

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* CARSTEN FRANKE and  
THOMAS HERTLEIN

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Appeal 2008-0320  
Application 10/276,811  
Technology Center 1700

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Decided: April 23, 2008

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Before CHUNG K. PAK, THOMAS A. WALTZ, and JEFFREY T. SMITH,  
*Administrative Patent Judges.*

PAK, *Administrative Patent Judge.*

**DECISION ON APPEAL**

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 1 and 3 through 21, all of the claims pending in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

*STATEMENT OF THE CASE*

The subject matter on appeal is directed to a laminate comprising first and second polymeric layers, with the first polymer layer containing at least one polyolefin, inclusive of, *inter alia*, an isotactic polypropylene (Spec. 3 and 7). The first polymeric layer is simultaneously biaxially stretched and partially relaxed to provide a high dimensional stability (Spec. 3, 12 and 14). The laminate exhibits “a variation of the laminate shrinkage in CD [cross or transverse direction] over a length of at least 100 m in machine direction of less than about 0.6%...” upon heat-bonding or extruding the second polymer layer on the dimensionally stable first polymer layer (Spec. 3 and 14-15 and claim 1). According to pages 14 and 15 of the Specification:

[T]he present invention exhibits a high dimensional stability and, in particular, a low variation of shrinkage in CD [cross direction]. Although the present inventors do not wish to be bond [sic., bound] by such theory, it is believed that this is due to the high dimensional stability of the first polymer layer which survives exposure to heat and optionally pressure when applying the second polymer layer.

Further details of the appealed subject matter are recited in representative claim 1 reproduced below:

1. Laminate comprising a first polymer layer and a second polymer layer wherein the first polymer layer comprises at least one polyolefin and is simultaneously biaxially stretched to a peak first direction stretch parameter and, independently of the peak first direction stretch parameter, to a peak second direction stretch parameter, partially relaxed to the final first direction stretch parameter and independently of the final first direction stretch parameter, to the final second direction stretch parameter, and the

second polymer layer is extruded upon or heat-bonded to the first polymer layer, said laminate exhibiting a variation of the laminate shrinkage in cross direction over a length of at least 100 m in machine direction of less than about 0.6%.

The Examiner has relied upon the following prior art references:

Gerwig	US 5,409,657	Apr. 25, 1995
Hoshino	US 5,529,879	Jun. 25, 1996
Gardner	US 5,885,501	Mar. 23, 1999
Wong	US 6,358,457 B1	Mar. 19, 2002
Romanko	US 6,484,371 B1	Nov. 26, 2002
Tachauer	US 2003/0070391 A1	Apr. 17, 2003

The Examiner has rejected the claims on appeal based on the above prior art references as follows:

- 1) Claims 1, 3 through 12, and 18 through 20 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Wong, Gardner, Hoshino and Gerwig;
- 2) Claims 1 and 3 through 21 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Romanko, Wong, Gardner, Hoshino and Gerwig; and
- 3) Claims 1, 3 through 6, 8 through 16, 18, 19, and 21 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Tachauer, Wong, Gardner, Hoshino, and Gerwig.

The Appellants appeal from the Examiner's decision rejecting the claims on appeal under 35 U.S.C. § 103(a).<sup>1</sup>

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<sup>1</sup> In each of the Examiner's three grounds of rejection, Appellants do not separately argue the individual claims on appeal. Therefore, for purposes of this appeal, we limit our discussion to independent claim 1,

*RELEVANT FACTUAL FINDINGS, PRINCIPLES OF LAW, ISSUES, AND ANALYSIS*

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). “[A]nalysis [of whether the subject matter of a claim would have been obvious] 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 in the art would employ.” *KSR Int’l Co., v. Teleflex, Inc.*, 127 S. Ct. 1727, 1740-41 (2007); *see also DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006) (“The motivation need not be found in the references sought to be combined, but may be found in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself.”); *In re Bozek*, 416 F.2d 1385, 1390 (CCPA 1969) (“Having established that this knowledge was in the art, the examiner could then properly rely, as put forth by the solicitor, on a conclusion of obviousness ‘from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion in a particular reference.’”); *In re Hoeschele*, 406 F.2d 1403, 1406-07 (CCPA 1969) (“[I]t is proper to take into account not only specific teachings of the references but

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which is common to all three rejections, consistent with 37 C.F.R. § 41.37(c)(1)(vii) (2005).

also the inferences which one skilled in the art would reasonably be expected to draw therefrom . . .").

Here, Appellants do not dispute the Examiner's findings that:

Wong discloses a biaxially tenter-stretched film as claimed by applicant. Note Wong, abstract, col. 2, lines 5-43, col. 5, lines 10-22, col. 10, line 58-col. 12, line 53. The film preferably comprises polypropylene, including copolymer comprising at least 90% propylene monomer unit by weight (col. 8, lines 47-53). The film is suited for use as a backing layer for an adhesive tape (col. 7, line 61-col. 8, line 9). Said backing layer may comprise a bilayer, trilayer, or multilayer film wherein one of the layers is the inventive biaxially stretched film (col. 8, lines 6-9). The polymeric adhesive is coated onto one surface of the biaxially stretched film by methods including hot-melt coating (i.e., extrusion) or lamination under heat (col. 14, lines 39-50). Suitable adhesives are pressure sensitive adhesives, including polyolefin adhesives (col. 14, lines 50-67). The tapes may be rolled in stock rolls wherein a release coating is coated onto the back side of the adhesive tape in order to facilitate unwinding (col. 14, lines 34-39). Compare Ans. 4 with Br. in its entirety.

Nor do Appellants dispute the Examiner's findings at pages 7 through 11 of the Answer that both Romanko and Tachauer disclose employing a biaxially stretched or a simultaneously biaxially stretched polyolefin polymer layer, including the one taught by Wong, in forming their mechanical fasteners via laminating it to a base polymeric layer with a hook or laminating it as a base layer of the membrane via adhesives or heat bonding (*see also* Romanko, col. 13, ll. 11-52, col. 12, ll. 36-51, and col. 9, ll. 27-35 and Tachauer, paras. 0006, 0011, 0089, and 0092).

Appellants only contend that one of ordinary skill in the art would not have been led to partially relax the biaxially stretched polyolefin film taught by Wong in both machine and transverse directions and would not have

expected to obtain the claimed laminate shrinkage property. *See* App. Br. 5-8 and Reply Br. 2-4. The Examiner disagrees. *See* Ans. 12-15.

The dispositive question is, therefore, whether a person having ordinary skill in the art would have been led to partially relax the biaxially stretched polyolefin film taught by Wong in both machine and transverse (cross) directions in forming a backing layer for the laminate taught or suggested by Wong, Romanko and/or Tachauer, with a reasonable expectation of successfully obtaining a laminate having the claimed thermal shrinkage property within the meaning of 35 U.S.C. § 103. On this record, we answer this question in the affirmative.

As indicated *supra*, there is no dispute that Wong teaches a polymeric film simultaneously biaxially stretched to the claimed stretch parameters in machine and transverse directions to provide a backing film. Wong teaches that the simultaneously biaxially stretched polymer film may be made from a thermoplastic polymer selected from, *inter alia*, polyester, polyolefin, polyethylene, or isotactic polypropylene (col. 8, ll. 30-50). According to column 1, lines 35-40, of Wang, biaxially stretching a polymeric film to a desired parameter in a controlled manner is known to “regulate the resistance, tensile strength, modulus of elasticity, *shrinkage*, and flatness of biaxially drawn film....” (emphasis added). (*See also* col. 12, l. 40 to col. 14, l. 4). Although Wong does not mention partially relaxing its biaxially stretched thermoplastic film, such as a simultaneously biaxially stretched polyolefin or polypropylene film, in machine and transverse directions, the Examiner correctly finds at pages 4, 12 and 13 of the Answer that Gardner teaches relaxing a simultaneously biaxially stretched thermoplastic film in the

machine and transverse directions advantageously provides a film having tailored levels of machine (MD) and transverse (TD) thermal shrinkages, namely “low” machine and transverse thermal shrinkages (*see abstract, col. 1, ll. 60-67, and col. 2, ll. 52-56*). We find that Gardner goes on to teach (col. 4, ll. 17-23) that:

The TD and MD relaxation can be introduced simultaneously or sequentially. The amounts of MD and TD relaxation to which the film is subjected and the temperature at which the film is relaxed control the thermal shrinkage or dimensional stability of the thermoplastic film.

Given the above teachings<sup>2</sup>, we concur with the Examiner that one of ordinary skill in the art would have been led to optimally relax the simultaneously biaxially stretched thermoplastic films (polyolefin and polypropylene films) taught by Wang and use the resulting dimensionally stable polyolefin or polypropylene film having low thermal shrinkage properties in the TD (cross) and MD directions as a base or backing layer of the laminate taught or suggested by Wang, Romanko, and/or Tachauer, with a reasonable expectation of obtaining a laminate having good dimensional stability, including the same or similar thermal shrinkage property as the base layer. One of ordinary skill in the art would have reasonably expected that due to the dimensionally stable biaxially stretched and relaxed base layer, an

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<sup>2</sup> Both Hoshino and Gerwig are at best cumulative since they teach the importance of relaxing a biaxially stretched polyester film in machine and transverse directions.

overlapping layer directly bonded to the base layer will retain the same or similar dimension as the base layer so long as it is not delaminated.<sup>3</sup>

Appellants contend (App. Br. 6) that:

Nowhere does the art teach a laminate of a biax[i]ally oriented and tempered polyolefin film that has a subsequently applied polymer layer which results in a highly dimensionally stable film laminate. The unexpected nature of these results can be seen in the examples and counterexamples in the application as filed. By applying the second layer the invention example S-BOPP films had an average MD shrinkage that decreased by an order of magnitude with a variation in the cross direction shrinkage well below that of standard BOPP films (note, comparative example 2).

However, Appellants have not demonstrated that the claimed invention imparts unexpected results. *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). The examples referred to by Appellants only show that the dimensional stability of a laminate is expectedly dependent on the dimensional stability of a base layer and that the dimensionally stable base layer can be produced by the application of appropriate relaxation and stretching in accordance with the teachings of Wong and Gardner. *In re Skoner*, 517 F.2d 947, 950 (CCPA 1975) (“Expected beneficial results are evidence of obviousness of a claimed invention just as unexpected beneficial results are evidence of unobviousness.”). Indeed, Appellants do not aver anywhere in the

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<sup>3</sup> In addition, Romanko, for example, teaches laminating one or more layers of simultaneously biaxially oriented polypropylene to a base layer with hooks via adhesive or heat bonding to impart to the resulting laminate “high strength...and high tensile modulus...” (Romanko, col. 13, ll. 36-42 and col. 9, ll. 28-35).

Specification that the alleged improvements are unexpected. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997).

Accordingly, based on the factual findings set forth above and in the Answer, we concur with the Examiner that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of 35 U.S.C. § 103(a).

#### *CONCLUSION*

In view of the foregoing, we affirm the Examiner's decision rejecting:

- 1) Claims 1, 3 through 12, and 18 through 20 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Wong, Gardner, Hoshino and Gerwig;
- 2) Claims 1 and 3 through 21 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Romanko, Wong, Gardner, Hoshino and Gerwig; and
- 3) Claims 1, 3 through 6, 8 through 16, 18, 19, and 21 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Tachauer, Wong, Gardner, Hoshino, and Gerwig.

#### *ORDER*

The decision of the Examiner is affirmed.

Appeal 2008-0320  
Application 10/276,811

*TIME PERIOD*

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

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