

# United States Court of Appeals for the Federal Circuit

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**WM. WRIGLEY JR. CO.,**  
*Plaintiff-Appellant,*

v.

**CADBURY ADAMS USA LLC,**  
*Defendant-Cross Appellant.*

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2011-1140,-1150

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Appeal from the United States District Court for the Northern District of Illinois in Case No. 04-CV-0346, Judge Robert M. Dow, Jr.

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Decided: June 22, 2012

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PAUL H. BERGHOFF, McDonnell Boehnen Hulbert & Berghoff, LLP, of Chicago, Illinois, argued for plaintiff-appellant. With him on the brief was JAMES V. SUGGS. Also on the brief was PATRICIA K. SCHMIDT, K&L Gates LLP, of Chicago, Illinois. Of counsel were ALAN L. BARRY and JASON A. ENGEL.

JAMES M. BOLLINGER, Troutman Sanders LLP, of New York, New York, argued for defendant-cross appellant. With him on the brief were LAURA E. KRAWCZYK and

SURAJ K. BALUSU. Of counsel were TIMOTHY P. HEATON and DOUGLAS D. SALYERS.

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Before NEWMAN and BRYSON, *Circuit Judges*, and FOGEL,  
*District Judge*.<sup>1</sup>

Opinion for the court filed by *Circuit Judge* BRYSON.  
Concurring in part and dissenting in part opinion filed by  
*Circuit Judge* NEWMAN.

BRYSON, *Circuit Judge*.

Wm. Wrigley Jr. Co. and Cadbury Adams USA LLC compete in the consumer market for chewing gum. This case involves chewing gum that provides a cooling sensation when chewed. Historically, chewing gum makers have achieved that cooling sensation (known as “physiological cooling”) by adding menthol to their products. Menthol, however, has disadvantages, including a strong peppermint flavor and bitterness in high concentrations. During the 1970s and 1980s, Wilkinson-Sword Ltd. attempted to develop physiological cooling agents that would not have the drawbacks of menthol. The result was two such coolants, which were released under the trade names “WS-3” and “WS-23.” Wrigley and Cadbury each own a patent that generally claims chewing gum containing a combination of menthol and one of those coolants. Cadbury owns U.S. Patent No. 5,009,893 (“the ’893 patent”), which claims a chewing gum that combines menthol with WS-3. Wrigley owns U.S. Patent No. 6,627,233 (“the

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<sup>1</sup> Honorable Jeremy Fogel, District Judge, United States District Court for the Northern District of California, sitting by designation.

'233 patent"), which claims a chewing gum that combines menthol with WS-23.

The application that matured into Cadbury's '893 patent was filed in July 1989. Claim 1, one of two independent claims of the '893 patent, recites:

1. A chewing gum composition capable of providing long-lasting, breath freshening perception without bitterness comprising a gum base, a sweetener and a cooling composition comprising menthol and an N-substituted-p-menthane carboxamide of [a specific formula.]

WS-3 is an N-substituted-p-menthane carboxamide and one of the compounds described by the formula recited in claim 1. The claim, therefore, reads on chewing gum that combines WS-3 (and other N-substituted-p-menthane carboxamides of the recited formula) and menthol. The patent's specification discloses that although the cooling effect of both menthol and WS-3 were known in the prior art, the combination of the two "results in an unexpected heightened cooling sensation in edible products." Cadbury introduced into the market a variety of chewing gum products that embody the claims of the '893 patent. Those products did well in the marketplace.

After Cadbury introduced its WS-3/menthol chewing gum, Wrigley introduced a chewing gum that combined menthol and WS-23. That product was the commercial embodiment of claim 34 of Wrigley's '233 patent. The application for the '233 patent was filed in March 2000. Claim 34 recites:

34. A chewing gum composition comprising:

- a) about 5% to about 95% gum base;
- b) about 5% to about 95% bulking and sweetening agent; and
- c) about 0.1[%] to about 10% flavoring agent wherein the flavoring agent comprises N-2,3-trimethyl-2-isopropyl butanamide and menthol.

WS-23 is the trade name for N-2,3-trimethyl-2-isopropyl butanamide.

Following the introduction of Wrigley's WS-23/menthol chewing gum, Cadbury reformulated some of its chewing gum products. Cadbury's reformulated chewing gum contained both WS-23 and menthol. Wrigley then filed suit against Cadbury in the United States District Court for the Northern District of Illinois, accusing Cadbury's reformulated chewing gum of infringing the '233 patent. Cadbury counterclaimed, accusing Wrigley's chewing gum of infringing Cadbury's '893 patent.

Wrigley and Cadbury each moved for summary judgment on a number of issues. Cadbury sought summary judgment declaring claim 34 of the '233 patent invalid for obviousness and anticipation. Wrigley sought summary judgment declaring that it had not infringed the asserted claims of the '893 patent.<sup>2</sup>

The district court granted Wrigley's motion for summary judgment of noninfringement of the '893 patent.

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<sup>2</sup> This appeal concerns Wrigley's "production" gum. Cadbury moved for summary judgment that certain experimental chewing gum produced by Wrigley infringed the '893 patent. The district court denied that motion, and Cadbury has not pursued that issue on appeal.

The court first noted that WS-23 is not an N-substituted-p-menthane carboxamide, so a combination of WS-23 and menthol would not literally infringe the '893 patent. The court further found that the '893 patent narrowly claimed the combination of N-substituted-p-menthane carboxamides and menthol, and that it implicitly excluded other carboxamides, including WS-23. The court therefore held that a combination of WS-23 and menthol did not infringe the '893 patent under the doctrine of equivalents.

Addressing Cadbury's summary judgment motion, the district court concluded that claim 34 of the '233 patent was invalid on grounds of anticipation and obviousness. The court held claim 34 to be anticipated by U.S. Patent No. 5,688,491 ("Shahidi"), and obvious in view of U.S. Patent No. 5,698,181 ("Luo") and an article written by Dr. M. A. Parrish ("Parrish").

Shahidi is directed to a variety of oral compositions, each of which contains xylitol and copper bis-glycinate. The compositions include chewing gum as well as other compositions, such as toothpaste, mouth rinses, and lozenges. Shahidi lists several categories of components that can be included in the compositions. They include both "essential" and "optional" (or "nonessential") components; certain of the optional components are noted as "preferred." A "cooling agent or combination of cooling agents" is such a "preferred nonessential" component. Some of the categories further identify certain specific components as "preferred." Within the category of cooling agents, Shahidi discloses WS-3 and WS-23 as two of three "particularly preferred cooling agents." Shahidi also discloses menthol as one of 23 listed flavoring agents that can be used in the claimed compositions.

The district court found that Shahidi discloses every limitation of claim 34. In making that determination, the district court relied on a patent, incorporated by reference into Shahidi, which provided a range for the amount of WS-23 to include in a composition. That range is a subset of the range for the amount of flavoring agent recited in claim 34. The court further ruled that Shahidi would have disclosed to one of ordinary skill in the art how to create a cooling chewing gum with component amounts in the ranges claimed by claim 34. The court therefore held that Shahidi anticipated claim 34.

Luo discloses chewing gum that achieves a cooling effect by combining WS-3 and menthol, and it also discloses combining N-substituted-p-menthane carboxamides with menthol. Parrish, which was published in 1987, describes WS-3 and WS-23 as potential replacements for menthol in a variety of applications, including chewing gum. Parrish highlights that both WS-3 and WS-23 have “high cooling activity with no side-effects.” Parrish does not distinguish the cooling activity of WS-3 and WS-23, although it notes that WS-3, but not WS-23, had been listed as “generally regarded as safe” by the Flavor and Extract Manufacturers Association (“FEMA”). That approval, referred to as “FEMA-GRAS listing,” was subsequently extended to WS-23.

The district court held that, in light of the disclosures of Luo and Parrish, the only novel aspect of claim 34 was the combination of menthol and WS-23. Although Parrish teaches substituting WS-23 for menthol, rather than combining the two, the court found that Parrish would have made it obvious to substitute WS-23 for WS-3 in the combination of menthol and WS-3 that was disclosed in Luo. The court also ruled that the evidence of secondary considerations proffered by Wrigley was not sufficient to

overcome the strong showing of obviousness and establish that claim 34 was “an invention appearing to have been obvious in light of the prior art [that] was not.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538 (Fed. Cir. 1983).

## I

On appeal, Wrigley argues that Shahidi does not anticipate claim 34 for two reasons. First, Wrigley argues that while Shahidi discloses all the claim limitations found in claim 34, it does not disclose them in the combination recited in that claim.<sup>3</sup> Second, and relatedly, Wrigley argues that Shahidi would not have enabled a person of ordinary skill in the art to derive the combination recited in claim 34 without undue experimentation.

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<sup>3</sup> Cadbury contends that in the district court Wrigley failed to make that argument, as well as its argument that unexpected results show the '233 patent was not obvious. For that reason, Cadbury contends, Wrigley has waived those arguments. We conclude that Wrigley presented the essence of its present arguments to the district court sufficiently to preserve those arguments for appeal. See *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1338 n.11 (Fed. Cir. 2005). In the district court, Wrigley argued that because Shahidi disclosed “a large number of optional or non-essential categories of ingredients,” it did not disclose “the combination of ‘menthol’ and WS-23 in a chewing gum composition.” Although in much abbreviated form, that is essentially the same argument Wrigley makes as to anticipation on appeal. As for obviousness, Wrigley’s argument as to unexpected results was also skimpy, but it asserted that “the performance of WS-23 in combination with menthol in chewing gum applications would not have been predicted by one of ordinary skill in the art,” which was enough to preserve the “unexpected results” argument for appeal.

For a prior art reference to anticipate a claim, it must disclose all of the limitations of the claim, “arranged or combined in the same way as in the claim.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008). For example, in *Net MoneyIN*, this court held that an “Internet payment system” was not anticipated by a prior art reference that disclosed all the components of the invention, because the reference disclosed two separate payment protocols, each of which contained only a subset of the components claimed in the patent at issue. *Id.* at 1371. Therefore, the reference did not “prove prior invention of the thing claimed.” *Id.*

In this case, by contrast, Shahidi envisions using WS-23 and menthol in a single product. While Shahidi discloses a number of different combinations of cooling and flavoring elements, one of them is the combination of menthol, which Shahidi identifies as one of the “most suitable” flavoring agents, with WS-23, which Shahidi identifies along with WS-3 as among a group of three “particularly preferred cooling agents.” Based on the disclosure of the combination of those components, we agree with the district court that Shahidi anticipates claim 34.

This is not a case in which the prior art reference merely discloses a genus and the claim at issue recites a species of that genus. In such a case, the issue of anticipation turns on whether the genus was of such a defined and limited class that one of ordinary skill in the art could “at once envisage” each member of the genus. *Eli Lilly & Co. v. Zenith Goldline Pharm., Inc.*, 471 F.3d 1369, 1376 (Fed. Cir. 2006). Shahidi specifically discloses WS-23 as a coolant and menthol as a flavoring agent. The question for purposes of anticipation is therefore whether the number of categories and components in Shahidi was so

large that the combination of WS-23 and menthol would not be immediately apparent to one of ordinary skill in the art. See *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1377 (Fed. Cir. 2005) (distinguishing cases in which a prior art reference discloses a genus from those in which it discloses a number of species as part of a list).

Wrigley argues that *Impax Laboratories, Inc. v. Aventis Pharmaceuticals Inc.*, 545 F.3d 1312 (Fed. Cir. 2008), stands for the proposition that a prior art reference is not anticipatory if one of ordinary skill in the art would be required to pick items from two lists of components in order to assemble the invention. The issue in *Impax* was whether the use of the drug riluzole for treating amyotrophic lateral sclerosis (“ALS”) was anticipated by U.S. Patent No. 5,236,940 (“the ’940 patent”). *Id.* at 1314. The ’940 patent disclosed a formula that encompassed “hundreds or thousands of compounds.” *Id.* at 1315. The ’940 patent also listed a number of diseases, including ALS, that could potentially be treated with compounds of the disclosed formula. *Id.* While we affirmed the district court’s finding that undue experimentation would have been required to practice the patent at issue in *Impax*, there are important distinctions between that case and this one. Unlike the prior art reference at issue in *Impax*, where there was no disclosed dosage information for using riluzole to treat ALS, *see id.*, Shahidi discloses component amounts within the ranges claimed in claim 34. Even more importantly, Shahidi specifically discloses the use of both WS-23 and menthol in chewing gum, whereas the only mention of riluzole in the prior art reference in *Impax* was to disclaim it from the disclosed invention. *See id.* (“the ’940 patent . . . specifically excludes riluzole from the invention”).

Given the objective of the '233 patent, to obtain “a cooling flavor composition that will contribute a long-lasting cooling sensation” and a chewing gum with a “clean, high-quality flavor . . . with a good cooling effect,” the Shahidi reference clearly identifies the combination of WS-23, which Shahidi identifies as one of three “particularly preferred” cooling agents, and menthol, which Shahidi identifies as being among the “most suitable” flavoring ingredients.<sup>4</sup> The district court therefore correctly held that Shahidi anticipates claim 34 of the '233 patent.

## II

Wrigley also argues that the district court erred in finding that the combination recited in the '233 patent would have been obvious in light of Luo and Parrish. In particular, Wrigley argues that the combination of WS-23 and menthol resulted in unexpected cooling, beyond what would have been predicted by one of ordinary skill in the art.

Evidence that a combination of known components results in an effect greater than the predicted additive effect of the components can support a finding of nonobviousness. *See Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1309 (Fed. Cir. 2010) (“Even if the [patent at issue] were a combination of known elements according to their established functions . . . it yields more than predictable

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<sup>4</sup> While the dissent notes that Shahidi listed a number of flavoring agents, a person of ordinary skill in the art would recognize menthol as extremely well known in the prior art for inclusion in a cooling gum. The fact that one of ordinary skill in the art might also have included other flavorings would not remove the resulting composition from the broad reach of claim 34.

results [and therefore is] non-obvious."); *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 808 (Fed. Cir. 1989). In this case, however, the synergistic effect of combining coolants had already been discovered, as reflected in the prior art. Luo disclosed a "synergy" between menthol and WS-3, when menthol was included in high amounts, and disclosed that the combination produced an "enhanced breath-freshening effect" in which each component played "a vital role." Parrish identified WS-3 and WS-23 as especially favored cooling agents for commercial use from among 1200 tested compounds that induced a cooling effect. Moreover, Parrish pointed to four characteristics shared by the WS-3 and WS-23 molecules that were associated with their physiological cooling effect, suggesting that the two compounds would likely have similar effects when ingested. Therefore, to show that the cooling effect of the combination of WS-23 and menthol was unexpected, Wrigley needed to demonstrate that the results were unexpected to a significant degree beyond what was already known about the effect of combining WS-3 and menthol. See *Ex parte NutraSweet Co.*, 19 U.S.P.Q.2d 1586, 1589 (B.P.A.I. 1991) ("It would at least be necessary to demonstrate that the improvements observed were greater to an unobvious extent than those which would have been expected from the reference teachings and that those differences were of some significant, practical advantage.").

As evidence that the claimed combination produced unexpected results and drove the commercial success of Wrigley's chewing gums, Wrigley points to an internal Cadbury study comparing Wrigley and Cadbury products. That study concluded that the flavor and cooling features of Wrigley's products were superior to those of the Cadbury products with which they were compared. The study noted, however, that besides having a "newer, more

advanced cooling system,” the tested Wrigley products differed from the comparable Cadbury products in a number of other ways, including having sweetener levels three times higher than Cadbury’s products; more encapsulated sweeteners for longer sweetness duration; higher gum base and filler levels that allowed for a more efficient flavor release; and significantly more expensive ingredients. Moreover, the “cooling system” used in Wrigley’s products was not simply a combination of menthol and WS-23, as recited in claim 34 of the ’233 patent. Instead, as the district court noted, it was a formulation that “contained menthol and WS-23 along with several other ingredients,” and the menthol and WS-23 components were present in quantities not specifically identified in claim 34. Therefore, Cadbury’s study does not demonstrate that the broadly claimed combination recited in claim 34 results in unexpected cooling beyond the degree that was already predictable based on the prior art.

The same analysis applies to Wrigley’s argument that the commercial success of its chewing gum containing menthol and WS-23 shows that the claimed invention was nonobvious. As the district court noted, for commercial success to be probative evidence of nonobviousness, a nexus must be shown between the claimed invention and the evidence of commercial success. In this case, the district court concluded, Wrigley failed to establish such a nexus. Rather, the court observed, in the documents on which Wrigley relies, “many factors were identified as contributing to [Wrigley’s commercial] success, including marketing efforts, the way in which the gum was packaged, the amounts of gum base and sweeteners used, and the cooling system used.” In sum, the district court found “no evidence of any nexus between the success of Wrigley’s chewing gums covered by Claim 34 and the specific combination of menthol and WS-23,” and therefore held

that “the fact that Wrigley’s gums are successful does not alter the obviousness analysis.”

For the reasons given by the district court, we agree that Wrigley has not established a sufficient nexus between the invention of claim 34 of the ’233 patent and the success in the marketplace of its chewing gum products that contain a combination of menthol and WS-23. Cadbury’s internal study of Wrigley’s product showed that it differed from Cadbury’s comparable product in several ways that could have contributed to the commercial success of Wrigley’s gum. Because the evidence does not show that the success of Wrigley’s product was directly attributable to combining WS-23, rather than WS-3, with menthol, the district court properly discounted the evidence of commercial success as a secondary consideration rebutting Cadbury’s showing that the claimed invention would have been obvious.

Wrigley also argues that evidence that Cadbury copied the combination of WS-23 and menthol shows that the combination would not have been obvious. In some cases, evidence that a competitor has copied a product embodying a patented invention can be an indication of nonobviousness. *See Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004). However, as the district court observed, “[j]ust as with the commercial success analysis, a nexus between the copying and the novel aspects of the claimed invention must exist for evidence of copying to be given significant weight in an obviousness analysis.” The district court acknowledged that Wrigley had shown through internal documents that Cadbury had sought to copy Wrigley’s invention by adding WS-23 to the cooling agents of some of its products. But the court added that Wrigley had not shown evidence suggesting that “the novel combination of WS-23 and

menthol is what led Cadbury to copy Wrigley’s chewing gums,” and in the absence of that evidence, the court found that Wrigley had failed to establish the requisite nexus between “Cadbury’s copying and the merits of the claimed invention.”

Besides the absence of evidence of a nexus between Cadbury’s copying and Wrigley’s claimed invention, there is evidence suggesting the contrary. In particular, the evidence shows that in the market for chewing gum the parties have a practice of marketing very similar products. While Cadbury’s internal documents show that it sought to reformulate its products to match Wrigley’s products, that desire extended not just to the inclusion of WS-23, but to the inclusion of similar sweeteners and similar levels of each. Wrigley’s evidence of copying is therefore not a strong indicator of nonobviousness, but rather a measure of the extent to which parties in the chewing gum market typically copy any development by their competitors, whether patented or not.

This case presents a strong case of obviousness based on the prior art references of record. Claim 34 recites a combination of elements that were all known in the prior art, and all that was required to obtain that combination was to substitute one well-known cooling agent for another. Luo taught the physiological cooling effect from combining menthol with WS-3. Parrish showed that WS-3 and WS-23 were the two most attractive cooling agents for commercial use from among 1200 cooling agents tested. Shahidi taught the combination of menthol and cooling agents, of which WS-3 and WS-23 were two of the three most preferred candidates. And a prior art 1995 patent owned by The Procter & Gamble Company (U.S. Patent No. 5,451,404), specifically refers to the combination of menthol and WS-23, along with other components,

in a composition designed to produce physiological cooling. Under these circumstances, it is fair to say that there were “a finite number of identified, predictable solutions” to the problem of finding physiological cooling agents for chewing gum, and that the combination of menthol and WS-23 was “the product not of innovation but of ordinary skill and common sense.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). This case is thus one in which a person of ordinary skill in the art would find it “obvious to try” the combination recited in claim 34. *Id.* We therefore uphold the district court’s conclusion that, even in light of the evidence of secondary considerations, claim 34 would have been obvious in light of Luo and Parrish.<sup>5</sup>

### III

In its cross-appeal, Cadbury argues that the district court made two errors regarding the ’893 patent, both of which involve whether chewing gum formulations that combine menthol with WS-23 are within the patent’s

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<sup>5</sup> We do not adopt a “formal burden-shifting framework,” *see In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1077 (Fed. Cir. 2012), nor did the district court. As noted in *Cyclobenzaprine*, use of the terms “prima facie” and “rebuttal” in addressing an invalidity challenge does not constitute reversible error as long as the court “consider[s] all evidence of obviousness and nonobviousness before reaching a determination” and does not shift the burden from the patent challenger. *Id.* In this case, the district court addressed the objective considerations put forth by Wrigley prior to making a determination of obviousness. The district court in *Cyclobenzaprine*, by contrast, concluded that “the invention was obvious” before considering the objective factors. *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 794 F. Supp. 2d 517, 537 (D. Del. 2011).

scope. First, Cadbury argues that in its claim construction ruling the district court improperly found that the '893 patent disclaimed certain compounds, including WS-23. Second, Cadbury argues that the court erred in ruling that the doctrine of equivalents could not be used to extend the reach of the '893 patent to cover a chewing gum containing a combination of menthol and WS-23.

In its opening claim construction brief, Cadbury argued that the term “N-substituted-p-menthane carboxamide” should be construed according to its ordinary meaning. Wrigley responded that the '893 patent should be read to exclude all compounds other than N-substituted-p-menthane carboxamides. That would exclude WS-23, which is not an N-substituted-p-menthane carboxamide. In its reply brief on claim construction, Cadbury argued that the patent did not disclaim compounds other than “WS-3 and its related carboxamides,” and in particular that the patent did not disclaim WS-23. The district court agreed with Wrigley that the '893 patent disclaimed all compounds other than N-substituted-p-menthane carboxamides and construed the term “N-substituted-p-menthane carboxamide” to mean “a class of molecules with the chemical formulas set forth in Claims 1 and 12 of the '893 Patent.”

On appeal, all parties now agree that the claimed N-substituted-p-menthane carboxamides do not include WS-23. Wrigley’s products are therefore plainly not within the literal scope of the claims of the '893 patent. While Cadbury argues that Wrigley’s products infringe under the doctrine of equivalents, we agree with the district court that WS-23 is not an equivalent of WS-3 for purposes of the '893 patent.

As the district court noted, the disclosure of the '893 patent focuses narrowly on N-substituted-p-menthane carboxamides, and not on carboxamides generally. The "Summary of the Invention" section states that "[a]pplicants have unexpectedly found that N-substituted-p-menthane carboxamides when used in combination with menthol in specific amounts results in an unexpected heightened cooling sensation in edible products." The specification adds that certain species of N-substituted-p-menthane carboxamides—and not carboxamides generally—"are quite similar structurally to menthol itself." While there is some dispute as to the mechanism by which WS-3 and WS-23 provide cooling sensation, it is clear that WS-23 is not structurally similar to menthol in the same way that N-substituted-p-menthane carboxamides are. Finally, the claims themselves are narrow, not even claiming all N-substituted-p-menthane carboxamides, but only a subset of those compounds. *See Tanabe Seiyaku Co. v. Int'l Trade Comm'n*, 109 F.3d 726, 732 (Fed. Cir. 1997) (narrow language in the claims and specification can preclude use of doctrine of equivalents to reach beyond what is literally claimed); *see also Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 955 (Fed. Cir. 2006) ("A claim that contains a detailed recitation of structure is properly accorded correspondingly limited recourse to the doctrine of equivalents.").

Cadbury's argument that *Abraxis Bioscience, Inc. v. Mayne Pharma Inc.*, 467 F.3d 1370 (Fed. Cir. 2006), compels a different result is unavailing. The issue in *Abraxis* was whether diethylenetriaminepentaacetic acid ("DTPA") could be considered as an equivalent of edetate. Both compounds belonged to "a broad class of structurally analogous compounds known as polyaminocarboxylic acids." *Id.* at 1379 n.7. The patentee, however, had narrowly claimed edetate. *Id.* at 1381. We rejected the

argument that such narrow claiming precluded the patentee from arguing that DPTA was an equivalent of edetate. *Id.* at 1380. In so finding, we relied on the fact that it was unknown at the time of the invention that the properties of DPTA made it a suitable substitute for edetate in the claimed invention. *Id.* at 1381-82. Because it was unknown that DPTA and edetate were interchangeable, the patentee had no reason to claim DPTA, and we therefore held that DPTA could be considered to be within the scope of the patent under the doctrine of equivalents. *Id.*; see also *Kinzenbaw v. Deere & Co.*, 741 F.2d 383, 389 (Fed. Cir. 1984) (“The doctrine of equivalents is designed to protect inventors from unscrupulous copyists and unanticipated equivalents.”).

The facts of this case support the opposite inference. The inventors of the '893 patent were introduced to WS-3 and WS-23 by a salesman for Sterling Organics, the distributor of the compounds, during the same sales call, and they were told that the two compounds were appropriate for the same uses. Although the fact that WS-23 did not enjoy FEMA-GRAS listing at the time of the invention might have prevented Cadbury from marketing a chewing gum containing a combination of WS-23 and menthol, it would not have precluded the inventors from anticipating that WS-23 could be used as a substitute for WS-3. Thus, the inventors were on notice of the potential interchangeability of WS-23 and WS-3, yet they drafted the claims of the '893 patent narrowly to recite certain N-substituted-p-menthane carboxamides, not a broader category of carboxamides that would include WS-23. The trial court therefore properly held that Cadbury could not expand the coverage of its patent to include WS-23 through the doctrine of equivalents.

Each party shall bear its own costs for this appeal.

**AFFIRMED**

# United States Court of Appeals for the Federal Circuit

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**WM. WRIGLEY JR. CO.,**  
*Plaintiff-Appellant,*

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**CADBURY ADAMS USA LLC,**  
*Defendant-Cross Appellant.*

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2011-1140,-1150

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Appeal from the United States District Court for the Northern District of Illinois in Case Nos. 04-CV-0346, Judge Robert M. Dow, Jr.

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NEWMAN, *Circuit Judge*, concurring in part, dissenting in part.

I concur in Part III of the court's opinion, and agree that Wrigley does not infringe Cadbury's '893 patent. However, I must dissent from Parts I and II. I would sustain the validity of Wrigley's '233 patent, for the district court departed from the routine correct law of obviousness and anticipation. On the correct law, the district court's decisions on these grounds are not supportable.

## I. Obviousness

To be patentable, the subject matter must be unobvious in view of what has gone before. This determination is made by examiners in the Patent and Trademark Office; and when that agency's grant of a patent is challenged in litigation, the court applies the analytical protocol set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), and reconfirmed by the Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). In litigation the burden of proof is on the challenger by clear and convincing evidence, for the patent as granted by the agency is presumed valid.

In *Graham* the Court set forth four factual areas on which the determination of obviousness is based: (1) the scope and content of the prior art, (2) the differences between the prior art and the claimed invention, (3) the level of ordinary skill in the field of the invention, and (4) any objective factors such as commercial success, long-felt but unsolved need, and copying by others. 383 U.S. at 17–18. The district court erred in its treatment of the fourth factor, for as explained in *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573 (Fed.Cir.1984):

The section 103 test of nonobviousness set forth in *Graham* is a four part inquiry comprising, not only the three familiar elements (scope and content of the prior art, differences between the prior art and the claims at issue, and level of ordinary skill in the pertinent art), but also evidence of secondary considerations when such evidence is, of course, present.

*Id.* at 1575.

The district court, and my colleagues on this panel, err by holding that Cadbury established a prima facie case of obviousness on prior art alone, *viz.*, the Luo and Parrish references. It is agreed that these references do not show the Wrigley composition. When the evidence of commercial success and copying by the infringer is considered, a prima facie case of obviousness is not demonstrated. In *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983) the court explained that “evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when the decisionmaker remains in doubt after reviewing the art.”

The district court, holding that a prima facie case of obviousness was established on the prior art alone, shifted the burden of proof to the patentee to rebut the asserted, but improper, prima facie case with the evidence of commercial success and copying. This is a distortion of the burden of proof, which never leaves the challenger, *see In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1078 (Fed. Cir. 2012) (“[T]he Supreme Court has never imposed nor even contemplated a formal burden-shifting framework in the patent litigation context.”). It is also a distortion of reasoned analysis for, as the Court stated in *Graham*, “[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” 383 U.S. at 17–18. All of the circumstances must be considered.

The panel majority affirms the district court’s misplaced analysis, agreeing that the Luo and Parrish references

present a prima facie case of obviousness and that the burden of rebuttal shifts to the patentee. Maj. op. at 11 (“Therefore, to show that the cooling effect of the combination of WS-23 and menthol was unexpected, Wrigley needed to demonstrate that the results were unexpected to a significant degree beyond what was already known about the effect of combining WS-3 and menthol.”). The cited references indeed show relevant information. The Luo reference shows WS-3 in combination with menthol, and mentions the generic class of N-substituted-p-menthane carboxamides, but does not mention WS-23. The Parrish reference mentions both WS-3 and WS-23 as replacements for menthol, but does not show the combination of either WS-3 or WS-23 with menthol. Wrigley provided a large amount of evidence, much of it from Cadbury’s records, of the unexpected results and commercial success of the combination of WS-23 with menthol.

The evidence established that (1) although WS-3 alone is two to three times more effective as a coolant in chewing gum than WS-23 alone, when combined with menthol WS-23 is not only more effective, but is sufficiently more effective such that there is a vast preference among gum-chewers; and (2) Cadbury observed its major loss of sales to the new Wrigley gum, analyzed the Wrigley product, concluded that the WS-23 menthol combination was responsible for the consumer preference, and then copied the Wrigley product. This information surely colors the understanding of the prior art, as seen by a person of ordinary skill in the field of the invention, for the improved properties that produced the striking consumer preference for Wrigley’s new composition are nowhere signaled in the cited references. These objective considerations are not consigned to rebuttal, for they are direct evidence of obviousness.

The district court erred in holding the '233 composition *prima facie* obvious on only part of the evidence, ignoring the evidence that supports unobviousness. As remarked by Judge Learned Hand, "Courts, made up of laymen as they must be, are likely either to underrate, or to overrate, the difficulties in making new and profitable discoveries in fields with which they cannot be familiar; and, so far as it is available, they had best appraise the originality involved by the circumstances which preceded, attended and succeeded the appearance of the invention." *Safety Car Heating & Lighting Co. v. General Elec. Co.*, 155 F.2d 937, 939 (2d Cir. 1946).

The advantageous properties of the Wrigley combination of WS-23 and menthol are not predicted or suggested or even hinted in any reference. My colleagues on this panel hold that "Wrigley needed to demonstrate that the results were unexpected to a significant degree beyond what was already known about the cooling effects of WS-3 and menthol." Maj. op. at 11. This criterion, although unwarranted, was surely met. Cadbury's own test report states that although WS-3 alone exhibits a cooling intensity three times that of WS-23, when combined with menthol "WS-23 cooling technology was positively correlated with increased overall liking and also with flavor and cooling intensity at 5 minutes and ten minutes." J.A. 3320. This observation has no foreshadow in the prior art. It is highly relevant, and on the facts of this case precludes summary judgment of obviousness.

Nonetheless, the district court states, and my colleagues agree, that there was "no evidence of any nexus between the success of Wrigley's chewing gums covered by Claim 34 and the specific combination of menthol and WS-23." Maj. op. at 12. The record is rife with such evidence. Cadbury's own records specifically identify the combination of WS-23 and

menthol as “key drivers for liking.” J.A. 3310; J.A. 2996–3000. As further evidence of a clear and undisputed nexus, Wrigley points to marketing material that stresses the cooling effect of its WS-23 reformulated chewing gums, describing the gums as “Even More Powerful,” producing “Icy Cool Breath That Lasts,” and generating a “Just Brushed Clean Feeling;” and that “It’s Cooler, Longer Lasting and MORE ICY!” J.A. 3012; J.A. 3261–62; J.A. 2981.

Similarly, after Cadbury copied Wrigley’s formulation using WS-23, Cadbury advertised its new product’s “New Taste. New Chill” and “Now. Cooler. Longer.” Advertising the benefits of the claimed invention links the invention to commercial success. *Cf. Gambio Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997) (“The prominence of the patented technology in . . . advertising creates an inference that links the . . . invention to this success.”). No contrary evidence was offered to the strong evidence of a nexus between the invention and its market success. “To the extent that the patentee demonstrates the required nexus, his objective evidence of nonobviousness will be accorded more or less weight.” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). “Once the patentee demonstrates a *prima facie* nexus, the burden of coming forward with evidence in rebuttal shifts to the challenger.” *Id.* No such rebuttal evidence was presented.

My colleagues’ finding that nexus was not established, maj. op. at 13, is hard to fathom. Cadbury’s own documents showed that Cadbury changed its formulation to copy Wrigley’s new gums containing WS-23 and menthol. A Cadbury internal report states that Cadbury expected that if it did not reformulate its gums, it would lose market share at a cost in the United States of “\$2MM in Year 1, then \$3.5MM, \$5.0MM, and \$7.0MM in subsequent years and projects that maximum lost sales would amount to half of the brand

growth projected on Dentyne Ice to be at risk (approx. \$25MM per year).” J.A. 2984. The Cadbury report states that Wrigley’s gums use a “newer, more advanced cooling system than WS-3” and that “cooling” and “breath freshening” are “key drivers of [consumer] loyalty.” J.A. 2985.

Contrary to my colleagues’ hypothesis, the fact that Cadbury also copied Wrigley’s sweeteners does not negate the undisputed record that Cadbury copied the composition of WS-23 with menthol in order to obtain the improved cooling of this composition, an effect that both competitors advertised for these products. Cadbury’s internal documents state that Cadbury copied the Wrigley cooling system because it was “more advanced” and “preferred” by consumers over Cadbury’s product which used WS-3 with menthol.

It is not disputed that the superior properties of the WS-23 menthol combination were not shown or suggested in the prior art. The district court erred in its application of the *Graham* factors by asking whether the evidence of secondary considerations were sufficient to overcome its “final conclusion” that the patent is obvious. D.Ct. op. at 42 (citing *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157 (Fed. Cir. 2007) for the proposition that “the evidence on secondary considerations was inadequate to overcome a final conclusion” of obviousness). “Evidence of secondary considerations, including evidence of unexpected results and commercial success, are but a part of the ‘totality of the evidence’ that is used to reach the ultimate conclusion of obviousness.” *Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1483 (Fed.Cir.1997); see also *Cyclobenzaprine*, 676 F.3d at 1079–80 (“[O]pinions of this court should not be read to require a burden-shifting framework in derogation of *Stratoflex*’s directive that objective evidence be considered before making an obviousness determination

and in disregard of where the burdens of proof and persuasion are properly placed in district court litigation.”).

A court may not presuppose that, regardless of the evidence of commercial success and unexpected results, the invention is obvious based on prior art alone. The secondary indicia of nonobviousness must be considered in deciding whether a *prima facie* case of obviousness has been presented. *See Stratoflex*, 713 F.2d at 1538 (“It is jurisprudentially inappropriate to disregard any relevant evidence on any issue in any case, patent cases included. Thus evidence rising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of obviousness.”); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 306 (Fed. Cir. 1985) (“Just as it is legal error for a district court to fail to consider relevant evidence going to secondary considerations, it may be legal error for a district court to presuppose that all evidence relating to secondary considerations, when considered with the other *Graham* indicia relating to the obviousness/nonobviousness issue, cannot be of sufficient probative value to elevate the subject matter of the claimed invention to the level of patentable invention.”) (internal citation omitted); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309 (Fed. Cir. 1985) (“Objective evidence of nonobviousness, when present, must always be considered before reaching a legal conclusion under § 103”); *Kan. Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1150–51 (Fed. Cir. 1983) (finding that a district court’s consideration of commercial success complied with “the basic requirement that all evidence touching the obvious-nonobvious issue be fully considered before a conclusion is reached on that issue”); *Richardson-Vicks* 122 F.3d at 1483 (“we must consider all of the evidence under the *Graham* factors before reaching our decision”); *In re Mageli et al.*, 470 F.2d 1380, 1384 (CCPA 1973) (evidence bearing on issue of nonobviousness “is never of ‘no moment,’ is always

to be considered and accorded whatever weight it may have.”). To the extent this court has made statements to the contrary, e.g., *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (“secondary considerations of nonobviousness—considered here by the district court—simply cannot overcome a strong *prima facie* case of obviousness”), earlier precedent controls. *See Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 765 (Fed. Cir. 1988) (“[P]rior decisions of a panel of the court are binding precedent on subsequent panels unless and until overturned in banc.”)

The district court erred in granting summary judgment of obviousness, for the criteria for summary judgment of invalidity on this ground were clearly not met. I respectfully dissent from the court’s contrary ruling.

## II. Anticipation

The district court also granted summary judgment of invalidity on the ground of anticipation, not relying on any reference cited for obviousness, but relying on a different reference that does not show the claimed combination at all, but merely presents the ingredients on lists.

The term “anticipation” in patent law means that the invention was previously known. If the invention was known, it is anticipated. The district court found “anticipation” by a reference that presents lists of hundreds of possible ingredients of chewing gum, from which the district court, and now this court, select Wrigley’s components WS-23 and menthol. The purported anticipatory reference does not show this combination, and does not present so short and selective a list of these ingredients as to warrant an inference that their combination was already known. The Shahidi patent, U.S. Patent No. 5,688,491 (the ’491 patent), on which the district court and my colleagues rely, contains

lists of many known ingredients that might be used in an assortment of products including chewing gums, dentrifices, and mouthwashes. Shahidi's lists include humectants, surfactants, thickeners, abrasives, stannous salts, copper salts, flavoring agents, sweeteners, and cooling agents, which can be combined in over a million possible combinations, *see Wrigley Br. 18.* Shahidi names three known preferred cooling agents: WS-3, WS-23, and TK-10, as well as a large number of other cooling agents in five identified U.S. Patents. '491 patent col.4 ll.14–32.

Shahidi also states that flavoring agents "well known in the art" can be used, naming anise, cassia, clove dihydroanethole, estragole, eucalyptol, menthol, methyl salicylate, peppermint, axanone, phenyl ethyl alcohol, sweet birch, eugenol, spearmint, cinnamic aldehyde, menthone, alpha-ionone, ethyl vanillin, limonene, isoamylacetate, benzaldehyde, thymol, ethylbutryate, and "many others." *Id.* at col.7 ll.16–22. Shahidi does not describe any specific composition containing either WS-23 or menthol, nor the combination of WS-23 and menthol for any purpose. Nonetheless, my colleagues affirm the district court's grant of summary judgment, and hold that Shahidi "anticipates" the Wrigley composition of WS-23 and menthol. That is an incorrect understanding of the law of "anticipation."

The district court apparently went astray in applying this court's ruling in *Perricone v. Medicis Pharmaceutical Corp.*, 432 F.3d 1368 (Fed. Cir. 2005), for the district court states that it suffices to anticipate if the ingredients WS-23 and menthol can be found somewhere on Shahidi's lists, although Shahidi shows only long lists of possible ingredients for Shahidi's unrelated compositions. *Perricone* does not hold that a specific unknown composition is deemed known if its components can be found separately on lists of possible components. *See id.* at 1375–76. It is the scope,

specificity, and content of the list that controls whether the disclosure is so specific as to be deemed a disclosure of specific combinations.

This court has explained that, in order to anticipate, the prior art must be such that a person of ordinary skill would “at once envisage” the specific claimed composition. *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 468 F.3d 1366, 1383 (Fed. Cir. 2006); *In re Petering*, 301 F.2d 676, 681 (CCPA 1962). When the listing of many possible ingredients does not produce immediate recognition of the specific combination, the list does not “anticipate” that combination. My colleagues misconstrue *Perricone*, for that case does not rely on the distinction between a list and a genus in determining whether the claimed invention is “new,” and does not hold that every list, of whatever form and length and complexity, anticipates every combination of the listed components. In *Perricone* the list contained fourteen ingredients, including ascorbyl palmitate, for use in cosmetic cream, and the court held that this anticipated claims to ascorbyl palmitate for use in cosmetic cream. *Perricone* did not hold that all lists are anticipating, as a matter of law. Rather, *Perricone* alerts the trier of fact to the factual nature of “anticipation,” and the specific circumstances whereby a specific product on a list may be found to be identified for the patentee’s specific composition.

The district court erred in viewing *Perricone* as holding that “the mere fact that the elements of a claim are set forth in the prior art patent in a list along with the other ingredients without any ‘special emphasis’ is irrelevant to an anticipation analysis. Instead, all that is relevant is whether the prior art disclosure is enabling.” D.Ct. op. at 27 (internal citation omitted). To the contrary, the way the elements are set forth in the reference and its lists is highly relevant, for an anticipating reference must show the spe-

cific ingredients and direct their selection such that the specific combination is deemed to have existed. *See Impax Labs.*, 468 F.3d at 1383 (the specific combination must be at once envisaged).

It was not disputed that a person of ordinary skill would not at once envisage Wrigley's combination of WS-23 and menthol from Shahidi's lists. *See Eli Lilly & Co. v. Zenith Goldline Pharms., Inc.*, 471 F.3d 1369, 1375 (Fed. Cir. 2006) ("To anticipate, a prior art reference must place the inventive compound or composition in the possession of the public."). From the large number of listed ingredients and possible combinations of ingredients, and the absence of any selection of the combination of WS-23 and menthol in chewing gum, Shahidi does not anticipate the combination of WS-23 and menthol in chewing gum. From the court's erroneous ruling of law and its incorrect application, I respectfully dissent.