



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/521,938	07/01/2009	Richard S. Wilkes	MTC 54768.200	4037
45738	7590	09/27/2019	EXAMINER	
STINSON LLP (MTC) 7700 FORSYTH BOULEVARD, SUITE 1100 ST LOUIS, MO 63105			ZILBERING, ASSAF	
			ART UNIT	PAPER NUMBER
			1792	
			NOTIFICATION DATE	DELIVERY MODE
			09/27/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

stl.uspatents@stinson.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD S. WILKES

Appeal 2018-002135
Application 12/521,938
Technology Center 1700

Before JAMES A. WORTH, CHRISTOPHER L. OGDEN, and
JANE E. INGLESE, *Administrative Patent Judges*.

OGDEN, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 102, 104, 105, 107–115, 117, 121, and 123–125 in the above-identified application. We affirm.

¹ The appeal record includes the following: Specification, July 1, 2009 (“Spec.”); Final Office Action, July 27, 2016 (“Final Action”); Appeal Brief, Mar. 31, 2017 (“Appeal Br.”); Examiner’s Answer, Oct. 20, 2017 (“Answer”); and Reply Brief, Dec. 20, 2017 (“Reply Br.”).

² Appellant is the “applicant” as defined in 37 C.F.R. § 1.42. According to Appellant, the real party in interest is Monsanto Technology LLC. Appeal Br. 2.

BACKGROUND

Appellant’s invention “relates to an improvement in both the nutritional quality and shelf-life of food products through the use of transgenic plant-derived stearidonic acid [“SDA”].” Spec. ¶ 1. Sole independent claim 102 is representative:

102. A food product comprising an oil from a transgenic plant, *the food product exhibiting at least 5% longer shelf-life against flavor degradation than an otherwise identical food product having eicosapentaenoic acid rather than stearidonic acid*, wherein the oil from a transgenic plant comprises at least 10% by weight stearidonic acid based on the total weight of fatty acids in the oil and wherein the food product is selected from the group consisting of soyflour, soy protein concentrate, texturized soy protein concentrate, hydrolyzed soy protein, soy protein isolate, and spray-dried tofu.

Appeal Br. 12 (emphases added to key phrases). Dependent claims 104 and 114 depend directly or indirectly from claim 102 and recite a food product “further comprising at least 5 ppm tocopherols.” *Id.* at 12, 13.

The Examiner maintains the following grounds of rejection:

1. Claims 102, 104, 105, 107–115, 117, 121, and 123–125 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting over claims in copending Applications Nos. 12/729,055, 12/429,891, and 12/743,981. Final Action 4. Appellant does not contest this rejection. *See* Appeal Br. 2. However, because these applications are now abandoned,³ we dismiss the provisional rejection as moot.

³ *See* Application No. 12/729,055, Notice of Abandonment, July 2, 2013; Application No. 12/429,891, Notice of Abandonment, May 5, 2016; Application No. 12/743,981, Notice of Abandonment, Aug. 25, 2017. The latter application was the subject of an earlier appeal. *See* Nissing et al., Appeal 2016-003752, (PTAB June 2, 2017).

2. Claims 102, 104, 105, 107–115, 117, 121, and 123–125 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Anfinsen⁴ in view of Ursin,⁵ Sato,⁶ and Harlander,⁷ as evidenced by NutritionData⁸ and Main World Sources of Oils.⁹ See Final Action 5–10.

DISCUSSION

A. *Claims 102, 105, 107–113, 115, 117, 121, and 123–125*

Regarding claim 102, the Examiner finds that Anfinsen teaches a non-defatted soybean flour that retains at least 90% of its original oil content. Final Action 5 (citing Anfinsen 6, para. 7). The Examiner also finds that Ursin teaches genetically modifying soybeans so that they produce at least 10% stearidonic acid. *Id.* at 6 (citing Ursin 34 (GM_A38083, showing soybeans having stearidonic acid (SDA) levels ranging from 13.35–32.02 wt. %). According to the Examiner, Ursin also teaches that food products enriched in SDA have health benefits. *Id.* (citing Ursin 1:27–2:11, 5:23–29,

⁴ Laux et al., CA 2523056 A1, published Nov. 18, 2004 (“Anfinsen,” after the last named inventor for consistency with the record on appeal).

⁵ Ursin et al., WO 2005/021761 A1, published Mar. 10, 2005 (“Ursin”).

⁶ Shirley Sato et al., *Production of γ -Linolenic Acid and Stearidonic Acid in Seeds of Marker-Free Transgenic Soybean*, 44 *Crop Science* 646, March–April 2004 (“Sato”).

⁷ Susan Harlander, *Biotechnology’s Possibilities for Soyfoods and Soybean Oil*, 12 *The Soy Connection*, 1, Fall 2004 (“Harlander”).

⁸ *Soy Flour, Full-Fat, Raw*, SELF NutritionData, <https://nutritiondata.self.com/facts/legumes-and-legume-products/4382/2> (last accessed June 2, 2014) (“NutritionData”).

⁹ *Main World Sources of Oils*, Cyberlipid Center, <http://www.cyberlipid.org/glycer/glyc0051.htm> (accessed June 27, 2003) [<https://web.archive.org/web/20030627141945/http://www.cyberlipid.org/glycer/glyc0051.htm>] (“Main World Sources of Oils”).

10:10–14, 21:1–20). Likewise, according to the Examiner, Sato teaches that SDA-enriched soybeans lead to health benefits. *See* Final Action 6 (citing Sato 651). Thus, the Examiner determines that a person of ordinary skill in the art would have had reason to substitute Ursin’s transgenic soybeans for the soybeans in Anfinen’s non-defatted soyflour, “in order to provide the consumer with the health benefits” that Ursin teaches. *Id.* at 6.

For the limitation “the food product exhibiting at least 5% longer shelf-life against flavor degradation than an otherwise identical food product having eicosapentaenoic acid rather than stearidonic acid,” the Examiner relies on inherency. Final Action 7. The Examiner finds that Anfinen, as modified by Ursin, inherently discloses the recited shelf-life improvement. *Id.* Evidence of this, according to the Examiner, is that Sato teaches “that substituting fish oil, which contains eicosapentaenoic acid, with stearidonic acid is known to augment the stability and taste of the oil.” *Id.* (citing Sato 651). In addition, the Examiner finds that Harlander teaches that “in foods, stearidonic acid has greater oxidative stability than eicosapentaenoic acid.” Final Action 7 (citing Harlander 2). Because “oxidative stability directly relates to flavor degradation,” the Examiner finds that “the relative shelf-life and flavor degradation recited in claim 102 is inherently present in” Anfinen’s soyflour as modified by Ursin. *Id.*

Appellant argues that the Examiner “has failed to provide a reason why a person of ordinary skill in the art would have selected the cited prior art references from the ‘scope and content of the prior art.’” Appeal Br. 5. According to Appellant, “Anfinen . . . does not identify the advantages of omega-3 fatty acids in food[] products,” and Ursin “does not provide a motivation to select all the elements of claim 102.” *Id.*

This argument is not persuasive of reversible error. “[O]ne cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references.” *In re Keller*, 642 F.2d 413, 426 (CCPA 1981). Thus, neither Anfinsen nor Ursin alone must motivate the claimed invention. Moreover, “when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). A preponderance of the evidence on this record supports the Examiner’s determination that, at the time of the invention, a person of ordinary skill in the art would have expected to achieve a predictable health benefit by substituting Ursin’s transgenic soybeans for those of Anfinsen. *See* Final Action 6.

Appellant next argues that, given the “large universe of possible soybeans that could have been substituted for the Anfinsen soybeans,” the Examiner has not provided a sufficient reason why a skilled artisan would have looked to Ursin. Appeal Br. 6; *see also id.* at 8 (arguing that, other than the soybeans described in Ursin and Sato, there is a “universe of soybeans disclosed in thousands of other references”). According to Appellant, a skilled artisan “would not have had reason to select the transgenic soybean oils of Ursin or Sato from the entire genus [of edible oils] absent hindsight reconstruction from Applicant’s specification.” *Id.* at 6–7.

We disagree. A rejection does not rely on improper hindsight reconstruction so long as it “takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure.”

In re McLaughlin, 443 F.2d 1392, 1395 (CCPA 1971). Moreover, regardless of how many references or teachings exist within the field of endeavor, a person of ordinary skill in the art is “presumed to be aware of all the pertinent art.” *Custom Accessories, Inc. v. Jeffrey-Allan Industries, Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986). Thus, the Examiner does not rely on improper hindsight simply by choosing Ursin from among a large number of other teachings in the art. *See KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (“Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.”)

Next, Appellant argues that the Examiner has not established that Anfinen’s non-defatted soyflour would retain the fatty acid profile of the original soybeans, such that one would expect the modified Anfinen composition to have at least 10% SDA. *See Appeal Br. 7*. According to Appellant, a skilled artisan would have understood that “the processing of the soybeans into soyflour would have affected the fatty acid profile since the various steps would have affected the fatty acids in the oil differently based on their identity.” *Id.* For example, “more highly unsaturated fatty acids would have been oxidized or otherwise reacted more readily than less highly unsaturated fatty acids.” *Id.* Appellant argues that “SDA is the most polyunsaturated of the fatty acids disclosed as present in the soybeans of Ursin.” *Id.*

In response, the Examiner finds that Anfinen “discloses a method of low temperature, low moisture processing . . . at low oxygen atmospheric conditions, in order to avoid oxidative damage and prevent deterioration of the nutritional value of the product.” Answer 9 (citing Anfinen 3–7).

Moreover, considering that Anfinzen's process retains at least 90% of the original oil content, the Examiner finds that Anfinzen's soyflour "would have the same, or similar fatty acid profile as the soybeans it was processed from." *Id.* at 11.

The Examiner's rationale is persuasive, especially considering that Ursin teaches soybeans containing up to 32% SDA. The resulting soyflour would retain at least 10% SDA unless Anfinzen's process destroyed most of the original SDA. Moreover, we find it reasonable that Anfinzen's low temperature, low moisture, and low oxygen process would minimize damage to SDA during the process, and thus retain at least 10% SDA. "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709 (Fed. Cir. 1990). In the absence of any factual evidence by Appellant to the contrary, a preponderance of the evidence supports the Examiner's finding that Anfinzen's soyflour, using Ursin's transgenic soybeans, would comprise at least 10% by weight of SDA based on the total weight of fatty acids.

Appellant also argues that at the time of invention, it was unpredictable how substituting SDA for fish oil (in Sato), or using Ursin's soybeans in Anfinzen's process would affect flavor or nutrition of the resulting food product. *See* Appeal Br. 8. According to Appellant, Anfinzen teaches that many variables, such as "particle size, the nutrient fiber content, the lipoxygenase content, the oil content[,] the nitrogen solubility index, the isoflavon content, and the trypsin inhibitor content are important for an acceptable soybean flour." *Id.* According to Appellant, Ursin also fails to disclose whether "the important parameters disclosed in Anfinzen would

have fallen within an acceptable range.” *Id.* Thus, Appellant argues that there would not have been a reasonable expectation of success in using Ursin’s soybeans in Anfinsen’s process. *Id.*

This argument is not persuasive of reversible error. We note that claim 102 does not recite ranges for particle size, nutrient fiber content, lipoxygenase, content, oil content, nitrogen solubility index, isoflavon content, or trypsin inhibitor content. *See* Appeal Br. 12. Appellant has not pointed to evidence that any deviation from Anfinsen’s preferred ranges for these parameters would have resulted in a soyflour that was unusable for its intended purpose at the time of invention. Nor has Appellant pointed to evidence that adjusting these parameters would have been beyond the ordinary skill in the art, given Anfinsen’s teachings.

Appellant next argues that Ursin is non-analogous art. Appeal. Br. 9. According to Appellant, the field of the invention is “development of functional food products,” but Ursin’s field is “the provision of nucleic acids for use in transgenic crops.” *Id.* (citing Ursin 6:8–9). Appellant also argues that the problem faced by the inventors is “to provide a food product having a longer shelf-life against flavor degradation,” whereas Ursin only relates to “provid[ing] transgenic soybeans with improved fatty acid profiles.” *Id.*

We do not find this argument persuasive. A reference is analogous to the claimed invention if either (1) it is within “the same field of endeavor,” or (2) it is “reasonably pertinent to the particular problem with which the inventor is involved.” *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). Moreover, “[t]he field of endeavor of a patent is not limited to the specific point of novelty, the narrowest possible conception of the field, or the particular focus within a given field.” *Unwired Planet, LLC v. Google Inc.*,

841 F.3d 995, 1001 (Fed. Cir. 2016). The Specification describes the invention as “relat[ing] to the utilization of transgenically derived stearidonic acid in the development of functional food products.” Spec. ¶ 1. Likewise, in addition to describing a transgenic soybean with increased stearidonic acid, Ursin states that one aspect of its invention is “provid[ing] a method of increasing the nutritional value of an edible product for human or animal consumption, comprising adding a soybean seed oil provided by the invention to the edible product.” Ursin 8:27–29. Thus, Ursin and the claimed invention are within the same field of endeavor.

Ursin’s teachings are also reasonably pertinent to the particular problem with which the inventor is involved. Ursin discloses a transgenic soybean, and teaches its usefulness in food products. This disclosure is at least reasonably pertinent to the problem in claim 102 of providing a “food product comprising oil from a transgenic plant, . . . wherein the food product is [a soy product].” *See* Appeal Br. 12.

Finally, in the Reply Brief, Appellant argues that the Examiner erred in finding that the modified soyflour of Anfinzen would inherently have 5% longer shelf life against flavor degradation than an otherwise identical food product having eicosapentaenoic acid rather than SDA. Reply Br. 4–6. According to Appellant, “the required components of claim 102 and the claims that depend therefrom would not have necessarily been present in the food product of the combined cited references.” *Id.* at 6. This argument is untimely, because Appellant did not make it in the Appeal Brief and it is not responsive to an argument raised in the Examiner’s Answer. *See* 37 C.F.R. § 41.41(b)(2). Moreover, even if it were timely, the argument would not be persuasive because Appellant does not point to any supporting evidence on

the record that Anfinssen’s modified soyflour “do[es] not necessarily or inherently possess the characteristics of [the] claimed product.” *In re Best*, 562 F.2d 1252, 1255 (CCPA 1997).

For the above reasons, and based on the Examiner’s findings and conclusions as a whole, which we find persuasive, the preponderance of the evidence supports the Examiner’s rejection of claim 102, and Appellant has not shown reversible error. Appellant presents no separate arguments for dependent claims 105, 107–113, 115, 117, 121, or 123–125. *See* Appeal Br. 3–9. Thus, we sustain the Examiner’s rejection of claims 102, 105, 107–113, 115, 117, 121, and 123–125.

B. Claims 104 and 114

Dependent claims 104 and 114 depend directly or indirectly from claim 102 and recite a food product “further comprising at least 5 ppm tocopherols.” Appeal Br. 12, 13. The Examiner finds that “it is well known that a cup (i.e., 84g) of full fat soybean flour comprise[s] 1.6 mg of alpha-toc[[]]opherol (i.e., vitamin E) (see Nutrition[D]ata pages 1 and 2), which is about 19ppm tocopherol.” Final Action 8.

Appellant argues that “NutritionData would not have provided any additional reason over those detailed above to have prepared the required food product of a soyflour . . . having the claimed properties.” Appeal Br. 10.

This argument is not persuasive of reversible error, because the Examiner cites NutritionData as an evidentiary reference to show the inherent tocopherol content of full-fat soybean flour. Appellant does not point to any evidence disputing the information in NutritionData. Thus, we sustain the rejection of claims 104 and 114 for the reasons given above regarding claim 102.

CONCLUSION

The following table summarizes the decision:

Claims Rejected	Basis	Affirmed	Reversed
102, 104, 105, 107–115, 117, 121, 123–125	§ 103(a) Anfinsen, Ursin, Sato, Harlander	102, 104, 105, 107–115, 117, 121, 123–125	

DECISION

The Examiner's decision is affirmed.

We dismiss, as moot, the Examiner's provisional rejection of claims 102, 104, 105, 107–115, 117, 121, and 123–125 on the ground of nonstatutory obviousness-type double patenting over claims in Applications Nos. 12/729,055, 12/429,891, and 12/743,981, now abandoned.

No time period for taking any subsequent action in connection with this appeal may be extended. *See* 37 C.F.R. § 1.136(a)(1)(iv) (2018).

AFFIRMED