United States Circuit Judge

January 18, 2013