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EXAMINER

LOPEZ, RICARDO E.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES G. CARLSON, MICHAEL R. BERRIGAN,
MICHAEL D. CRANDALL, IGNATIUS A. KADOMA,
YONG K. WU, and DANIEL J. ZILLIG

Appeal 2015-002499
Application 12/808,013
Technology Center 1700

Before TERRY J. OWENS, CHRISTOPHER L. OGDEN, and
JENNIFER R. GUPTA, *Administrative Patent Judges*.

GUPTA, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's decision² finally rejecting claims 1, 3, 7, and 8. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

The claims are directed to a multi-component fiber. Claim 1, reproduced below, is illustrative of the claims on appeal.

¹ Appellants identify the real parties in interest as 3M Company and its affiliate 3M Innovative Properties Company. Appeal Brief filed August 14, 2014 ("Br."), 2.

² Final Office Action mailed March 24, 2014 ("Final Act.").

1. A multi-component fiber comprising at least first and second polymers wherein the first polymer is a sheath of the fiber and the second polymer is a core of the fiber, wherein the first polymer is selected from the group consisting of an ethylene(meth)acrylic acid copolymer, ethylene(meth)acrylic acid ionomer, a blend of ethylene(meth)acrylic acid ionomer and polyamide, and a blend of ethylene(meth)acrylic acid ionomer polyvinylidene fluoride; and the second polymer is selected from the group consisting of a polyamide, a polyphenylene sulfide, further wherein the fiber has a length of up to 20 mm and an average diameter of up to 100 micrometers.

App. Br. (Claims Appendix) 9.

DISCUSSION

Claims 1, 3, 7, and 8 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Brown et al. (US 5,662,978, issued Sep. 2, 1997) (hereinafter “Brown”) in view of Patel et al. (US 2002/0147273 A1, published Oct. 10, 2002) (hereinafter “Patel”). Final Act. 2–4.

Appellants argue the claims as a group. We select claim 1 as representative of the rejected claims, and the remaining claims on appeal will stand or fall with claim 1. (*See* 37 C.F.R. § 41.37(c)(1)(iv) (2015)).

The Examiner finds that Brown teaches conjugate fibers which may be in a sheath/core configuration and formed from polyolefins and polyamides (Brown Abstract). Final Act. 2–3. The Examiner, however, acknowledges that Brown does not expressly disclose the sheath as being one of the polymers recited in claim 1. *Id.* at 3. In addition, the Examiner finds that Brown teaches that its fibers may be “staple length or longer” (Brown 6:55–58) and have an average diameter of from about 0.5 microns to about 50 microns (*Id.* at 2:1–6). Final Act. 3. The Examiner finds that Patel

teaches fibers produced from a composition comprising a blend of a substantially hydrogenated block polymer and a polyolefin, such as ethylene/acrylic acid (EAA) and ethylene/methacrylic acid (EMAA) ionomers (*Id.* ¶¶ 57–58, 63), which may be used in a conjugated configuration, as a core or sheath (Patel Abstract, ¶ 206). *Id.* at 4. The Examiner finds that one of ordinary skill in the art would have been motivated, based on the teachings of Patel (Patel ¶ 12), to use ethylene/acrylic acid (EAA) and ethylene/methacrylic acid (EMAA) ionomers as the sheath forming component in Brown’s conjugate fiber to provide the fiber with improved strength and melt processability. *Id.*

Appellants argue that the Examiner relies on Brown’s teaching “staple length fibers” to meet the fiber length recited in claim 1, but fails to provide any evidentiary support that “staple length fibers” is known to have a length that meets the claimed range of up to 20 mm. Br. 6. The Examiner responds to Appellants argument by citing a U.S. patent publication, Kouta et al. (US 2008/0167634 A1, published July 10, 2008) (hereinafter “Kouta”), as evidence that it was well known in the art that staple fibers have lengths of 0.1 to 30 mm (Kouta ¶ 64), which substantially overlaps the range of lengths recited in claim 1. Ans. 5. Appellants have not filed a Reply Brief, and thus fail to explain why the noticed fact was not well-known at the time of the invention.

Appellants argue that the Examiner’s motivation for combining the references, i.e., improved strength and melt processability, is improper because the Examiner has not shown that Patel’s improvements would have been desirable to Brown’s fiber or that Brown would retain such improvements after being modified as proposed by the Examiner. Br. 7.

“Obviousness does not require [an] absolute predictability of success . . . *all that is required is a reasonable expectation of success.*” *In re Kubin*, 561 F.3d 1351, 1360 (Fed. Cir. 2009) (citing *In re O’Farrell*, 853 F.2d 894, 903–904 (Fed. Cir. 1988)). Brown expressly discloses that strength is a desirable characteristic for its conjugate fiber which are used as protective covers for vehicles and equipment. Brown 1:28–31. Brown teaches that its conjugate fiber preferably includes a polyolefin sheath (Brown Abstract), but does not specify the particular polyolefins recited in claim 1. Patel teaches that its composition, which can include a polyolefin as recited in claim 1 (e.g., EAA or EMAA), provides improved strength properties in fibers produced therefrom (Patel ¶ 12), and can be used in a conjugated configuration as a core or sheath (*Id.* at ¶ 206). On this record, Appellants have not provided sufficient explanation or evidence to persuade us that it would have been unreasonable to expect Patel’s composition to provide improved strength when used as the sheath material in Brown’s conjugate sheath/core configuration.

For the reasons stated in the Final Office Action, the Examiner’s Answer, and above, a preponderance of the evidence, including due consideration of Appellants’ arguments, favors the Examiner’s conclusion of obviousness as to claims 1, 3, 7, and 8. Accordingly, we affirm the rejection of claims 1, 3, 7, and 8 under 35 U.S.C. § 103(a) over Brown in view of Patel.

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