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iahmadi@oblon.com
patentdocket@oblon.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARKUS CHRISTIAN BIEL, THOMAS GREINDL, MARKUS
HARTMANN, WOLFGANG STAFFEL, and MARTA REINOSO
GARCIA

Appeal 2019-000650
Application 14/892,820
Technology Center 1700

Before LINDA M. GAUDETTE, KAREN M. HASTINGS, and
JANE E. INGLESE, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL¹

The Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's decision finally rejecting claims 1–9, 12, and 13.^{3, 4}

We AFFIRM.

CLAIMED SUBJECT MATTER

Complexing agents such as methyl glycine diacetic acid (MGDA) and glutamic acid diacetic acid (GLDA), and their respective alkali metal salts, are useful sequestrants for alkaline earth metal ions such as Ca^{2+} and Mg^{2+} . Spec. 1:12–14. “For that reason, they are recommended and used for various purposes such as laundry detergents and for automatic dishwashing (ADW) formulations, in particular for so-called phosphate-free laundry detergents and phosphate-free ADW formulations.” *Id.* at 1:14–16. According to the Specification, when shipping aqueous solutions of MGDA or GLDA, highly concentrated solutions are preferred because water adds to the costs of transportation, and must be removed subsequently. *Id.* at 1:20–23. At the time of the invention it was known that “about 40% by weight solutions of MGDA and even 45% by weight solutions of GLDA [could] be made and stored at room temperature,” but local or temporarily colder storage

¹ This Decision includes citations to the following documents: Specification filed Nov. 20, 2015 (“Spec.”); Final Office Action dated October 25, 2017 (“Final Act.”); Appeal Brief filed June 6, 2018 (“Appeal Br.”); Examiner’s Answer dated Aug. 27, 2018 (“Ans.”); and Reply Brief filed Oct. 29, 2018 (“Reply Br.”).

² 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 BASF SE. Appeal Br. 2.

³ We have jurisdiction under 35 U.S.C. § 6(b).

⁴ An oral hearing was held on February 26, 2020, before this Board panel.

conditions could result in precipitation of the respective complexing agent, as well as nucleating by impurities, “lead[ing] to incrustations in pipes and containers, and/or to impurities or inhomogeneity during formulation.” *Id.* at 1:23–27.

The inventors are said to have discovered an aqueous solution containing a polyamine (e.g., polyethylenimine) and either MGDA or GLDA, that is stable at temperatures ranging from zero to 50°C without the use of additives that negatively affect the properties of the complexing agent. Spec. 1:36–42, 3:13–16, 40–41. Claim 1, the sole independent claim on appeal, is illustrative of the claimed subject matter:

1. An aqueous solution, comprising:
 - a complexing agent in a range of 30% to 60% by weight, wherein the complexing agent is at least one selected from the group consisting of an alkali metal salt of methylglycine diacetic acid and an alkali metal salt of glutamic acid diacetic acid;
 - a polymer in a range of 700 ppm to 7% by weight, wherein the polymer is a polyamine with N atoms being partially or fully substituted with CH₂COOH groups, which are partially or fully neutralized with alkali metal cations,
 - wherein ppm and percentages are based on the total weight of the aqueous solution.

Appeal Br. 23, Appendix A.

REFERENCES

The Examiner relies on the following prior art as evidence of unpatentability:

Name	Reference	Date
Werdehausen	US 3,650,962	Mar. 21, 1972
Catlin	US 2006/0083876 A1	Apr. 20, 2006
Scheper	US 2006/0217280 A1	Sept. 28, 2006
Song	US 2006/0281660 A1	Dec. 14, 2006
Letzelter	US 2014/0179586 A1	June 26, 2014
Benda	US 2014/0349905 A1	Nov. 27, 2014

REJECTIONS

1. Claims 1–3, 5–7, 9, 12, and 13 are rejected under 35 U.S.C. § 103 as unpatentable over Letzelter in view of Werkehausen. Final Act. 4.
2. Claim 4 is rejected under 35 U.S.C. § 103 as unpatentable over Letzelter in view of Werkehausen, and Catlin. Final Act. 7.
3. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Letzelter in view of Werkehausen, and Song.
4. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Letzelter in view of Werkehausen, and Scheper.
5. Claims 1–7, 9, and 12 are rejected under 35 U.S.C. § 103 as unpatentable over Benda in view of Werkehausen, and Letzelter. Final Act. 8.
6. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Benda in view of Werkehausen, Letzelter, and Song.
7. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Benda in view of Werkehausen, Letzelter, and Scheper.

8. Claims 1–7, 9, 12, and 13 are provisionally rejected on the ground of nonstatutory, obviousness-type double patenting as being unpatentable over claims 1, 7–9, and 13–16 of copending Application No. 14/945,459, claims 1, 3, 7, 8, and 12–15 of copending Application No. 14/945,463, claims 1–3, 7, and 11–16 of copending Application No. 14/945,458, or claims 1–3, 6–8, 11, 12, 14, 15, 17, and 18 of copending Application No. 14/945,466.

9. Claim 8 is provisionally rejected on the ground of nonstatutory, obviousness-type double patenting as being unpatentable over claims 1, 7–9, and 13–16 of copending Application No. 14/945,459, claims 1, 3, 7, 8, and 12–15 of copending Application No. 14/945,463, claims 1–3, 7, and 11–16 of copending Application No. 14/945,458, or claims 1–3, 6–8, 11, 12, 14, 15, 17, and 18 of copending Application No. 14/945,466, all in view of Scheper.

OPINION

Section 103 Rejections

The Examiner rejected claims 1–7, 9, 12, and 13 over the combinations of Letzelter and Werdehausen, and rejected claims 1–7, 9, and 12 over the combination of Benda, Letzelter, and Werdehausen. *See* Final Act. 4–12. The Appellant’s arguments in support of patentability of all rejected claims are based on claim 1 limitations. *See* Appeal Br. 7–20. The Appellant presents similar arguments in support of patentability of claim 1 over both combinations of references. *Compare* Appeal Br. 14–20, *with id.* at 7–14. We have considered these arguments as to each of above-listed grounds of rejection 1–7, but are not persuaded of reversible error in the

Examiner's rejections for the reasons discussed in the Answer (*see* Ans. 13–19) and below.

Letzelter discloses a multi-compartment, water-soluble pack comprising a cleaning composition, such as an automatic dishwashing detergent composition, and an enveloping material, such as a water-soluble film. Letzelter ¶ 12. The pack comprises a first compartment containing a liquid composition comprising a hygroscopic material. *Id.*, Abstract. The hygroscopic material preferably acts a dispersant in an automatic dishwashing process, and is selected from the group of organic polymers, organic builders, and mixtures thereof. *Id.* ¶¶ 40–41. “Preferred organic builders include aminocarboxylate builders such as salts of MGDA . . . [and] GLDA” *Id.* ¶ 51. Letzelter discloses that the organic builders are present in an amount of from 10% to 70% by weight of the composition. *Id.* ¶ 54. A polymer, if present, is used in any suitable amount from about 0.1 % to about 30%. *Id.* ¶ 55. “Sulfonated/carboxylated polymers are particularly suitable” *Id.* Letzelter discloses that the pack's second compartment preferably comprises bleach and enzymes, and may be a liquid, gel or paste, or solid composition. *Id.* ¶ 15.

Benda discloses a liquid cleaning agent, preferably an automatic dishwashing agent, in a water soluble packaging. Benda ¶¶ 6–7. Benda discloses that the cleaning agent preferably contains one or more builders in an amount of 15% to 80% by weight. *Id.* ¶ 76. “Preferably at least one compound selected from MGDA, GLDA and EDDS is used, in particular in reduced-phosphate and phosphate-free [cleaning] agents.” *Id.* ¶ 92. Organic cobuilders include polycarboxylates/polycarboxylic acids and polymeric

carboxylates. *Id.* ¶ 83. Benda discloses that the cleaning agent further comprises substances such as enzymes and bleaching agents. *Id.* ¶¶ 97, 105.

Werdehausen discloses that

[i]t has been common in the prior art to add to washing and cleansing agents, particularly those which contain bleaching compounds having active oxygen, complexing aminopolycarboxylic acids or their alkali salts, such as . . . ethylenediamine tetraacetic acid (EDTA), . . . in order to increase the stability of the bleaching agent, or to protect the optical brighteners contained in the detergents against an attack by the oxidizing agents.

Werdehausen 1:32–40. Werdehausen discloses that although EDTA increases the cleaning properties of washing agents, it is inferior to known inorganic builders, such as polymeric phosphates, because it is not completely stable against oxidizing agents. *Id.* at 1:43–49. Werdehausen is said to have discovered that certain complexing aminopolycarboxylic acids or their salts of branched poly-(N-acetic acid)-ethyleneimine provide good stability against oxidizing substances, an improved cleaning property, and an effective stabilizing of optical brighteners when incorporated into washing, bleaching and cleansing agents. *Id.* at 2:17–27. More specifically, Werdehausen discloses a washing, bleaching, and cleansing agent comprising 0.1% to 50%, by weight, of a polyethyleneimine (*id.* at 1:20) and “at least one other cleaning or bleaching component, such as non-ionic, anionic and amphoteric surface-active materials, inorganic or organic builders, oxygen-containing bleaching agents, as well as other conventional washing and cleansing ingredients” (*id.* at 3:9–14). Werdehausen discloses that appropriate ingredients include phosphates (*id.* at 4:10–12) and “the alkali metal or ammonium salts of low-molecular-weight

aminopolycarboxylic acids, such as . . . EDTA” (*id.* at 4:26–28). *See also* Werdehausen claim 1 (“A washing, bleaching and cleansing agent having a content of from 50% to 99.9%, by weight, of customary components of washing, bleaching and cleansing agents and from 0.1% to 50%, by weight, of a polyethyleneimine . . . said customary components of washing, bleaching and cleansing agents consisting essentially of . . . from 0% to 80% by weight of at least one builder selected from the group consisting of . . . low-molecular-weight aminopolycarboxylic acids, from 0 to 50% by weight of a bleaching compound . . . , and from 0% to 60% of other auxiliary and supplementary components of washing agents selected from the group consisting of optical brighteners, . . . enzymes, . . . water and dissolving aids . . .”). Werdehausen discloses that “[t]he washing and cleansing agents can be present in liquid, pasty or solid form, as powder, granules or lumps.” *Id.* at 5:65–66.

The Examiner found that Letzelter discloses a multi-compartment water-soluble pack. Final Act. 4. The Examiner found that a first compartment of the pack contains an aqueous solution comprising a complexing agent as claimed (i.e., an alkali metal salt of MGDA) in an amount that encompasses the claimed range of 30% to 60% by weight (i.e., 10% to 70% by weight). *See id.* at 4–5. The Examiner found that Benda discloses an aqueous solution comprising MGDA in an amount that overlaps the claimed amount of complexing agent, but acknowledges that Benda does not disclose the use of a salt of MGDA. *Id.* at 8–9. The Examiner found, however, that the ordinary artisan would have understood that a sodium salt of MGDA could be used in place of MGDA based on Letzelter’s teaching that they are known equivalents when used as builders in a similar cleaning

composition. *Id.* at 9–10. The Examiner further found that one of ordinary skill in the art would have modified Letzelter’s composition, and the composition of Benda as modified by Letzelter, to include a polymer as recited in claim 1, based on Werdehausen’s teaching that the addition of a carboxymethylated polyamine compound to a cleaning composition improves the stability and cleaning properties of the composition. *Id.* at 6, 9.

The Appellant argues that the ordinary artisan would not have combined Werdehausen’s teachings with Letzelter’s or Benda’s teachings because the references address different problems. Appeal Br. 11–12. The Appellant argues that, unlike Letzelter’s and Benda’s cleaning agents, Werdehausen’s cleaning agents do not exist as unit-dose, water-soluble packs and, therefore, Werdehausen is not concerned with improving the stability of highly concentrated aqueous solutions. *Id.*

“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). The invention relates to formulating aqueous cleaning solutions containing a complexing agent such as MGDA or GLDA in high concentration. *See* Spec., Title, 1:12–14, 20–21. Letzelter discloses a liquid cleaning composition comprising high concentrations of MGDA or GLDA salts for use in a multi-compartment water-soluble pack. Letzelter ¶¶ 12, 51; *compare* Letzelter ¶¶ 51, 54 (10–70% organic builders, preferably MGDA or GLDA salts), *with* claim 1 (30–60% MGDA salt or GLDA salt). Letzelter discloses that formulators of unit dose detergent products faced the following known problems: (1) susceptibility of ingredients to degradation (Letzelter ¶ 3); (2)

reduced cleaning and stability of the products due to the elimination of phosphates (*id.* ¶ 4); and (3) significant time and cost associated with combining ingredients that are in different physical forms (*id.* ¶ 5). Benda, directed to a liquid cleaning agent in a water-soluble packaging, discloses that such cleaning compositions must be formulated using a limited amount of water to avoid premature dissolution of the packaging. Benda ¶ 3. Benda discloses that suitable builders include phosphates, MGDA, and GLDA (*id.* ¶ 76) and that “[i]n a preferred embodiment . . . , the use of phosphates is largely or completely dispensed with” (*id.* ¶ 82). Benda discloses that polymers are essential to the good performance of the cleaning composition, and that their incorporation into compositions containing only small quantities of water entails significant difficulties. *Id.* ¶ 4.

The above disclosures in Letzelter and Benda support the Examiner’s finding that at the time of the invention, reduced cleaning and stability were known problems in low phosphate, or phosphate-free, concentrated aqueous cleaning solutions. *See* Final Act. 6, 9. We agree with the Examiner that in addressing these known problems, one of ordinary skill in the art would have looked to Werdehausen, which discloses that good stability against oxidizing substances and an improved cleaning property was achieved by incorporating branched poly-(N-acetic acid)-ethyleneimine into washing, bleaching and cleansing agents. *See* Final Act. 6, 9; Werdehausen 2:17–27; *In re GPAC Inc.*, 57 F.3d 1573, 1578 (Fed. Cir. 1995) (explaining that a reference is relevant if it is “within the inventor’s field of endeavor” or “reasonably pertinent to the particular problem confronting the inventor”); *cf. Alcon Research, Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1368 (Fed. Cir. 2012)

(“[M]otivation to modify a prior art reference to arrive at the claimed invention need not be the same motivation that the patentee had.”).

The Appellant argues that one of ordinary skill in the art would not have had a reasonable expectation of success in using Werdehausen’s polymers in the water-soluble packs of Letzelter and Benda because “it was well known at the time of the present invention that the incorporation of polymers into water-soluble detergent packs is a difficult, expensive and highly-unpredictable art.” *Id.* at 8; *see also id.* at 9–10 (citing Letzelter ¶¶ 2, 5, 7), 13 (citing Letzelter ¶ 5; Benda ¶¶ 3–4). This argument is not persuasive of reversible error in the Examiner’s rejections because, as further discussed below, we find that the evidence of record weighs in favor of the Examiner’s determination that the invention is nothing more than the predictable result of a combination of familiar elements according to known methods. *See Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1371 (Fed. Cir. 2011) (“A strong case of *prima facie* obviousness . . . cannot be overcome by a far weaker showing of objective indicia of nonobviousness.”); *KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (explaining that a *prima facie* case of obviousness is established where an examiner demonstrates that the invention is nothing more than the predictable result of a combination of familiar elements according to known methods); *cf. In re Farrenkopf*, 713 F.2d 714, 718 (Fed. Cir. 1983) (stating that the fact that a businessman would not have made a particular modification for economic reasons does not mean that one of ordinary skill would not have made the modification).

The Appellant argues that one of ordinary skill in the art would not have had a reasonable expectation of success in using Werdehausen’s

polymers in the water-soluble packs of Letzelter and Benda because Werdehausen relates to increasing the stability and cleaning properties of customary washing agents used in 1972, which “may differ significantly from customary agents (such as the metal salts of MGDA and GLDA) used to formulate the more modern detergents of Letzelter.” Appeal Br. 11 n.1, 18. This argument is not persuasive given Werdehausen’s disclosure that customary components of washing, bleaching and cleansing agents include builders such as salts of low-molecular-weight aminopolycarboxylic acids, e.g., EDTA (Werdehausen claim 1, 4:26–28), and the Appellant’s admission that MGDA and GLDA are similar in structure to EDTA (Appeal Br. 12 n.2).

The Appellant argues that Werdehausen discourages the use of EDTA and, therefore the use of MGDA and GLDA. *Id.* at 12 n.2. In support of this argument, the Appellant cites the comparison testing of aqueous solutions containing a sodium salt of poly-(N-acetic acid)-ethyleneimine with aqueous solutions containing a sodium salt of EDTA. *Id.* (citing Werdehausen cols. 9–10). We disagree that the ordinary artisan would have been discouraged from using MGDA and GLDA based on Werdehausen’s testing.

According to Werdehausen, the testing showed that (1) a washing agent containing the sodium salt of poly-(N-acetic acid)-ethyleneimine showed superior cleaning properties compared to washing agents containing other known builders such as pentasodium triphosphate and Na-EDTA (Werdehausen 9:8–24), (2) a washing agent containing a combination of pentasodium triphosphate and the sodium salt of poly-(N-acetic acid)-ethyleneimine showed a higher degree of whiteness than a washing agent containing a combination of pentasodium triphosphate and Na-EDTA (*id.*

9:28–10:24), and (3) an aqueous solution containing a bleaching agent (sodium perborate) and the sodium salt of poly-(N-acetic acid)-ethyleneimine showed a higher active oxygen percentage over time than an aqueous solution containing sodium perborate and Na-EDTA (*id.* at 10:27–59). However, upon review of Werdehausen in its entirety, the ordinary artisan would not have understood that other builders should be excluded from cleaning compositions containing the salts of poly-(N-acetic acid)-ethyleneimine. Rather, the ordinary artisan would have understood that cleaning compositions may include the salts of poly-(N-acetic acid)-ethyleneimine in combination with other builders including EDTA and phosphates. *See* discussion of Werdehausen *supra* pp. 7–8; Werdehausen 6:13–52.

In sum, for the reasons stated above and in the Answer, we are not persuaded of reversible error in the Examiner’s conclusion of obviousness as to claims 1–9, 12, and 13.

Provisional Rejections

The Examiner provisionally rejected claims 1–7, 9, 12, and 13 on the ground of nonstatutory, obviousness-type double patenting over four, co-pending patent applications. Final Act. 14. The Examiner provisionally rejected claim 8 on the ground of nonstatutory, obviousness-type double patenting over the same co-pending patent applications, each in view of Scheper. *Id.* at 15. After the filing of the Reply Brief, three of the four co-pending applications went abandoned: Application Nos. 14/945,459, 14/945,463, and 14/945,466. Accordingly, the rejections based on these three applications have been rendered moot. As requested by the Appellant

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(*see* Appeal Br. 20), we decline to reach the Examiner's provisional rejections of claims 1–9, 12, and 13 on the ground of non-statutory obviousness-type double patenting over co-pending Application No.14/945,458. *See Ex parte Moncla*, 95 USPQ2d 1884, 1885 (BPAI 2010) (precedential) (panels may decline to reach provisional obviousness-type double patenting rejections).

CONCLUSION

The Examiner's rejections under 35 U.S.C. § 103 are sustained. The provisional rejections of claims 1–9, 12, and 13 on the ground of nonstatutory, obviousness-type double patenting over Application Nos. 14/945,459, 14/945,463, and 14/945,466 are moot. We decline to reach the provisional rejections of claims 1–9, 12, and 13 on the ground of nonstatutory, obviousness-type double patenting over co-pending Application No. 14/945,458.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5–7, 9, 12, 13	103	Letzelter, Werdehausen	1–3, 5–7, 9, 12, 13	
4	103	Letzelter, Werdehausen, Catlin	4	
8	103	Letzelter, Werdehausen, Song	8	
8	103	Letzelter, Werdehausen, Scheper	8	
1–7, 9, 12	103	Benda, Letzelter, Werdehausen	1–7, 9, 12	
8	103	Benda, Letzelter, Werdehausen, Song	8	
8	103	Benda, Letzelter, Werdehausen, Scheper	8	
1–7, 9, 12, 13		Provisional – nonstatutory, obviousness-type double patenting ⁵		
8		Provisional – nonstatutory, obviousness-type double patenting ⁶		
Overall Outcome			1–9, 12, 13	

⁵ The rejections over Application Nos. 14/945,459, 14/945,463, and 14/945,466 are moot. We do not reach the rejection over co-pending Application No. 14/945,458.

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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).

AFFIRMED

⁶ The rejections over Application Nos. 14/945,459, 14/945,463, and 14/945,466, each in view of Scheper, are moot. We do not reach the rejection over co-pending Application No. 14/945,458 in view of Scheper.