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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/708,487	12/07/2012	Andrew Edward McPherson	1410-101056-US	5048
48940	7590	06/10/2020	EXAMINER	
FITCH EVEN TABIN & FLANNERY, LLP			COX, AMBER M	
120 SOUTH LASALLE STREET			ART UNIT	
SUITE 2100			PAPER NUMBER	
CHICAGO, IL 60603-3406			1793	
			MAIL DATE	
			DELIVERY MODE	
			06/10/2020	
			PAPER	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW EDWARD MCPHERSON,
TORI ANN BOOMGAARDEN,
BRIAN E. LEVINE, and GARY FRANCIS SMITH¹

Appeal 2019-000826
Application 13/708,487
Technology Center 1700

Before ROMULO H. DELMENDO, N. WHITNEY WILSON, and
CHRISTOPHER C. KENNEDY, *Administrative Patent Judges*.

KENNEDY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–24. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as Kraft Foods Group Brands LLC. Appeal Br. 3. The Appellant states that Kraft Foods Group Brands LLC is “100% owned by KFG Management Services LLC,” which is “100% owned by the Kraft Heinz Foods Company.” *Id.*

BACKGROUND

The subject matter on appeal relates to emulsifying salt-free cheese products and associated methods. *E.g.*, Spec. ¶ 1; Claim 1. Claim 1 is reproduced below from page 26 (Claims Appendix) of the Appeal Brief:

1. A processed cheese that does not contain significant levels of emulsifying salts, the processed cheese comprising:

a natural cheese or a mixture of natural cheeses providing from about 5 weight percent to about 30 weight percent dairy protein;

about 30 weight percent to about 80 weight percent water;

about 0.5 weight percent or less of emulsifying salts so that the processed cheese does not contain significant levels of emulsifying salts;

about 0.1 weight percent to about 10 weight percent of a non-crosslinked modified starch having a degree of substitution of less than about 0.2 D.S. and containing amylopectin and substantially no amylase; and

a uniform distribution of amylopectin with substantially no intact starch granules and substantially no starch agglomerates with less than about 0.1 weight percent amylase so that the processed cheese has substantially no amylase therein, the amylopectin and amylase from the modified starch in a form and in a ratio effective to provide substantially no texture or flavor to the processed cheese.

REJECTIONS ON APPEAL

The claims stand rejected under 35 U.S.C. § 103(a) as follows:

1. Claims 1–8 and 23 over Smith (US 2009/0092730 A1, published Apr. 9, 2009), Merkenich (US 5,234,707, issued Aug. 10, 1993), and the Tate & Lyle High Performance Cook-Up Starches Product Application Grid, https://web.archive.org/web/20080621214957/http://www.tateandlyle.com/TateAndLyle/products_applications/product_application_grids/americas/high

_performance_cookup_starches.htm (last accessed June 4, 2020) (dated June 21, 2008) (“Tate & Lyle”);

2. Claim 10 over Smith, Merkenich, Tate & Lyle, and Gamay (US 2009/0186129 A1, published July 23, 2009);

3. Claims 9, 11–20, and 24 over Smith, Merkenich, Tate & Lyle, Buwalda (US 2003/0157232 A1, published Aug. 21, 2003), and Mounsey (*Modification of imitation cheese structure and rheology using pre-gelatinised starches*, 226 Eur. Food Res. Technol. 1039 (2007));

4. Claim 21 over Smith, Merkenich, Tate & Lyle, Buwalda, Mounsey, and Gamay;

5. Claim 22 over Smith, Merkenich, Tate & Lyle, Buwalda, Mounsey, and Henry (US 6,998,145 B2, issued Feb. 14, 2006).

ANALYSIS

After review of the cited evidence in the appeal record and the opposing positions of the Appellant and the Examiner, we determine that the Appellant has not identified reversible error in the Examiner’s rejections. Accordingly, we affirm the rejections for reasons set forth below, in the Final Action dated October 26, 2017, and in the Examiner’s Answer.

The Appellant provides two claim groupings: (1) claims 1–10 and 23, Appeal Br. 16, and (2) claims 11–22 and 24, *id.* at 24. For group 1, the Appellant presents arguments concerning claim 1. For group 2, the Appellant presents arguments concerning claim 11. We address claims 1 and 11 below. The remaining claims on appeal will stand or fall according to the Appellant’s claim groupings.

Claim 1

The Examiner finds that Smith teaches a processed cheese product that comprises each component of claim 1 except that Smith discloses the use of “starches” generally (“understood to be inclusive of numerous starch products,” Ans. 8) rather than the specific “non-crosslinked modified starch” of claim 1 that “contain[s] amylopectin and substantially no amylose.” Ans. 4–5; claim 1. The Examiner finds that Merkenich discloses a cheese product similar to Smith’s that includes a modified starch made from waxy maize that is “amylopectin-rich and amylose poor,” and that Merkenich further discloses that modified starches “are taste-neutral . . . and do not give rise to lumps.” Ans. 4–5. The Examiner finds that Merkenich, like Smith, is concerned with reducing the amount of emulsifying salts in processed cheese, and that Merkenich teaches that the use of modified starches made from waxy maize “permit[s] the added amount of processing salts (emulsifying salts) to be approximately halved in comparison with known recipes.” *Id.*

The Examiner determines that a person of ordinary skill in the art would have been motivated to use a modified starch, as taught or suggested by Merkenich, as the starch of the cheese product of Smith because (1) both Smith and Merkenich desire to minimize the amount of emulsifying salts in processed cheese, and Merkenich teaches that modified starches are suitable for such cheese products, and (2) Smith teaches the addition of starches to its cheese products to “improve texture, flavor, nutrition, and/or cost attributes,” and Merkenich’s disclosure that modified starches are taste neutral and do not give rise to lumps would have made such starches desirable in Smith’s application. *Id.* at 6, 23.

The Examiner finds that Smith and Merkenich do not disclose the specific properties of the modified starch recited by claim 1, e.g., the degree of substitution of less than about 0.2 D.S., the uniform distribution of amylopectin, and the form and ratio of amylopectin and amylose. *Id.* at 7. The Examiner finds that commercially available Shur-Fil 677 was a known modified waxy starch suitable for use in dairy products, including cheese sauces, as evidenced by Tate & Lyle, and that the Appellant's Specification shows that Shur-Fil 677 possesses the properties of the non-crosslinked modified starch of claim 1. *Id.* The Examiner finds that it would have been obvious to use Shur-Fil 677 as the starch of Smith because:

Smith et al. teach that starches (understood to be inclusive of numerous starch products) may be suitable for use in the processed cheese composition, while Merkenich et al. establish that using taste-neutral amylopectin-rich and amylase-poor modified, hydroxypropyl starch in processed cheese comprising low levels of processing/emulsifying salts was already known in the art, and [Tate & Lyle] discloses Shur-Fil 677 (modified starch) is suitable for cheese sauces (dairy products).

Id. at 8.

In view of those findings and other findings less relevant to the issues raised by the Appellant in this case, the Examiner concludes that the subject matter of claim 1 would have been obvious to a person of ordinary skill in the art. *Id.* at 4–8.

The Appellant first argues that Smith minimizes the use of emulsifying salts by using a calcium-reduced casein source, while Merkenich “provide[s] alternative methods of achieving a similar result.” Appeal Br. 16–17. The Appellant also argues that, because Smith allegedly uses starch “only to adjust texture, flavor, nutrition, and/or cost,” “there

would have been no reason to include a specific starch from another reference unless one of ordinary skill in the art was led to believe it would meet one of the objectives for starch identified in Smith.” *Id.* at 17.

Those arguments are not persuasive of reversible error in the Examiner’s rejection. Smith discloses, for example, that a “smooth texture” is desirable, and that “optional ingredients” such as “starches” may be used to “improve texture.” Smith ¶¶ 18, 20. Merkenich teaches a preference for modified starches made from waxy maize that have high amylopectin and low amylose content, that are “taste-neutral,” and that do “not have a denaturing action *or give rise to lumps.*” Merkenich at 2:51–68 (emphasis added).

Consistent with the Examiner’s findings, a person of ordinary skill in the art evaluating the use of starches to impart smooth texture to cheese products, as suggested by Smith, would have had reason to use starches such as those disclosed by Merkenich which are described as being taste-neutral and not giving rise to lumps, i.e., producing a smooth texture. A person of ordinary skill in the art evaluating starches in view of Smith would have been specifically motivated to use a modified starch made from waxy maize, as indicated by Merkenich, because Merkenich discloses that such starches are suitable for cheese products that do not contain significant levels of emulsifying salts, such as the cheeses of Smith. Thus, in view of the art as a whole, a person of ordinary skill in the art would have understood that modified starches made from waxy maize would have been particularly desirable for use as the starch of Smith because Merkenich discloses that such starches do not give rise to lumps, consistent with Smith’s goal of a smooth texture, and because Merkenich indicates that such starches would

have advanced Smith's goal of producing cheese products without emulsifying salts. *See* Smith at Abstract.

The Appellant also argues that "Smith teaches away from the claimed invention" because "Smith identifies starches to adjust texture, flavor, nutrition, and/or cost" whereas "the present application require starch of a type 'effective to provide substantially no texture or flavor to the processed cheese.'" Appeal Br. 18.

That argument is not persuasive because, as set forth above, Smith discloses that a "smooth texture" is desirable. Smith ¶ 18. Smith's disclosure that "optional ingredients" such as "starches" may be used to "improve texture," *id.* ¶ 20, is best understood as indicating that starches may be used to obtain "smooth texture," which is not inconsistent with and does not teach away from the "substantially no texture" recitation of claim 1. *See, e.g.,* Spec. ¶ 18 (similar to Smith, describing "a smooth texture" as a desirable property of the cheese products disclosed by the Specification).

The Appellant also argues that Merkenich's "require[ment] that its modified starches display a high viscosity in water that is constant for at least 10 minutes at temperatures of 60°C to 90°C . . . categorically excludes the starches of the present application [such as Shur-Fil 677], which exhibit high viscosity development quickly above 60°C, then exhibit a steady decrease[] in viscosity as the starch granules rupture and are dispersed." Appeal Br. 18 (citing Spec. ¶¶ 54, 55, & Fig. 2).

That argument is not persuasive of reversible error in the Examiner's rejection. As an initial matter, the Examiner is proposing the use of Shur-Fil 677 with the cheese of Smith, not Merkenich.

Additionally, we recognize that Merkenich discloses that, “at temperatures of 60° to 90° C., [the modified starches] must display in water a high viscosity which is constant for at least 10 minutes.” Merkenich at 2:60–63. The data cited by the Appellant, however, does not establish that a person of ordinary skill in the art would have considered Shur-Fil 677, a known modified starch made from waxy maize, to be inadequate for Merkenich’s purpose. In particular, we observe that both the “waxy corn starch” and the “substituted waxy corn starch” of the Appellant’s Figure 2, *see* Appeal Br. 19, demonstrate a viscosity that increases rapidly with time and heat, and it appears that both of those starches maintain a fairly constant viscosity (after an initial drop-off) to the far limit (24 minutes) of the x-axis of Figure 2. Although the Appellant asserts that its data show that Shur-Fil 677 “does not maintain a constant high viscosity . . . as required by Merkenich,” Appeal Br. 19, the Appellant fails to establish what Merkenich intended by the words “high” and “constant,” and, as set forth above, the Appellant’s own data could reasonably be interpreted as showing that the starches have both a high and a reasonably constant viscosity to the far limit of the x-axis. *See* Spec. Fig. 2. The Appellant’s assertion to the contrary is unsupported attorney argument. *See In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (“Attorney’s argument in a brief cannot take the place of evidence.”).

On this record, we are not persuaded that Merkenich teaches away from modified starches that fall within the scope of claim 1, including Shur-Fil 677. At most, a person of ordinary skill in the art may not have known with certainty whether Shur-Fil 677 would be a suitable starch for use with Smith. “The reasonable expectation of success requirement for

obviousness,” however, “does not necessitate an absolute certainty for success.” *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1198 (Fed. Cir. 2014).

The Appellant next argues that “no reasonable rationale is provided for selecting the identified starch from the numerous starches listed in [Tate & Lyle].” Appeal Br. 19–21.

That argument is not persuasive. Smith discloses the use of “starches,” which the Examiner finds, and the Appellant does not dispute, is best “understood to be inclusive of numerous starch products.” Ans. 8. As set forth above, Merkenich discloses modified starches made from waxy maize that a person of ordinary skill in the art would have considered particularly suitable for use with Smith. Tate & Lyle discloses that Shur-Fil 677 was a known modified waxy starch. Ans. 7. The Examiner’s proposed combination is the use of a known element (i.e., Shur-Fil 677, a known modified waxy starch) according to its established function (i.e., starch for use with processed cheese products that have low emulsifying salt content). The fact that the prior art may teach or suggest the suitability of numerous other starches does not detract from the disclosures of Merkenich and Tate & Lyle which suggest the suitability of modified waxy starches such as Shur-Fil 677. *See Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“That the [prior art] patent discloses a multitude of effective combinations does not render any particular formulation less obvious.”).

The Appellant also argues that Tate & Lyle indicates Shur-Fil 677 as suitable for use in cheese sauces but not in “processed cheeses.” Appeal Br. 20.

That argument is not persuasive for reasons stated by the Examiner in the Answer. *See* Ans. 28. Smith specifically contemplates cheese “sauces” and “dips.” *See* Smith ¶¶ 3, 13. Smith indicates that such products are “process[ed] cheese.” *Id.* ¶ 3. Tate & Lyle’s indication that Shur-Fil 677 is suitable for cheese sauces is sufficient for a person of ordinary skill in the art to reasonably expect that Shur-Fil 677 would function successfully in the Examiner’s proposed combination. *See also* Spec. ¶ 47 (disclosing a cheese sauce); *see also* *PAR Pharm.*, 773 F.3d at 1198 (certainty of success not required).

The Appellant also argues that the “Appellant is proceeding contrary to accepted wisdom,” and that unexpected results support a conclusion of nonobviousness in this case. Appeal Br. 21–23. The Appellant cites the Declaration of Andrew E. McPherson, a named inventor, for support.

Although we have considered the McPherson declaration and attributed some weight to it, the Appellant’s arguments are not persuasive of reversible error in the Examiner’s rejection. *Cf. In re Bulina*, 362 F.2d 555, 559 (CCPA 1966) (“[A]n affidavit by an applicant or co-applicant as to the advantages of his invention is less persuasive than one made by a disinterested person.”); *see also* *Yorkey v. Diab*, 601 F.3d 1279, 1284 (Fed. Cir. 2010) (factfinder has discretion to give more weight to one item of evidence over another unless no reasonable trier of fact could have done so). As an initial matter, we observe that, although Dr. McPherson discusses some of the references at issue in this case, Dr. McPherson does not mention the Merkenich reference. The Appellant fails to persuasively establish that the inventors proceeded contrary to accepted wisdom in view of the prior art discussed above, particularly Merkenich, which specifically teaches the use

of modified starches made from waxy maize for a purpose the same as or similar to that of the Appellant, i.e., to produce a processed cheese product with reduced emulsifying salt content.

The Appellant's argument concerning unexpected results is unpersuasive for at least the reason that the Appellant does not assert or show that the relied-upon results are commensurate in scope with the claims. *In re Peterson*, 315 F.3d 1325, 1329–31 (Fed. Cir. 2003). “Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for ‘it is the view of [the CCPA] that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.’” *In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978) (quoting *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)).

Claim 1 encompasses numerous cheese products having a wide range of ingredient concentrations and ratios, and it encompasses any non-crosslinked modified starch having the recited characteristics. The relevant results identified by the Appellant, *see* Appeal Br. 22, are far more limited and appear, for example, to use only Shur-Fil 677 as the starch. The Appellant does not allege that those limited results are representative of the full scope of claim 1. Accordingly, on this record, we are not persuaded that unexpected results support a conclusion of nonobviousness. *See In re Huang*, 100 F.3d 135, 139 (Fed. Cir. 1996) (appellant bears burden of showing unexpected results).

In summary, we have carefully considered the Appellant's arguments, but we are not persuaded of reversible error in the Examiner's rejection of claim 1.

Claim 11

Claim 11 is directed to a method of preparing an emulsifying salt-free processed cheese, such as that of claim 1. Claim 11 requires, *inter alia*, “heating a blend of water and a non-crosslinked modified starch having a degree of substitution of less than about 0.2 D.S. and containing amylopectin and substantially no amylase to its gelatinization temperature to form a cooked starch paste,” then blending the paste and a cheese with water to form a cheese mixture, and then heating the mixture to form an emulsifying salt-free processed cheese. Appeal Br. 27–28.

The Examiner relies on Smith, Merkenich, and Tate & Lyle as set forth above. Ans. 10–11. The Examiner further finds that Smith teaches a method of forming an emulsifying salt-free processed cheese involving “the steps of blending the natural cheese, water (moisture), and optional starch product together” to form a cheese mixture, followed by heating. *Id.* at 11. The Examiner finds, however, that Smith “fail[s] to disclose the step of blending water and a modified starch . . . to its gelatinization temperature to form a cooked starch paste.” *Id.*

The Examiner finds that Buwalda teaches “a method [for] forming a starch gel (paste) by mixing a modified starch . . . with water and heating the mixture to a temperature above the gelatinization temperature of the starch,” and that Buwalda’s “gel (cooked starch paste) is formed in the preparation of the product in which the starch is used such as imitation (processed) cheese.” *Id.* The Examiner determines that “it would have been obvious to incorporate this step of Buwalda into the processed cheese formation process of Smith et al. in order to properly prepare a starch that is suitable for being mixed with the other cheese ingredients.” *Id.* at 12.

The Examiner also finds that Mounsey teaches a method of making processed cheese in which it is desirable to pre-gelatinize the starch prior to blending with other cheese mixture ingredients “to give the desired texture in imitation cheese.” *Id.* at 12. The Examiner determines that it would have been obvious to “blend a pre-gelatinized starch with all of the other cheese ingredients of Smith et al., in order to obtain an emulsifying salt free processed cheese with desirable texture.” *Id.*

The Appellant first argues that Mounsey’s disclosure of “pre-gelatinized starch – a modified starch that is dispersible in cold water – is completely different from a starch paste containing starch that has been heated to its gelatinization temperature.” Appeal Br. 25.

That argument is not persuasive. As set forth above, the Examiner also relies on Buwalda as teaching the desirability of mixing starch with water and heating to form a starch paste prior to mixing with other ingredients to form processed cheese. The Appellant fails to address Buwalda other than in a cursory fashion. We understand the Examiner’s rejection to be based on Buwalda’s disclosure of a starch composition that falls within the scope of the term “starch paste,” and additionally on Mounsey’s disclosures concerning the desirability of gelatinizing a starch before mixing it with other cheese ingredients. Ans. 10–12. Although we discern no persuasive reason to believe that Mounsey’s pre-gelatinized starch falls beyond the scope of the term “starch paste” merely because Mounsey’s starch is dispersible in cold water, even if the Appellant were correct about that, the Appellant has not shown that Buwalda’s starch composition falls beyond the scope of the term “starch paste.”

The Appellant also argues that “Mounsey teaches away from using pre-gelatinized starch to replace casein as an emulsifier in imitation or processed cheese,” and that “there is no reason” to “replace[] a portion of the calcium-reduced casein source in Smith with a pregelatinized starch to reduce the amount of emulsifying salts needed.” Appeal Br. 25.

That argument is not persuasive because the Examiner does not propose replacing any element of Smith with any element of Mounsey. The Examiner proposes, instead of blending Smith’s cheese, water, and starch together before heating, that it would have been obvious in view of Mounsey and Buwalda to blend the water and starch together and heat to form a starch paste prior to blending with the cheese ingredients to improve texture. The Appellant’s “teach away” argument fails to address or otherwise show error in that rationale. As noted above, the Appellant fails to address Buwalda.

To the extent that Mounsey suggests that certain pre-gelatinized starches “result[] in longer processing time, less cohesiveness, and reduced melting properties,” *see* Appeal Br. 25, the Appellant does not allege or show that those disadvantages would result from the specific starch proposed for use by the Examiner (Shur-Fil 677). Nor does the Appellant address whether a person of ordinary skill in the art would have considered those disadvantages to outweigh the benefits of pregelatinization (e.g., improved texture) identified by the Examiner. *Cf. Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000) (“[T]he benefits, both lost and gained, should be weighed against one another.”).

On this record, we are not persuaded of reversible error in the Examiner’s rejection of claim 11.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	References	Affirmed	Reversed
1–8, 23	103(a)	Smith, Merkenich, Tate & Lyle	1–8, 23	
10	103(a)	Smith, Merkenich, Tate & Lyle, Gamay	10	
9, 11–20, 24	103(a)	Smith, Merkenich, Tate & Lyle, Buwalda, Mounsey	9, 11–20, 24	
21	103(a)	Smith, Merkenich, Tate & Lyle, Buwalda, Mounsey, Gamay	21	
22	103(a)	Smith, Merkenich, Tate & Lyle, Buwalda, Mounsey, Henry	22	
Overall Outcome			1–24	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED