UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/363,123	06/05/2014	James M. Jonza	68117US004	4161

32692 7590 11/17/2017
3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER
ZHANG, MICHAEL N

ART UNIT	PAPER NUMBER
1781	

NOTIFICATION DATE	DELIVERY MODE
11/17/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES M. JONZA, DUANE D. FANSLER,
JOEL A. GETSCHEL, IBRAHIM S. GUNES, JEFFREY P. KALISH,
MATTHEW J. SCHMID, MARK A. STROBEL, and CHAD R. WOLD

Appeal 2017-001492
Application 14/363,123
Technology Center 1700

Before DONNA M. PRAISS, WESLEY B. DERRICK, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

DERRICK, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

STATEMENT OF THE CASE

Appellants[2] appeal under 35 U.S.C. § 134 from the Examiner's decision finally rejecting under 35 U.S.C. § 103 claims 1–4, 8, 11–20, and 22–24 over Hayashi[3] in view of Longo,[4] and of claims 5–7, 9, 10, and 21 in

---

[1] Appellants identify Appeal No. 2016-008120 (Application No. 14/363,132) as a related proceeding. Supplemental Reply Brief filed November 8, 2016.
[2] 3M Company and its affiliate 3M Innovative Properties Company are identified as the real party in interest. App. Br. 3.
[3] Hayashi et al., US 5,000,991, issued March 19, 1991.
[4] Longo et al., US 2010/0003378 A1, published January 7, 2010.

further view of additional cited references. Final Office Action issued December 3, 2015 ("Final Act."), 5–8. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

THE INVENTION

The subject matter of the claims on appeal relates to a monolithic multilayer article including a thermoformable cellular polyester core layer. Specification filed June 5, 2014 ("Spec."), Abstract.

Claim 1—the sole independent claim—is representative.

> 1. A thermoformable monolithic multilayer article comprising:
>
> a thermoformable cellular polyester core layer with a thickness of at least 10 mm;
>
> a first polyester skin layer that comprises a dense, uniaxially-oriented or biaxially-oriented polyester film with a thickness of at least 200 microns and that is on a first major side of the polyester core layer;
>
> and,
>
> a second polyester skin layer that comprises a dense, uniaxially-oriented or biaxially-oriented polyester film with a thickness of at least 200 microns and that is on a second major side of the polyester core,
>
> wherein the core layer and the first skin layer are self-bonded to each other and wherein the core layer and the second skin layer are self-bonded to each other.

Appeal Brief filed April 1, 2016 ("App. Br."), 11 (Claims Appendix).

Dependent claim 4 further recites that "the first and second skin layers each consist of a biaxially-oriented polyester film."

DISCUSSION[5]

Appellants argue the claims as a group on the basis of independent claim 1, adding separate argument only as to claim 4. App. Br. 2–7. Because the Examiner's ground of rejection as to claim 1 relies on the obviousness of biaxially oriented polyester films as the first and second skin layers, as detailed below, all claims stand or fall together on the basis of the propriety of the rejection of independent claim 1.

Having reviewed the grounds of rejection as set forth by the Examiner, Appellants' arguments, and the Examiner's response, we are unpersuaded that the Examiner erred reversibly in determining that the claimed subject matter is unpatentable as obvious over the cited prior art. We add the following.

As relied on by the Examiner, Hayashi teaches a moldable article comprising a polyethylene terephthalate core and two non-foamed (dense) polyester skin layers, each formed on a major side of the core layer. Ans. 2 (citing Hayashi, Abstract, col. 4, ll. 46–51, col. 10, ll. 9–10). The Examiner further finds Hayashi teaches that the foam and films are self-bonded together and can be melt bonded together. Ans. 2 (citing Hayashi col. 10, ll. 15–38). As to the thickness of the polyester skin layers, the Examiner relies on Hayashi's teaching that "the skin layers can range from 10 to 500 microns thick." Ans. 2 (citing Hayashi col. 10, ll. 9–10). As to the thickness of the thermoformable cellular polyester core, the Examiner relies on Hayashi's teaching that the "thickness of the foam sheet is thicker than the

[5] We refer to the Specification, the Final Office Action, the Appeal Brief, the Examiner's Answer dated September 23, 2016 ("Ans."), and the Reply Brief filed November 3, 2016 ("Reply Br.").

skin layers and is 2 to 500 times thicker than a non-foam layer" to arrive at a range of foam core thicknesses that encompasses the recited thickness of at least 10 mm. Ans. 2 (citing Hayashi col. 10, ll. 12–14). The Examiner's position, supported by the record cited in this appeal, is that the encompassing thickness ranges of the polyester skins and cellular polyester core taught by Hayashi render the claimed thicknesses prima facie obvious. Ans. 2.

The Examiner also finds that Longo similarly teaches a moldable article comprising polyester foam to which polyester skin layers can be applied. Ans. 3 (citing Longo, Abstract, ¶¶ 54, 56). The Examiner further finds Longo teaches these films can be oriented films, and that biaxially orienting polyester films improve mechanical and thermal resistance of the polyester film. Ans. 3 (citing Longo ¶¶ 54, 56, 65).

The Examiner concludes that one of ordinary skill in the art, armed with the knowledge of Hayashi and Longo, would have found it obvious at the time of the invention to have used a biaxially oriented polyester film on both sides of a moldable article comprising a polyester foam layer to obtain the benefit of the improved mechanical and thermal resistance. Ans. 3.

Appellants generally contend that the Examiner erred in finding (1) that the cited prior art teaches or suggests that the moldable article with polyester skin layers can have a foam sheet thickness of more than 5 mm and (2) that Longo teaches or suggests using biaxially oriented polyester skin layer in thermoformable multilayer composite. *See generally* App. Br.; Reply Br.

Appellants contend that "the cited references guide the ordinary artisan away from a multilayer article with a cellular core layer of [a

thickness of at least 10 mm because] . . . Hayashi states . . . [that] the thickness of the foam sheet core is 'generally not more than 5 mm'" (App. Br. 5 (citing Hayashi col. 10, ll. 7–9, 11–13)) and that "Longo is limited to a maximum foam thickness of 5 mm" (App. Br. 6 (citing Longo ¶ 46)). Appellants argue the Examiner's basis for the thickness of the foam sheet "is overridden by Hayashi's direct teaching that the foam sheet itself should not be more than 5 mm in thickness" (App. Br. 5; *see also* App. Br. 7; Reply Br. 5) and that "[a]n ordinary artisan would not believe that the term 'generally' would extend the disclosed value to a value that is twice the stated upper limit" (*id.* at 7). Appellants further argue that the artisan of ordinary skill would not seek to use a foam sheet thickness as thick as that claimed due to increased flexural stiffness and difficulties with processing using rollers. App. Br. 6; *see also* Reply Br. 4–5 (contending the necessary facts and principles required to support Appellants' arguments were well known in the art).

Appellants also argue that the Examiner's reasoning is faulty as a matter of logic because, taken to its extreme, taking the highest value of film thickness and the highest ratio of foam to film thickness leads to a maximum foam thickness of 250 mm, which would be illogical considering that Hayashi seeks to use the foam sheeting to make heat-resistant food containers, an issue raised for the first time in Appellants' Reply Brief. *See generally* App. Br.; Reply Br. 2–3 (citing Hayashi, Abstract, col. 1, ll. 20–22, col. 2, ll. 50–54, col. 9, ll. 62–67, col. 11, ll. 1–8). In further support of the argument that the Examiner's reasoning is illogical, Appellants point to the correspondence of the thickness of 5 mm to the highest foam/film ratio

(500) multiplied by the thickness of the thinnest film (10 microns), also first raised in the Reply Brief. *See generally* App. Br.; Reply Br. 3.

On this record, we are not persuaded of reversible error because, contrary to Appellants' arguments, Hayashi's disclosure is not limited to an article with polyester skin layers having a foam sheet thickness of no more than 5 mm. As is manifest in the plain language of the expression "generally not more than 5 mm" (Hayashi col. 10, ll. 12–13), the foam sheet thickness is not limited to 5 mm or less, even if that is preferred. "[I]n a section 103 inquiry, 'the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.'" *Merck & Co. Inc. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (*quoting In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976)). Likewise, it is manifest that the disclosed range of thicknesses for non-foam layers of "10 to 500 microns" and that "[i]t is preferred that the thickness of the foam sheet layer is 2 to 500 times that of the non-foam layer" (Hayashi col. 10, ll. 9–14) constitutes disclosure of a foam sheet layer of thicknesses between 20 and 250,000 microns.

We have considered Appellants' further arguments that difficulties due to flexural stiffness and difficulties with processing due to rollers, but find them unpersuasive on this record in light of the disclosure of alternative methods of processing in both Hayashi and Longo, as noted by the Examiner (Ans. 8), and in the absence of evidence both that difficulties would be expected, and that such difficulties, whatever they might be, would not have been overcome by the routine exercise of ordinary skill. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) ("Attorney's argument . . . cannot take the place of evidence.").

As to Appellants' arguments grounded on the intended use of Hayashi's product and the cited correspondence between disclosed ratios and the thickness of 5 mm, on this record, we determine there is no good cause for why they could not have been raised in the Appeal Brief, as they address positions taken by the Examiner not only in the Answer, but also in the Final Office Action. *See, e.g.*, Final Act. 2. We deem these arguments waived for purposes of the present appeal. 37 C.F.R. § 41.41(b)(2); *cf. McBride v. Merrell Dow and Pharms., Inc.*, 800 F.2d 1208, 1211 (D.C. Cir. 1986) (internal citations omitted) ("Considering an argument advanced for the first time in a reply brief . . . is not only unfair to appellee but also entails the risk of an improvident or ill-advised opinion on the legal issue tendered.").

Even if these arguments had been properly raised, however, they would not have persuaded us of reversible error because, contrary to Appellants' position, the cited portions of Hayashi do not limit it to providing articles for only one intended purpose. *Merck v. Biocraft*, 874 F.2d at 807. Likewise, we find no such limitation to a particular purpose, or to a particular upper limit for thickness, in claim 1 or 4. *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) ("The invention disclosed in Hiniker's written description may be outstanding in its field, but the name of the game is the claim.").

It further follows that we find no support for any teaching away in the preferred embodiments of Hayashi and Longo having a foam sheet layer of 5 mm (or less) because these teachings do not reasonably lead the skilled artisan away from the invention. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1364 (Fed. Cir. 2006)

("We will not read into a reference a teaching away from a process where no such language exists."). "A reference does not teach away . . . if it merely expresses a general preference for an alternative invention but does not 'criticize, discredit, or otherwise discourage' investigation into the invention claimed." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (*quoting In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)).

In contending that the Examiner erred in finding Longo teaches or suggests using biaxially oriented polyester skin layers in a thermoformable multilayer composite, Appellants further contend that paragraph 56 of Longo "only mentions oriented films in general and does not mention *biaxially* oriented films" and that the mention of biaxially oriented films in paragraphs 65 and 66 "concern attaching a film to an *already-thermoformed* article." App. Br. 9. Appellants argue, accordingly, that the failure to specifically mention biaxially oriented films as suitable for skins of the thermoformable foam layer would lead the ordinary artisan to believe they must not be suitable, and that this understanding is confirmed by the further "mention (in paragraph 0058) that thermoplastic films of *amorphous* polyester are preferred for use as skins of a thermoformable foam layer." App. Br. 9.

On this record, we are unpersuaded of reversible error. As properly applied, "the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill would employ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007); *see also In re Preda*, 401 F.2d 825, 826 (CCPA 1968) ("[I]t is

proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom."). In this case, the Examiner's findings are supported by Longo's teachings to use polyester film on both sides of a foamed polyester core (Longo ¶ 54), that the films can be oriented (Longo ¶ 56), and that an oriented polyester film can be biaxially oriented and that this improves mechanical and/or thermal resistance (Longo ¶ 65). On this basis, as expressed by the Examiner in, *inter alia*, the stated second reason on page 10 of the Answer, we affirm this ground of rejection. We are not persuaded by Appellants that the disclosure in paragraph 65 of Longo relating to biaxial orienting polyester film is limited to a different polyester film than those in preceding paragraphs 54 and 56 for the reasons articulated by the Examiner. Ans. 10.

Appellants' contention that an ordinary artisan would draw from the omission of the particular type of oriented film—biaxially oriented film—that such must be unsuitable for use as the film bonded to the foamed polyester core, is also unpersuasive because it is unsupported attorney argument. *Pearson*, 494 F.2d at 1405. Likewise, we find the preference for amorphous film in paragraph 58 of Longo no sound basis to find it teaches away. *DyStar Textilfarben*, 464 F.3d at 1364.

On balance, the evidence of record weighs most heavily in favor of the Examiner's conclusion of obviousness of claim 1. For the reasons discussed above, claims 2–24 fall with claim 1.

DECISION

The Examiner's rejections of the claims under 35 U.S.C. § 103(a) are AFFIRMED.

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