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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEFANOS L. SAKELLARIDES,
PAIGE MANUEL, and JAN MORITZ

Appeal 2019-004502
Application 15/336,249
Technology Center 1700

Before MICHAEL P. COLAIANNI, GEORGE C. BEST, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–16 and 21–30 of Application 15/336,249. Final Act. (August 30, 2018).² We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we *affirm*.

¹ We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Toray Plastics (America), Inc. as the real party in interest. Appeal Br. 2.

² Claims 17–20 are withdrawn from consideration and, thus, are not subject to the appealed rejections. Final Act. 1; Appeal Br. 4.

I. BACKGROUND

The '249 Application describes biaxially-oriented films, which include a crystalline polyester, such as crystalline polyethylene terephthalate (PET). *See* Spec. ¶ 2. According to the Specification, the described biaxially-oriented films are said to have a lower resistance to stretching and a softer feel. *Id.* The '249 Application describes that the biaxially-oriented films have been used: (i) to package fresh meat products or (ii) as a film laminate's layer in a decorated balloon. *Id.* ¶¶ 3, 4. According to the Specification, polyester films for these purposes require a higher degree of formability, while exhibiting a high moisture barrier. *Id.* ¶ 6.

Claim 1 is representative of the '249 Application's claims and is reproduced below from the Claims Appendix of the Brief.

1. A formable biaxially-oriented film, the film comprising:

a first layer comprising from about 10 to about 60 wt.% crystalline polyester and from about 40 to about 90 wt.% of a formability enhancer to assist in increasing the polymeric chain flexibility, the formability enhancer having a melting point less than about 230°C,

wherein the film has a MD and a TD Young's Modulus of at least 10% lower than a crystalline polyester film in the absence of the formability enhancer,

wherein the MD stretching ratio of the film is from about 3 to about 4.5 and the TD stretching ratio of the film is from about 3 to about 4.5.

Appeal Br. (Claims App. A1).

II. REJECTIONS

On appeal, the Examiner maintains the following rejections:

1. Claims 1–3, 5–16, and 21–30 are rejected under 35 U.S.C. § 103 as unpatentable over Sargeant,³ Itoh,⁴ and Chicarella.⁵ Final Act. 3–8.⁶
2. Claim 4 is rejected under 35 U.S.C. § 103 as unpatentable over Sargeant, Itoh, and Wijay,⁷ as evidenced by HYTREL[®] Product Reference Guide.⁸ Final Act. 9.

Appellant argues for the reversal of the rejections of claims 1–16 and 21–30 on the basis of limitations present in independent claim 1. Appeal Br. 7–18. We select claim 1 as representative. 37 C.F.R. § 41.37(c)(1)(iv). Accordingly, claims 2–16 and 21–30 will stand or fall with claim 1.

³ US 2007/0287017 A1, published Dec. 13, 2007.

⁴ US 2005/0118442 A1, published June 2, 2005.

⁵ US 2009/0022919 A1, published Jan. 22, 2009.

⁶ The Examiner included grounds for the rejection of claim 21. Final Act. 7–8; *see also* Appeal Br. 3 fn.1. The Examiner, however, omitted claim 21 from the Final Office Action’s statement of the rejection. Final Act. 3; *see also* Appeal Br. 3 fn.1. Accordingly, we view the Examiner’s omission of claim 21 from the list of rejected claims as a clerical error.

⁷ US 6,004,339, issued Dec. 21, 1999.

⁸ *DuPontTM HYTREL[®] Thermoplastic Polyester Elastomer Product Reference Guide* (hereinafter “HYTREL[®] Product Reference Guide”).

III. DISCUSSION

A. Rejection of claims 1–3, 5–16, and 21–30 as unpatentable over the combination of Sargeant, Itoh, and Chicarella.

According to Appellant, the combination of Sargeant, Itoh, and Chicarella does not describe or suggest the following elements of claim 1: (i) “a first layer comprising from about 10 to about 60 wt.% crystalline polyester and from about 40 to about 90 wt.% of a formability enhancer,” (ii) “the MD stretching ratio of the film is from about 3 to about 4.5 and the TD stretching ratio of the film is from about 3 to about 4.5,” and (iii) “the film has a MD and a TD Young’s Modulus of at least 10% lower than a crystalline polyester film in the absence of the formability enhancer.” Appeal Br. 7–8.

First, Appellant argues that neither Sargeant nor Itoh describes or suggests the claimed first layer’s ranges of crystalline polyester and formability enhancer. Appeal Br. 8–13; Reply Br. 2–4.

In the Final Action, the Examiner found that Sargeant and Itoh describes or suggests the claimed crystalline polyester’s and formability enhancer’s ranges. Final Act. 3–5. The Examiner found that Sargeant teaches a biaxially-oriented film, which may be formed from mixing two different polyesters, such as PET and polybutylene terephthalate (PBT). *Id.* at 4 (citing Sargeant ¶ 33). Likewise, the Examiner similarly found that “Itoh teaches a biaxially[-]oriented polyester film composed of 10 to 90 wt[.]% of a polyester (A) composed of PET and 90 to 10 wt[.]% of a polyester (B) composed of . . . (PBT), which overlaps with the claimed ranges.” Final Act. 4.

The Examiner found, *inter alia*, that Itoh “provides a film with improved mechanical strength.” *Id.* (citing, *e.g.*, Itoh Abstract). The

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Examiner determined that it would have been obvious to one of ordinary skill in the art at the time of the invention to have blended Sargeant's crystalline PET with a polyester formability enhancer, such as PBT, in the claimed ranges of from about: (i) 10 to 60 wt.% for the crystalline PET and (ii) 40 to 90 wt.% of PBT, to provide a biaxially-oriented film with Itoh's improved mechanical properties. Final Act. 5.

Appellant argues that “[t]he combination of Sargeant and Itoh is improper because (1) the processes of forming the mixtures in Sargeant and Itoh are different.” Appeal Br. 9; Reply Br. 3. In particular, Appellant contrasts Sargeant's single extrusion method with Itoh's method of separately extruding PET and PBT and then combining these melt streams. Appeal Br. 10. According to Appellant, Sargeant initially dry mixes two types of polyester pellets together, with melting thereafter. *Id.* Appellant argues that Itoh's separate extrusions for PET and PBT avoids transesterification issues and undesirable whitening, which can result from Sargeant's dry blended method. *Id.* Appellant concludes that Itoh's separate extrusions process teaches away from Sargeant's dry blended process. *Id.* at 11.

These arguments are not persuasive.

The teachings of a reference that arguably teaches away from a claimed feature must be weighed alongside the teachings of a cited reference that teaches the propriety of employing that feature. *Para-Ordnance Mfg., Inc. v. SGS Imps. Int'l, Inc.*, 73 F.3d 1085, 1090 (Fed. Cir. 1995). For a reference to “teach away,” it must criticize, discredit, or otherwise discourage the claimed solution. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004).

In this case, the Examiner relied on Itoh for teaching the propriety of blending PET and PBT in certain wt.% ranges to attain, *inter alia*, improved mechanical strength. Final Act. 4 (citing, e.g., Itoh Abstract). Appellant does not direct our attention to any teaching in Sargeant that criticizes, discredits, or discourages blending PET and PBT in Itoh's wt.% ranges. We, furthermore, agree with the Examiner that claim 1 is drawn to a biaxially-oriented film, but not to a process of manufacturing the claimed film.

Answer 12.

On this record, Itoh's alleged teaching away from a dry blending method, which may affect features not recited in claim 1, is outweighed by Itoh's teachings regarding the propriety of blending PET and PBT in certain wt.% ranges to attain desirable mechanical properties.

Appellant argues that the combination of Sargeant and Itoh is also improper because "(2) Sargeant is directed to a much narrower use[] than the wide variety of use[s] in Itoh." Appeal Br. 9; *see* Reply Br. 3. In particular, Appellant argues that Sargeant's gas barrier laminates for packaging films is narrower in scope than Itoh's films for food packaging, industrial use, optical use, electrical materials, form processing, and in a film laminated metal sheet. Appeal Br 11.

We are not persuaded by these arguments because Sargeant, like Itoh teaches a biaxially-oriented polyester film comprising a blend of PET and PBT, which can be used for *food packaging*. Answer 13; *see also* Sargeant claims 13–21, ¶¶ 3, 4, 33; Itoh Abstract, ¶¶ 1, 40.

Appellant argues that the combination of Sargeant and Itoh is also improper because "(3) Sargeant . . . is directed to specific teachings in its films and one skilled in the art would not [have] look[ed] to modify the film compositions of Sargeant with Itoh without any teaching or motivation to do

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the same.” Appeal Br. 9; *see* Reply Br. 3. In particular, Appellant argues that Sargeant only exemplifies a formability enhancer concentration of “at most 3 wt.% and has no other teachings coming anywhere near the claimed about 40 wt.% to 90 wt.% . . . recited in claim 1.” Appeal Br 12; *see also id.* at 9.

These arguments are not persuasive.

In an obviousness inquiry, the fact that a specific embodiment is taught to be preferred is not controlling, since all disclosures of the prior art, including non-preferred embodiments, must be considered. *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (citing *In re Lamberti*, 545 F.2d 747, 750, (CCPA 1976)).

We find that the Examiner’s proposed modification is reasonable because Sargeant’s teachings do not limit the formability enhancer concentration to 3 wt.%. *See Merck*, 874 F.2d at 807. Rather, Sargeant discloses that the two polyesters of a “high crystalline layer are . . . selected from the group consisting of polyethylene terephthalate [(PET)], polybutylene terephthalate [(PBT)], [etc.]. . . mixtures, copolymers and combinations thereof.” Sargeant ¶ 33 (emphasis added); *see In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992) (a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom). Appellant, therefore, does not identify reversible error in the Examiner’s determination that it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sargeant’s biaxially-oriented film with

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Itoh's blended PET and PBT wt.% ranges to attain improved mechanical properties.⁹

Second, Appellant argues that neither Sargeant, Itoh, nor Chicarella describes or suggests the claimed biaxially-oriented film's MD and TD stretching ratios. Appeal Br. 13–14; Reply Br. 4–5.

In the Final Action, the Examiner found that Chicarella and Sargeant each describe biaxially-oriented polyester films, which are useful as gas barriers. Final Act. 6. The Examiner found Chicarella describes or suggests that the polyester film “may be extruded and preferably stretched from 2 to 5 times in the longitudinal direction and 2 to 5 times in the transverse direction,” which “corresponds to the MD and TD stretching ratios.” *Id.* The Examiner found Chicarella teaches or suggests that such biaxial stretching provides a crack resistant polyester film with excellent gas barrier properties. *Id.* at 5–6 (citing Chicarella ¶¶ 30, 31, 45, 70; Abstract).

Appellant argues that Chicarella's “stretching numbers in the longitudinal and transverse directions are not directed to film layers having a combination of PET/PBT.” Appeal Br. 13; *see also* Reply Br. 5. In particular, Appellant argues that there is an insufficient nexus between the

⁹ To the extent Appellant argues that “the Examiner relies on Itoh's process for providing motivation to the combination” with Sargeant, thereby overhauling Sargeant's film forming process, this is incorrect. Reply Br. 6 (citing Answer 12–13); *see also* Appeal Br. 16. Rather, the Examiner's rejection proposes modifying Sargeant's biaxially-oriented film to include Itoh's blended PET and PBT wt.% ranges, without including Itoh's film forming process. Final Act. 5; *see also* Answer 12, 17 (citing Spec. ¶¶ 41, 74; Sargeant ¶¶ 37–41) (noting that Sargeant and the '249 Application's Specification each describe a “layer formed through a substantially similar process such as extrusion of the PET and PBT pellets” as evidence that Sargeant's modified film inherently possesses the claimed film's property).

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claimed stretching ratios and the prior art's because Chicarella's stretching ratios were used to manufacture a PET/PET blend. Reply Br. 5. Appellant argues that Chicarella's manufacturing process teaches away from Itoh's because "Chicarella discloses a dry-blend ratio like Sargeant by mixing the polyester pellets, drying[,] and extruding the same." Appeal Br. 14.

These arguments are not persuasive.

There is no dispute that Chicarella discloses that "[t]he high crystalline polyester layer **12** can include any suitable material," such as "high intrinsic viscosity . . . copolyester of PET/PBT." Chicarella ¶ 30; Appeal Br. 13; Final Act. 5. We find that the Examiner's proposed modification is reasonable because Chicarella's teachings do not limit the polyester film to a PET/PET blend. *See Merck*, 874 F.2d at 807. Moreover, Appellant's teaching away arguments are not persuasive for the same reasons set forth *supra* discussing the alleged differences between Itoh's and Sargeant's manufacturing processes.

On this record, the Examiner has provided a sufficient nexus between the claimed stretching ratios and the prior art's because Sargeant, Itoh, and Chicarella each teach biaxially-oriented polyester films comprising PET/PBT blends. Answer 15. As the Examiner found, Chicarella broadly teaches both: (1) "blending PET and PBT together to form a biaxially[-]oriented film" and (2) "an advantage," namely crack resistance and desirable gas barrier properties, which are derived from "stretching in the claimed ratios." *Id.*

We, therefore, are not persuaded that Appellant has established the existence of reversible error in the Examiner's findings that the combined teachings would have rendered obvious the claimed stretching ratios.

Third, Appellant argues that neither Sargeant, Itoh, nor Chicarella describes or suggests the claimed biaxially-oriented film's MD and TD Young's Modulus features. Appeal Br. 14–16; Reply Br. 5–8. Appellant particularly argues that there exists “no legal obligation to show that the impermissible cobbling of multiple features of three different references for forming the same meets the claimed Young's modulus recited in claim 1.” Reply Br. 6.

The Examiner, however, has explained that

Sargeant, Itoh, and Chicarella teach a formability film with the required structure . . . , the layer ordering of a crystalline polyester layer and an amorphous copolyester layer, and biaxial orientation with overlapping stretch ratios . . . , similar properties (i.e., intrinsic viscosity and crystallinity), each layer having same compositional structure (i.e., the crystalline PET layer having the same degree of crystallinity for the crystalline PET blended with a polyester having PBT repeating units (a formability enhancer) that are blended in the claimed proportions and an amorphous copolyester layer having the same compositions) for each layer formed through a substantially similar process such as extrusion of the PET and PBT pellets.

Final Act. 6–7 (citing Chicarella ¶ 45; Spec. ¶¶ 41, 74, 75; Sargeant ¶¶ 13, 37–41). As the Examiner determined, modified Sargeant's “formable film . . . would [have] intrinsically possess[ed] similar characteristics such as having a MD and a TD Young's Modulus of at least 10% lower . . . than a crystalline polyester film in the absence of the formability enhancer.” Final Act. 7.

On this record, the Examiner's findings are reasonable that the proposed biaxially-oriented film, comprising a known PET and PBT blend, would have had the claimed Young's Modulus properties. Therefore, the burden is on Appellant to provide evidence or reasoning sufficient to rebut

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the findings. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977) (“Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of [the] claimed product.”). We find, however, that Appellant has not provided any evidence or reasoning that would support a conclusion that Sargeant’s modified formable biaxially-oriented film would not have possessed the Young’s Modulus features recited in claim 1.

In view of the foregoing, we determine that the Examiner did not reversibly err in rejecting claim 1 as unpatentable over the combination of Sargeant, Itoh, and Chicarella. Accordingly, we also affirm the rejection of claims 2, 3, 5–16, and 21–30. 37 C.F.R. § 41.37(c)(1)(iv).

B. Rejection of claim 4 as unpatentable over the combination of Sargeant, Itoh, and Wijay, as evidenced by the HYTREL[®] Product Reference Guide.

Appellant argues that the rejection of claim 4 as unpatentable over the combination of Sargeant, Itoh, and Wijay, as evidenced by the HYTREL[®] Product Reference Guide, should be reversed for the reasons set forth in arguing for reversal of the rejection over the combination of Sargeant, Itoh, and Chicarella. *See* Appeal Br. 16 (“For at least the same reasons as discussed above in the claim 1, dependent claim[4] . . . should not be rendered obvious over Sargeant, Itoh, Chicarella, or any combination thereof.”).

For the reasons set forth above, we have affirmed the rejection of independent claim 1 as unpatentable over the combination of Sargeant, Itoh, and Chicarella. We, therefore, also affirm the rejection of claim 4 as

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unpatentable over the combination of Sargeant, Itoh, and Wijay, as evidenced by the HYTREL[®] Product Reference Guide. 37 C.F.R. § 41.37(c)(1)(iv).

IV. CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-3, 5-16, 22-30	103	Sargeant, Itoh, and Chicarella	1-3, 5-16, 21-30	
4	103	Sargeant, Itoh, Wijay, HYTREL [®] Product Reference Guide	4	
Overall Outcome			1-16, 21-30	

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