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THE PROCTER & GAMBLE COMPANY GLOBAL IP SERVICES CENTRAL BUILDING, C9 ONE PROCTER AND GAMBLE PLAZA CINCINNATI, OH 45202			MATTISON, LORI K	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JACOB ROBERT ADAMS, JAMIE ANGEL REED,
PHILIP ANDREW SAWIN, RANDY PURNELL WASHINGTON, and
ALAN DAVID WILLEY

Appeal 2019-001298
Application 14/552,566
Technology Center 1600

Before RICHARD M. LEBOVITZ, JEFFRY N. FREDMAN, and
RYAN H. FLAX, *Administrative Patent Judges*.

FLAX, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) involving claims to a method for shaping fibrous material. Appellant appeals the Examiner’s rejection of claims 1, 3–5, 7–12, 14–17, 18–21, 24, and 25 under 35 U.S.C. § 103.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ “Appellant” herein refers to the “applicant” as defined by 37 C.F.R. § 1.42. Appellant identifies “The Procter & Gamble Company,” as the real party-in-interest. Appeal Br. 1.

RELATED MATTERS

Appellant indicates that “U.S. Application Serial No. 14/552,578 (Attorney Docket No. 13171), Appeal No. 2018-002382” is a related appeal. Appeal Br. 1. We note U.S. Application 14/552,578 was abandoned after the Board’s affirmance of the Examiner’s final rejection. *See* Notice of Abandonment in the matter dated June 10, 2019.

STATEMENT OF THE CASE

The application’s sole independent claim, which is representative, is reproduced below:

1. A method for shaping fibrous material comprising:
 - (a) providing a treatment composition, wherein the treatment composition comprises:
 - (i) an active agent comprising a diamine or polyamine; wherein the active agent is a primary amine, a secondary amine, or mixtures thereof; and wherein the active agent has a molecular weight below about 1000 g/mol; and
 - (ii) a photocatalyst;
 - (b) applying the treatment composition to a fibrous material to form a treated fibrous material;
 - (c) mechanically shaping the treated fibrous material using an implement; and
 - (d) exposing the treated fibrous material to electromagnetic radiation.

Appeal Br. 5 (Claims Appendix).

The Specification describes that the invention as follows:

The fibrous material is treated with a composition comprising a photocatalyst and an active agent, which at least partially penetrates the fibers. Upon exposure to light, the

photocatalyst is activated thereby generating acid or base, which catalyzes the reaction of the small molecule, thereby attaching to the fiber and/or forming a higher molecular weight species.

Spec. 5:27–31. The Specification further describes that “[t]he treated fibrous material can be mechanically shaped by creasing, curling, straightening, flattening, or otherwise changing the physical orientation of the fibrous material.” *Id.* at 18:14–15. The Specification explains that to shape hair (a fibrous material), an implement can be used and “the implement can be any appliance, device, or appendage” and can “comprise a light source to provide electromagnetic radiation for the method of the present invention.” *Id.* at 18:29–19:13.

The following rejection by the Examiner is appealed:²

Claims 1, 3–5, 7–12, 14–17, 18–21, 24, and 25 stand rejected under 35 U.S.C. § 103 over Baker³ and Reich.⁴ Final Action 3–9; Answer 3–11.

DISCUSSION

“[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. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Arguments made by Appellant in the Appeal Brief and properly presented in the Reply Brief have been considered; arguments not so-presented are waived. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2015); *see also Ex parte Borden*,

² A rejection for obviousness type double patenting was withdrawn by the Examiner. Answer 3.

³ WO 2009/140076 A1, published Nov. 19, 2009 (“Baker”).

⁴ US 6,177,523 B1, issued Jan. 23, 2001 (“Reich”).

93 USPQ2d 1473, 1474 (BPAI 2010) (informative) (“Any bases for asserting error, whether factual or legal, that are not raised in the principal brief are waived.”).

“The combination of familiar elements [or steps] according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). The test for obviousness is “whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention.” *In re Gorman*, 933 F.2d 982, 986 (Fed. Cir. 1991). “What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *KSR*, 550 U.S. at 419.

With these standards in mind, we address the Examiner’s rejections and Appellant’s arguments.

The Examiner determined that the claims would have been obvious over the combination of Baker and Reich. *See* Answer 3–11 (citing Baker 11, 12, 15–16, 21–22, 29–30, 42–44, 47, 49, 56 (*see* Examples), claims 4, 8, 9; and citing Reich, Abstract, 5:1–2, 6:65–67, 7:5–20, 13:30–40, 14:45–60, 15:60–67, 16:1–10, 16:50–60, 17:60–65, 19:1–20, claims 1, 33). The Examiner’s position is that Baker teaches most of the claim elements in its disclosure of applying a composition to (and illuminating), shaping, and measuring the shape retention of hair. *Id.* at 3–6 (focusing on Baker’s Example 55). For example, the Examiner determined that Baker discloses applying a composition of water, stearyl alcohol, sodium lauryl alcohol, 8-hydroxyquinoline, and an active agent to a hair sample. *Id.* at 3–4. 8-hydroxyquinoline is a photoactive catalyst and corresponds to step (a)(ii)

of rejected claim 1; it is also expressly claimed in dependent claim 10. *Id.* at 3, 5–6; *see* Appeal Br. 5, 6. The Examiner determined that Baker teaches active components such as “a fatty amine (i.e. a monoamine), stearamidopropyl dimethylamine (i.e. a diamine with a molecular weight = 368.65, containing a tertiary amine and a secondary amide),” but “does not teach the active agent comprises a diamine which is a primary amine” as in step (a)(i) of rejected claim 1 or “that the diamine [is] 1,7-diaminoheptane,” as in dependent claim 24. Answer 4, 6; *see* Appeal Br. 5, 7. The Examiner determined that Baker teaches exposing such a composition and treated hair to light and shaping the hair, e.g., by wrapping on rods and exposing to ambient light or using a hairbrush configured with LEDs. Answer 5–6.

Regarding the claimed active agent, as specifically recited in claim 24, the Examiner combines Reich with Baker for Reich’s teaching of “functionalizable and crosslinkable polyurethanes formed from a polyurethane intermediate which includes ester groups reacted with an amine group to form amide units (abstract)” and its specific teaching of “an active agent comprising heptanediamine (i.e. 1,7-heptanediamine[]).” *Id.* at 6. The Examiner determined that Reich’s compositions are used in cosmetics and haircare products. *Id.* at 6–7. The Examiner determined that

It would have been *prima facie* obvious to a person of ordinary skill in the art at the time the invention was made to have modified BAKER’s hair treatment method by adding the polyurethane polymer comprising the 1,7-heptanediamine monomer (i.e. an active agent comprising a diamine) to the composition because BAKER teaches inclusion polyacrylic acid and fatty acids as active agents that bind and interact with the thiol groups of the hair and REICH’s polyurethane polymer which comprises the 1,7-heptanediamine monomer is a

compound which has use in cosmetics and is used to affix active agents to adhesive polymers including polyacrylic acid. The skilled artisan would have been motivated to modify BAKER's hair treatment method by adding BAKER's polyurethane polymer which comprises the 1,7-heptanediamine monomer to the composition, with a reasonable expectation of success, in order to adhere to the polyacrylic acid used on BAKER's hair swatches and provide hair care properties as suggested by the combined teachings of BAKER and REICH.

Id. at 7–8; *see id.* at 10–11.

We discern no error in the Examiner's determinations. We address Appellant's arguments below.

Appellant argues that Baker requires removing the photocatalyst composition (by rinsing) before shaping the fibrous material (e.g., hair), while Appellants' invention mechanically shapes the fibrous material (hair) while the photocatalyst composition is still present and photoactivated. Appeal Br. 2–3. This argument is not persuasive.

Even if some embodiments disclosed by Baker have a rinsing step, Appellant's claims do not exclude a rinsing step. Indeed, the claims use the open "comprising" transitional language. *See Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322, 1327 (Fed. Cir. 1999) (The transitional term "comprising" is "inclusive or open-ended and does not exclude additional, unrecited elements or method steps.").

Furthermore, Baker discloses embodiments where hair is soaked in the active agent amine and photocatalyst composition (or it is applied by other techniques), exposed to a light source, then rinsed and allowed to dry, and thereafter properties such as curl recovery or increased rigidity (e.g., after fixating around rods and drying to shape it, as determined by the

Examiner (Final Action 4)) are measured and found to be improved over control samples using no such composition. *See* Baker 48–50 (Examples relating to “Shape Retention” and “Increase[d] Rigidity”); *see also* Baker 2 (disclosing that brushing, perming, relaxing, and styling, i.e., shaping, are “common hair care practices”). Baker’s measured shape retention and rigidity evidence that the activated composition remains working on hair even after rinsing or washing.

Furthermore, even considering that Baker’s examples include the steps of rinsing and washing hair after applying the photocatalyst-active agent composition, Baker is quite clear that, once the hair is treated with the composition and exposed to light, even after “the modified/functionalized substrate is washed and rinsed,” “[t]he modified/functionalized substrate substantially retains the covalently bound reagent after washing and rinsing.” Baker 18:10–23 (discussing Fig. 5). Thus, Appellant’s complained-of rinsing step of Baker would not have the effect of clearing away the composition or foreclosing its functionality.

Moreover, as identified by the Examiner, Baker discloses using an LED-containing hairbrush as an implement to activate the composition. Answer 5–6 (citing Baker 22:10–25). A hairbrush is used to shape hair in the same way Appellant’s Specification describes shaping hair, i.e., “by creasing, curling, straightening, flattening, or otherwise changing the physical orientation of the fibrous material.” *See* Spec. 18:14–15. Thus, Baker teaches simultaneously activating the composition and shaping hair, without any intervening rinsing or washing steps.

Appellant also argues that Reich's invention "requires polyurethanes" and Reich fails to disclose the claimed photocatalyst with its diamine and Baker fails to disclose a functionalized polyurethane, hence there would have been no motivation to combined the prior art. This is not persuasive.

As an initial matter, "[n]on-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references. . . . [The references] must be read, not in isolation, but for what [they] fairly teaches in combination with the prior art as a whole." *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Appellant's attack on missing claim elements in Baker or Reich individually is not persuasive because the Examiner has combined these references' teachings to address the claims.

Reich's composition may include polyurethanes, however, the Examiner is not combining Baker's and Reich's disclosures whole cloth. The Examiner explained that

REICH teaches the active agent, 1,7-heptanediamine, which is used to the generate REICH's polyurethanes. These polyurethane polymers which comprise 1,7-heptanediamine monomers may be further reacted with polyacrylic acid which is an additional active agent taught by BAKER for inclusion in the composition used in her method. The ordinary skilled artisan would be motivated to do so to provide improved hair care properties to BAKER's method as taught by REICH, and to affix active agents to BAKER's polyacrylic acid.

Answer 10. Thus, the Examiner has reasonably explained the motivation to combine elements of Baker's and Reich's disclosures to improve Baker's composition, which can contain PLA. Appellant has not persuasively identified why this is not correct. *See, e.g.*, Reply 1–2.

For the reasons above, we are not persuaded that the Examiner erred in determining obvious and conclude a prima facie case therefor has been made and not rebutted.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	References/ Basis	Affirmed	Reversed
1, 3-5, 7-12, 14-17, 18- 21, 24, 25	103	Baker, Reich	1, 3-5, 7-12, 14-17, 18- 21, 24, 25	
Overall Outcome			1, 3-5, 7-12, 14-17, 18- 21, 24, 25	

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)(1)(iv).

AFFIRMED