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FISH & RICHARDSON P.C. (DA)			BEKKER, KELLY JO	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES S. BROPHY, FRANK E. DAVIS,
SAMBASIVA RAO CHIGURUPATI, and CHRIS TROTTER

Appeal 2021-001800
Application 16/347,288
Technology Center 1700

Before BEVERLY A. FRANKLIN, JAMES C. HOUSEL, and
JEFFREY R. SNAY, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* SNAY.

Opinion Concurring filed by *Administrative Patent Judge* HOUSEL.

SNAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1–24. We have jurisdiction under
35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R.
§ 1.42. Appellant identifies S & P Ingredient Development, LLC, as the real
party in interest. Appeal Br. 1.

BACKGROUND

The invention relates to a low sodium salt substitute. Spec. ¶ 2.

Independent claims 1 and 12 read as follows:

1. A salt substitute precursor comprising:
water;
a chloride salt, wherein the chloride salt comprises
potassium chloride;
a food grade acid; and
an anticaking agent,
wherein a pH of the salt substitute precursor is between 2
and 4, and the salt substitute precursor is a saturated or
supersaturated solution, a suspension, or a slurry.
12. A salt substitute comprising:
a chloride salt, wherein the chloride salt comprises
potassium chloride;
a food grade acid; and
an anticaking agent,
wherein the salt substitute is in the form of a crystalline
solid comprising:
at least 95 wt% of the chloride salt;
up to 1 wt% of the food grade acid; and
up to 1 wt% of the anticaking agent.

Appeal Br. 10–12 (Claims Appendix).

Each remaining claim on appeal depends from claim 1 or 12.

REJECTIONS

- I. Claims 1–11 stand rejected under 35 U.S.C. § 103 as unpatentable over Howard² and Spijkman.³

² US 4,915,962, issued April 10, 1990.

³ US 2015/0191361 A1, published July 9, 2015.

- II. Claims 1, 3–17, and 19–24 stand rejected under 35 U.S.C. § 103 as unpatentable over Osterwalder⁴ and Spijkman.
- III. Claims 2 and 18 stand rejected under 35 U.S.C. § 103 as unpatentable over Osterwalder, Spijkman, and Howard.

OPINION

The Examiner has the initial burden of establishing a *prima facie* case of obviousness based on an inherent or explicit disclosure of the claimed subject matter under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.”). To establish a *prima facie* case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art or the inferences and creative steps a person of ordinary skill in the art would have employed. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

The Examiner finds Howard discloses a salt seasoning composition which includes all the components recited in claim 1, but fails to teach the composition as a solution. Final Act. 2. Similarly, the Examiner finds Osterwalder discloses a table salt substitute which includes all the components recited in claim 12, in overlapping concentration ranges, but fails to teach the salt composition is crystalline. *Id.* at 3–4. In each instance, the Examiner relies on Spijkman as evidence leading one of ordinary skill in

⁴ US 2014/0255589 A1, published September 11, 2014.

the art to formulate the composition of either Howard or Osterwalder using Spijkman's evaporative technique, which would have involved incorporating components in a solution prior to evaporation (claim 1) and resulting in salt crystals (claim 12). Final Act. 2–4.

Appellant argues, *inter alia*, Spijkman's evaporative technique requires use of acrylic polymer that would not have been suitable for human consumption, and therefore not suitably used for producing the table salt composition of Howard or Osterwalder. Appeal Br. 5–6, 8. Appellant presents evidence that an exemplary commercial polymer taught by Spijkman would have been hazardous to humans. *Id.* at 5. Appellant argues Spijkman discloses a method for making salt suited for use in electrolysis, not for human consumption. *Id.* In response, the Examiner cites an Environmental Protection Agency (“EPA”) Final Rule concerning tolerance for specified acrylic materials in residue associated with pesticide chemical formulations to support a finding that acrylic monomers “pose no appreciable risks to humans through food.” Ans. 7–8 (citing 81 Fed. Reg. 63131, September 14, 2016).

Spijkman discloses evaporative salt crystallization from a “mother liquor” comprising water, the salt to be crystallized, and a water-soluble acrylic polymer. Spijkman ¶ 9. According to Spijkman, incorporation of the acrylic polymer yields free-flowing salt crystals suitable for use in membrane electrolysis cells. *Id.* ¶¶ 10, 16. Spijkman also mentions suitability for use in chlorine production. *Id.* ¶ 16. Howard and Osterwalder, on the other hand, are directed to salt seasoning intended for human consumption. *See* Howard 1:9–10 (“The present invention relates to a culinary seasoning composition.”); Osterwalder ¶ 70 (“In accordance with

the present invention, processes for making a salt composition having a similar appearance to salt and taste as salt, while having a reduced sodium content, have been discovered.”).

Appellant persuasively argues the evidence of record does not support a finding that one of ordinary skill in the art would not have had a reason to apply Spijkman’s technique for forming electrolysis grade salt to produce either Howard’s or Osterwalder’s food grade salt. As noted, Appellant presents at least some evidence that a particular acrylic polymer contemplated by Spijkman was known to be hazardous. Appeal Br. 5. The Examiner’s reliance on an EPA rule regarding tolerance of specified polymer materials deposited from chemical pesticide formulations does not support a finding that all acrylic polymers would have been considered food-safe ingredients. Nor does it address the underlying question why one of ordinary skill in the art would have looked to Spijkman’s method for producing electrolysis salts to produce salt seasoning compositions intended for food.

Accordingly, the Examiner’s rejections are not sustained.

CONCLUSION

The Examiner’s decision rejecting claims 1–24 is reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–11	103	Howard, Spijkman		1–11
1, 3–17, 19– 24	103	Osterwalder, Spijkman		1, 3–17, 19– 24
2, 18	103	Osterwalder, Spijkman, Howard		2, 18
Overall Outcome				1–24

REVERSED

HOUSEL, *Administrative Patent Judge*, concurring.

I concur completely with the reasoning and decision of the majority in all aspects in reversing the appealed rejections under 35 U.S.C. § 103 of claims 1–11 as unpatentable over Howard and Spijkman, of claims 1, 3–17, and 19–24 as unpatentable over Osterwalder and Spijkman, and of claims 2 and 18 as unpatentable over Osterwalder, Spijkman, and Howard.

However, I write separately to raise several matters which neither the Examiner nor the majority address. To begin, I note, as did both Appellant and the majority, that the Examiner conceded that Osterwalder fails to disclose an embodiment wherein the salt composition is crystalline. Final Act. 4. The Examiner did find that Osterwalder discloses a salt composition that overlaps or encompasses the salt composition of claim 12 and that the resulting salt substitute is amorphous or partially crystalline. *Id.*, citing Osterwalder ¶ 101.

Osterwalder additionally discloses that the rounded surfaces indicate that the salt composition particles are amorphous or *microcrystalline*. Osterwalder ¶ 94. Osterwalder teaches that “rounded” refers to a shape having one or more rounded edges, and that a rounded shape may include a cube, rectangular, *crystalline* shape have rounded corners, concave shapes, or bowl shapes. *Id.* ¶ 31. Further, Osterwalder teaches that

a particle may be rounded because the particle is generally spherical or elliptical even though the particle is composed of crystalline material that at a smaller scale than the scale of the particle has component parts that do not have rounded edges, concave shapes, bowl shapes or any shape containing a curve.

Id. Osterwalder, Figure 5, shows a scanning electron microscope image of potassium chloride crystals. *Id.* ¶ 112. I note that, unlike the sodium chloride crystals shown in Osterwalder, Figure 4, the potassium chloride crystals of Figure 5 have a rounded appearance. Given these disclosures, an ordinary artisan would reasonably infer that Osterwalder’s rounded particulate salt substitute has a microcrystalline structure similar to that shown in Figure 5, especially at high concentrations of potassium chloride. *KSR Int’l*, 550 U.S. at 418 (“[T]he [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.”); *see also In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (A reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom.); *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”).

Claim 12 recites that “the salt substitute is in the form of a crystalline solid.” Neither the claims nor the Specification define “crystalline solid” in such a way as to exclude a microcrystalline solid, such as Osterwalder’s. Thus, in my view, given that Osterwalder teaches a microcrystalline salt substitute whose composition encompasses the composition of claim 12, a *prima facie* case of obviousness exists based on Osterwalder alone, without reliance on Spijkman.