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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PETER FINAN

Appeal 2019-006436
Application 13/805,981
Technology Center 1600

Before FRANCISCO C. PRATS, ELIZABETH A. LAVIER, and
RACHEL H. TOWNSEND, *Administrative Patent Judges*.

PRATS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1, 2, 7, 8, 11, 13, 17, 19, 22, 25, 28, 46, 51, 52, and 54. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

¹ We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies MTP Innovations as the real party in interest. Appeal Br. 1.

STATEMENT OF THE CASE

The following rejections are before us for review:

(1) Claims 1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 52, and 54, under 35 U.S.C. § 103(a) as being unpatentable over Zahn,² Gu,³ and Farmer⁴ (Final Act. 2–6);⁵

(2) Claims 1, 2, 7, 8, 11, 13, 17, 19, 22, 25, 28, 46, 52, and 54, under 35 U.S.C. § 103(a) as being unpatentable over Zahn, Gu, Farmer, and Geret⁶ (Final Act. 6–7);

(3) Claims 1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 51, 52, and 54, under 35 U.S.C. § 103(a) as being unpatentable over Zahn, Gu, Farmer, and Duffield⁷ (Final Act. 7–8); and

(4) Claims 1, 7, 8, 11, 13, 17, 19, 22, 25, 28, and 52, under 35 U.S.C. § 103(a) as being unpatentable over Geret, Gu, and Farmer (Final Act. 8–12).

Appellant’s claim 1, the sole independent claim on appeal, is representative and reads as follows:

1. A disinfectant composition comprising:
 - a first active ingredient comprising a source of acetyl radicals, and
 - a second active ingredient comprising a source of peroxygen,

² US 7,291,276 B1 (issued Nov. 6, 2007).

³ US 5,035,559 (issued July 30, 1991).

⁴ WO 01/37659 A2 (published May 31, 2001).

⁵ Final Action entered September 8, 2017.

⁶ US 2010/0075883 A1 (published Mar. 25, 2010).

⁷ WO 01/36290 A1 (published May 25, 2001).

the composition being soluble in water to provide a solution of peracetic acid,

wherein the composition comprises a non-ionic surfactant comprising an N-substituted pyrrolidone, and

wherein the composition includes a chelating agent other than a phosphonate.

Appeal Br. 9.

OBVIOUSNESS REJECTIONS
BASED ON THE COMBINATION OF ZAHN AND GU

In rejecting Appellant's claims 1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 52, and 54 over Zahn, Gu, and Farmer, the Examiner cited Zahn as evidence that it was known in the art to use the first two ingredients recited in claim 1 to disinfect waste in a holding tank, and noted Zahn's additional teaching that surfactants could be incorporated in the holding tank. Final Act. 3.

The Examiner conceded that Zahn differs from the rejected claims in that Zahn does not teach "adding the instant surfactant, N-substituted pyrrolidone . . . , to waste in its holding tank." Final Act. 4.

The Examiner cited Gu as evidence that N-substituted pyrrolidones were known in the art to be microbicides, and that it therefore would have been obvious include those compounds in Zahn's compositions for disinfecting holding tanks. Final Act. 4-5 (citing *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1980); MPEP § 2144.06).

The Examiner conceded that Zahn also differs from the rejected claims in not including a chelating agent other than a phosphonate in its disinfecting compositions, and cited Farmer as evidence that it would have been obvious to include EDTA in Zahn's disinfecting formulations. Final Act. 5.

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art. “[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.”

In re Fritch, 972 F.2d 1260, 1265 (Fed. Cir. 1992) (citations omitted, bracketed material in original).

In *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), although the Supreme Court emphasized “an expansive and flexible approach” when evaluating claims for obviousness, *id.* at 415, the Court nonetheless also reaffirmed the importance of determining “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 418.

Ultimately, therefore, as our reviewing court has stated, “[i]n determining whether obviousness is established by combining the teachings of the prior art, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.” *In re GPAC Inc.*, 57 F.3d 1573, 1581 (Fed. Cir. 1995) (internal quotations omitted).

In the present case, having carefully considered the evidence and arguments presented by Appellant and the Examiner, Appellant persuades us that the Examiner has not shown sufficiently that the cited references would have suggested including Gu’s N-substituted pyrrolidone microbicides in the disinfectant compositions of Zahn.

As an initial matter, we note Appellant’s citation of the Safety Data Sheet for N-Octyl-2-pyrrolidone⁸ as evidence teaching away from using Gu’s N-substituted pyrrolidones in Zahn’s disinfectant compositions. *See* Appeal Br. 4 (citing “MSDS”). We note, however, that the MSDS has a publication date in 2016 (*see* MSDS 1 (“Revision date: 2016/03/24”)), whereas the effective filing date of the present application is in 2011, with a priority claim to 2010. *See* Spec. 1 (amendment entered December 20, 2012).

Because Appellant identifies no evidence suggesting that a skilled artisan would have been aware of the teachings in the MSDS prior to the effective filing date of the present application, Appellant does not persuade us that it is proper to consider the teachings in the MSDS when evaluating the obviousness of Appellant’s claims. Nonetheless, for the reasons that follow, we agree with Appellant that the references cited by the Examiner would not have suggested including Gu’s N-substituted pyrrolidone microbicides in the disinfect compositions of Zahn.

Specifically, Zahn discloses methods of treating waste in black or gray water holding tanks, like those used with RV’s and boats. *See* Zahn 1:16–25.

Zahn’s disinfecting composition contains tetra acetyl ethylene diamine (TAED) and a peroxygen compound, the first two ingredients recited in Appellant’s claim 1. *See* Zahn, abstract. Zahn explains that, by using a disinfectant composition that contains those ingredients, “[h]ydrogen peroxide and/or peracetic acid are released over a period of time and thus

⁸ Safety Data Sheet N-Octyl-2-pyrrolidone (BASF 2016).

maintained in the wastewater solution. Peracetic acid under controlled release conditions dissipates prior to the wastewater being deposited in a wastewater treatment plant. *Id.*

Zahn explains that it is critical for the biocidal ingredients in its disinfectant composition to dissipate relatively quickly after deployment in the holding tank, because the contents of the holding tank are subsequently handled in wastewater treatment systems that use microorganisms to process the waste. *See Zahn 2:12–14* (“[T]he wastewater in the holding tank should not contain biocides or disinfectants that sustain activity for extended periods of time that might harm or kill the microorganisms used in a wastewater treatment system.”); *id.* at 3:27–31 (“Once release of the chemicals into the black or gray wastewater tank ceases, the concentration of H₂O₂ and peracetic acid rapidly declines and disappears. The black or gray water in the holding tank is then suitable for deposit into a wastewater treatment facility.”); *id.* at 5:3–7 (“The present invention is environmentally friendly and work[s] synergistically with waste treatments centers. This is because the peracetic acid and hydrogen peroxide degrade and therefore do not interfere with the chemicals and/or bacteria of the waste treatment facility.”).

Because Zahn teaches that the holding tank should not contain biocides or disinfectants that remain active for extended periods, Appellant persuades us that a skilled artisan would not have included Gu’s N-substituted pyrrolidone microbicides in compositions used by Zahn to disinfect the holding tank.

Specifically, Gu discloses using N-alkyl-2-pyrrolidones to disinfect contact lenses. Gu, abstract. Gu discloses that its compounds are effective

as microbicides in aqueous solutions at concentrations as low as 0.0001%. *Id.* at 3:35–38. Gu also discloses that its compounds are useful as preservatives and in storage solutions, thus suggesting that the compounds’ microbicidal properties do not dissipate quickly. *See id.* at 3:40-44 (“When used as a preservative the concentration of N-alkyl-2-pyrrolidone in a lens cleaning solution is about 0.001 % to about 0.1 % by weight; preferably about 0.0002 to about 0.05%. . . . After cleaning and disinfecting the lens it may be stored in the pyrrolidone solution.”).

Because Zahn teaches that the holding tank should not contain biocides or disinfectants that remain active for extended periods, and because Gu teaches that N-alkyl-2-pyrrolidones are potent disinfectant microbicides that remain active for extended periods, Appellant persuades us that a skilled artisan would not have included Gu’s N-substituted pyrrolidone microbicides in Zahn’s compositions.

The fact that contact lens cleaning solutions might be disposed of via the sink does not persuade us to the contrary. *See* Ans. 3–4. The rejection under review posits including Gu’s compounds in Zahn’s compositions at a concentration that is deliberately disinfecting to a boat or RV waste holding tank. The Examiner does not explain persuasively how the asserted routine disposal of a contact lens cleaning solution in a sink is consistent with or even relevant to the rejection as posited.

The Examiner contends that “Appellant does not provide any evidence that Gu’s small amount of 0.0001 % N-substituted pyrrolidone would have a negative impact if discharged into a waste water treatment system like Zahn.” Ans. 5. We are not persuaded.

As noted above, Gu teaches that 0.0001% N-substituted pyrrolidone has microbicidal properties. Gu 3:35–38. As also noted above, the overarching objective of Zahn’s invention is the use of a composition that disinfectants waste water in RV or boat waste holding tanks, but leaves little or no microbicide in the water when it is discharged for subsequent treatment. *See* Zahn 2:12–47. Given Zahn’s objective, on this record, we are not persuaded that the Examiner has explained sufficiently why a skilled artisan would have included of Gu’s potent N-substituted pyrrolidone microbicides in Zahn’s compositions.

Ultimately, the question is not whether a skilled artisan, in the abstract, would have considered Gu’s N-substituted pyrrolidones to be useful in disinfectant compositions. Rather, the issue here is whether the combined teachings of Zahn and Gu would have suggested including Gu’s N-substituted pyrrolidones in Zahn’s disinfecting compositions. For the reasons discussed, the Examiner does not persuade us that the combined teachings of Zahn and Gu would have suggested including Gu’s potent N-substituted pyrrolidones in Zahn’s disinfecting compositions. The Examiner, moreover, does not identify any teaching in Farmer that remedies the deficiencies discussed above in the combination of Zahn and Gu.

Because we are not persuaded that the Examiner has explained sufficiently why the combined teachings of Zahn, Gu, and Farmer would have suggested the disinfectant composition recited in Appellant’s claim 1, we reverse the Examiner’s rejection of that claim, and its dependent claims 2, 7, 8, 13, 17, 19, 25, 28, 46, 52, and 54 over those references.

The Examiner rejected claims 1, 2, 7, 8, 11, 13, 17, 19, 22, 25, 28, 46, 52, and 54 for obviousness over Zahn, Gu, Farmer, and Geret. Final Act. 6–

7. The Examiner also rejected claims 1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 51, 52, and 54 for obviousness over Zahn, Gu, Farmer, and Duffield. Final Act. 7–8. Because both of those rejections rely on the deficient combination of Zahn, Gu, and Farmer, discussed above, we reverse those rejections as well.

OBVIOUSNESS—
GERET, GU, AND FARMER

In rejecting claims 1, 7, 8, 11, 13, 17, 19, 22, 25, 28, and 52 over Geret, Gu, and Farmer, the Examiner concluded that it would have been obvious to include Gu’s N-substituted pyrrolidones in the disinfectant compositions taught in Geret. *See* Final Act. 9–10. The Examiner cited Farmer as evidence that it also would have been obvious to include EDTA in Geret’s disinfecting formulations. *Id.* at. 10–11.

In traversing this rejection, Appellant argues only that Geret requires phosphonates in its compositions, whereas Appellant’s claim 54, which is not subject to this rejection, excludes phosphonates from the claimed composition. *See* Appeal Br. 7.

Accordingly, because Appellant does not identify, nor do we discern, error in the Examiner’s conclusion of obviousness as to claim 1 in view of Geret, Gu, and Farmer, we affirm the Examiner’s rejection of claim 1 over those references. Claims 7, 8, 11, 13, 17, 19, 22, 25, 28, and 52 fall with claim 1. *See* 37 C.F.R. 41.37(c)(1)(iv).

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 52, 54	103(a)	Zahn, Gu, Farmer		1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 52, 54
1, 2, 7, 8, 11, 13, 17, 19, 22, 25, 28, 46, 52, 54	103(a)	Zahn, Gu, Farmer, Geret		1, 2, 7, 8, 11, 13, 17, 19, 22, 25, 28, 46, 52, 54
1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 51, 52, 54	103(a)	Zahn, Gu, Farmer, Duffield		1, 2, 7, 8, 13, 17, 19, 25, 28, 46, 51, 52, 54
1, 7, 8, 11, 13, 17, 19, 22, 25, 28, 52	103(a)	Geret, Gu, Farmer	1, 7, 8, 11, 13, 17, 19, 22, 25, 28, 52	
Overall Outcome			1, 7, 8, 11, 13, 17, 19, 22, 25, 28, 52	2, 46, 51, 54

TIME PERIOD FOR RESPONSE

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

AFFIRMED-IN-PART