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3M INNOVATIVE PROPERTIES COMPANY
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EXAMINER
BELL, WILLIAM P

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte 3M INNOVATIVE PROPERTIES COMPANY

Appeal 2016-008120
Application 14/363,132
Technology Center 1700

Before LINDA M. GAUDETTE, CHRISTOPHER L. OGDEN, and DEBRA L. DENNETT, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's decision[2] finally rejecting claims 1, 2, 4–9, and 11–22. We have jurisdiction under 35 U.S.C. § 6(b).

For the reasons explained below, we affirm the rejections of claims 1, 2, 4–9, and 11–22, but denominate the affirmed rejections as NEW GROUNDS OF REJECTION pursuant to 37 C.F.R. § 41.50(b).

The invention relates to methods of bonding polyester substrates together. Specification filed June 5, 2014 ("Spec."), 1:8. Claim 1, the sole independent claim on appeal, is reproduced below:

1. A method comprising:

externally delivering thermal energy onto a first major bonding surface of a first moving polyester substrate so that the first major bonding surface of the first moving substrate is a heated surface;

externally delivering thermal energy onto a first major bonding surface of a second moving polyester substrate so that the first major bonding surface of the second moving substrate is a heated surface;

bringing the heated first major bonding surface of the first polyester substrate into proximity to the heated first major bonding surface of the second polyester substrate;

and,

self-bonding the first polyester substrate and the second polyester substrate to each other to form a polyester laminate,

wherein the first polyester substrate and/or the second polyester substrate comprises a polyester foam with a density of less than 0.2 g/cc.

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[1] Appellant identifies the real party in interest as "3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota." Appeal Brief filed Jan. 25, 2016 ("App. Br."), 3.

[2] Final Office Action mailed Sep. 17, 2015.

App. Br. 13 (Claims App'x).

The claims stand finally rejected under pre-AIA 35 U.S.C. § 103(a) as follows:

1. claims 1, 2, 4–9, 12–16, and 19–21 over Haverty et al. (US 2008/0254307 A1, pub. Oct. 16, 2008 ("Haverty")) in view of Longo et al. (US 2010/0003378 A1, pub. Jan. 7, 2010 ("Longo"));

2. claim 11[3] over Haverty in view of Longo and Perman et al. (US 5,670,102, iss. Sep. 23, 1997 ("Perman")); and

3. claims 17, 18, and 22 as unpatentable over Haverty in view of Longo[4] and Ouderkirk et al. (US 4,822,451, iss. Apr. 18, 1989 ("Ouderkirk")); Final Act. 2–6.

The Examiner, referring to the description of Haverty Figure 1, finds Haverty discloses a method of bonding major surfaces of two moving polyester substrates by heating the surfaces and bringing them into contact, thereby forming a laminate. Final Act. 2–3 (citing Haverty ¶¶ 50, 54–58, 63–65). The Examiner finds the polyester substrates may comprise layers, including foam and film layers formed by extrusion. *Id.* at 3 (citing Haverty ¶¶ 74, 76, 78). The Examiner acknowledges "Haverty does not explicitly teach that the foam layers are polyester foams with a density of less than 0.2 g/cm^2" as required by appealed claim 1. *Id.* The Examiner finds Longo discloses laminates formed by heat-treatment

[3] In an amendment filed August 25, 2015, claim 11 was amended to change its dependency to claim 1. Claim 11, as it appears in the Claims Appendix to the Appeal Brief, is erroneously identified as dependent from cancelled claim 10.
[4] The Examiner does not cite Longo in the statement of the rejection. We find this omission to be harmless error, as the Examiner makes reference to the rejection of claim 1, which is based on the combination of Haverty and Longo. *See* Final Act. 6.

comprising a polyester film and a polyester foam having a density of less than 0.2 g/cm^2. *Id.* (citing Longo ¶¶ 45, 54–58). The Examiner determines one of ordinary skill in the art at the time of the invention would have modified Haverty's method "by combining polyester films and polyester foam layers in any combination and in any number of layers for the benefit of producing a structure that can be easily recycled." *Id.* (citing Longo ¶ 57).

Appellant argues Haverty's Figure 1 embodiment requires the application of pressure P_2 on the order of 1000 psi during the lamination process to ensure that oriented layers 101a-e do not shrink unacceptably. App. Br. 7; *see generally id.* at 5–11. Appellant argues one of ordinary skill in the art would have expected "a polyester foam with a density of less than 0.2 g/cc," as recited in appealed claim 1, to be crushed at this pressure. *Id.* at 6. In support of its argument, Appellant cites to technical data sheets for three representative polyester foams having densities "at or even slightly above" 0.2 g/cc. *Id.* at 5–6.[5] Appellant argues the data sheets evidence that one of ordinary skill in the art would have understood a low density polyester foam could withstand only about half of the clamping force (pressure P_2) applied in Haverty's process. *Id.* at 6. Appellant contends the ordinary artisan would not have attempted to reduce pressure P_2 in Haverty's process to a level compatible with a low density polyester foam because such modification would have rendered Haverty's method unsatisfactory for its intended purposed of restraining oriented layers 101a-e to prevent unacceptable shrinkage. *Id.* at 7.

The Examiner, in response, finds Haverty teaches that a pressure of 1000 psi is preferred, but not required. Answer mailed July 15, 2016 ("Ans."), 2. The Examiner further finds Haverty teaches that "pressure P_2 is a results-effective

[5] Appellant states that the referenced data sheets were submitted with an Information Disclosure Statement filed Aug. 25, 2015. *See id.* at 5 n.4.

variable to be optimized for the particular materials being laminated, as well as the particular speed of transport of the materials through the apparatus and the temperatures to which the materials are heated." *Id.* at 3. In support of these findings, the Examiner cites paragraph 65 of Haverty which reads, in relevant part: "[T]he value of P_2 will vary as a function of the material used for the oriented layers 101*a-e*, the speed of the material through the lamination device 100, and the temperatures generated by the heaters 125, 130. However a pressure of 1,000 psi or greater is preferable for P_2" (Haverty ¶ 65).

Appellant contends "the dispositive issue is not whether an ordinary artisan would [have been] led to use a laminating pressure 'below' 1000 psi. The issue is whether the artisan would [have been] led to use a pressure that is so low as to allow a low-density polyester foam to survive (i.e., a pressure of 500 psi or less)." App. Br. 10. Appellant argues there is no evidence that an ordinary artisan would have expected movement and shrinkage of layers 101a-e could be restricted sufficiently at the reduced pressures necessary for a low density polyester foam to survive Haverty's Figure 1 embodiment. Reply Brief filed Aug. 25, 2016 ("Reply Br."), 2–3. Appellant further argues "Haverty provides no suggestion that the unwanted effect of reduced lamination pressure (allowing unacceptable shrinkage of oriented films) can be compensated for by changes in line speed and/or temperature." *Id.* at 3.

We have considered Appellant's arguments and evidence, but are not persuaded of error in the Examiner's conclusion that the claimed invention would have been obvious in view of the combined teachings of Haverty and Longo. Appellant's principal argument is that the ordinary artisan would not have had a reasonable expectation of success in using Haverty's Figure 1 embodiment to form a laminate comprising a "a polyester foam with a density of less than 0.2 g/cc"

(claim 1). *See generally*, App. Br. 5–11. In rejecting the claims, however, the Examiner relies not only on Haverty, but also on Longo's disclosure of using laminates comprising a low-density PET foam (i.e., "from 1.0 to 0.1 g/cm^3" (Longo ¶ 45)) and an oriented PET to form molded articles. *See* Final Act. 3; Advisory Action mailed Nov. 27, 2015 ("Advisory Act."), 2. The Examiner relies on Longo's disclosure that these materials can be heat laminated. Final Act. 3 (citing Longo ¶ 58). Longo also teaches, however, that "[b]onding of the thermoplastic film with the foamed polyester sheet can be carried out by any technique conventionally used in the art, including: . . . in-line lamination." Longo ¶ 58. Given Longo's disclosure that a low-density polyester foam can be laminated to a thermoplastic film using any conventional technique, including in-line lamination, we are not convinced of error in the Examiner's finding that the ordinary artisan would have had a reason, and possessed the requisite skills, to adjust pressure P_2 in Haverty's Figure 1 embodiment to a level that would not crush the low density polyester foam material, but still would prevent unacceptable shrinkage of the oriented polyester film.

Accordingly, we AFFIRM the rejections under 35 U.S.C. § 103(a) of: (1) claims 1, 2, 4–9, 12–16, and 19–21 as unpatentable over Haverty in view of Longo; (2) the rejection of claim 11 as unpatentable over the same references, further in view of Perman; and (3) the rejection of claims 17, 18, and 22 as unpatentable over the same references, further in view of Ouderkirk. Because we recognize our Decision relies on facts and reasons not expressly stated by the Examiner, we denominate the affirmed rejections as NEW GROUNDS OF REJECTION pursuant to 37 C.F.R. § 41.50(b).

37 C.F.R. § 41.50(b) provides that an appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> *(1) Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .
> (2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

AFFIRMED;
37 C.F.R. § 41.50(b)