The opinion in support of the decision being entered today was ***not*** written for publication and is ***not*** binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GAUTAM P. SHAH

Appeal No. 1999-2661[1]
Application 08/430,632

ON BRIEF

Before WARREN, OWENS and JEFFREY T. SMITH, *Administrative Patent Judges.*

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 11 through 13 and 20. Claim 11 is illustrative of the claims on appeal:

11. A thermoplastic multi-layer film comprising:

    a) a core layer comprising an oxygen barrier material;

    b) two intermediate layers, on opposite surfaces of the core layer, comprising a polymeric adhesive;

    c) two outer layers comprising a blend of propylene polymer or copolymer, and a hydrocarbon resin, wherein the hydrocarbon resin comprises a thermoplastic resin of low molecular weight made from relatively impure monomers that are derived from coal-tar fractions or petroleum distillates; and

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[1] This appeal is related to Appeal 1999-0981 in application 08/787,895, which we decide concurrently herewith.

d) a polymeric sealant layer adhered to at least one of the outer layers.

The appealed claims, as represented by claim 11, are drawn to a thermoplastic multi-layer film comprising at least the layers specified in the claim. According to appellant, the claimed multi-layer film has good moisture and oxygen barrier properties.

The references relied on by the examiner are:

Grancio et al. (Grancio)	4,386,187	May 31, 1983
Van Iseghem	4,681,797	Jul. 21, 1987
Bossaert et al. (Bossaert)	4,921,749	May 1, 1990

The examiner has advanced the following grounds of rejection on appeal:

claims 11 through 13 and 20 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention;

claims 11 through 13 and 20 stand rejected under 35 U.S.C. § 103(a) as being obvious over Van Iseghem in view of Bossaert; and

claims 11 through 13 and 20 stand rejected under 35 U.S.C. § 103(a) as being obvious over Van Iseghem in view of Grancio.[2]

Appellant divides the appealed claims into two groups for purposes of appeal (brief, page 9). Thus, we decide this appeal based on appealed claims 11 and 20 which are representative of these groups. 37 CFR § 1.192(c)(7) (1997).

We affirm the ground of rejection of claims 11 through 13 under 35 U.S.C. § 103(a) as being obvious over Van Iseghem in view of Bossaert and reverse all other grounds of rejection including the rejection of claim 20 under 35 U.S.C. § 103(a) as being obvious over Van Iseghem in view of Bossaert.

Rather than reiterate the respective positions advanced by the examiner and appellant, we refer to the examiner's answer and to appellant's brief for a complete exposition thereof.

Opinion

As an initial matter, we must interpret the claim in light of the written description in

[2] In the final rejection of November 12, 1998 (Paper No. 17), the examiner rejected the claims under 35 U.S.C. § 112, first paragraph, enablement requirement, but did not advance this ground on appeal or state that the ground has been withdrawn. We consider the ground of rejection to have been withdrawn by the examiner.

appellant's specification as it would be interpreted by one of ordinary skill in this art. *See In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). The claim language in dispute is "two outer layers comprising a blend of propylene polymer or copolymer, and a hydrocarbon resin, wherein the hydrocarbon resin comprises a thermoplastic resin of low molecular weight made from relatively impure monomers that are derived from coal-tar fractions or petroleum distillates."

In this instance, our consideration of this matter also involves review of the ground of rejection under 35 U.S.C. § 112, second paragraph. The initial burden of establishing a *prima facie* case on any ground under the second paragraph of § 112 rests with the Examiner. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992*), citing In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) ("As discussed in *In re Piasecki*, the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability."). In making out a *prima facie* case of non-compliance with this statutory provision on the basis that a claim is indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention, the examiner must establish that when the language of the claim is considered *as a whole as well as in view of the written description in the specification* as it would be interpreted by one of ordinary skill in the art, the claim in fact fails to set out and circumscribe a particular area with a reasonable degree of precision and particularity. *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). In other words, the operative standard for determining whether § 112, second paragraph, has been complied with is "whether those skilled in the art would understand what is claimed when the claim is read in light of the specification." *See The Beachcombers, Int'l. v. WildeWood Creative Prods.*, 31 F.3d 1154, 1158, 31 USPQ2d 1653, 1656 (Fed. Cir. 1994), *quoting Orthokinetics Inc v. Safety Travel Chairs Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986).

The plain language of the claim clearly specifies two layers, each of which comprises a blend of a polymer or copolymer of propylene and "a hydrocarbon resin, wherein the hydrocarbon resin comprises a thermoplastic resin of *low molecular weight* made from *relatively*

impure monomers that are derived from coal-tar fractions or petroleum distillates" (emphasis supplied)

The examiner submits that the phrase specifying the "hydrocarbon resin" material is indefinite because the italicized terms "are relative terms which render claims 11-13 and 20 indefinite" because the terms "are not defined by the claim, [and] the specification does not provide a standard for ascertaining the requisite degree" by which to determine "what types of materials are being included or precluded" (answer, page 4).

We note here that the written description in the specification contains the following disclosure:

> "Hydrocarbon resin" ("HC" herein) and the like as used herein means resins made by the polymerization of monomers composed of carbon and hydrogen only. Thermoplastic resins of *low molecular weight* made from *relatively impure* monomers derived from coal-tar fractions, petroleum distillates, etc. are also included. A discussion of HC resins can be found e.g., in . . . [Bossaert] . . . . [Page 5, lines 4-10; emphasis supplied.]

Appellant submits that the claim language complies with the requirements of the statute because the definition of "hydrocarbon resin" in claim 11 is "a term of art in the chemical and technical literature"), pointing to "Whittington's Dictionary of Plastics, Third Edition, 1993" for the quoted "dictionary definition"

> [i]n the plastics industry, hydrocarbon resins are considered to be those thermoplastic resins of low molecular weight made from relatively impure monomers that are derived from coal-tar fractions, cracked-petroleum distillates, and turpentine. [Brief, page 13.]

In this respect, appellant further contends that "The Encyclopedia of Polymer Science & Engineering, Vol. 7, 1987, at page 758, contains a similar definition" (brief, page 13). Appellant further points to, *inter alia*, Bossaert as an example that "hydrocarbon resin" is "also a term of art in the patent literature" (*id*.).

We have found a definition similar to that quoted from "Whittington's" in *McGraw-Hill Dictionary of Scientific and Technical Terms*:[3]

> **hydrocarbon resins** Brittle or gummy materials prepared by the polymerization of several unsaturated constituents of coal-tar, rosin or petroleum . . . . [Page 967.]

[3] Sybil P. Parker, ed., New York, McGraw-Hill, Inc. 1994.

We further find that Bossaert discloses low molecular weight resins, "usually less than 5000" molecular weight, which include "hydrocarbon resins" among "[s]uitable resins which can subsequently be hydrogenated," wherein

> Examples of hydrocarbon resins are polymers of coke oven gas, cracked naphtha, gas oil and terpene oil.
>
> Particularly preferred hydrocarbon resins are hydrogenated petroleum reins. These are usually prepared by catalytically hydrogenating a thermally polymerized steam cracked petroleum distillate fraction, especially a fraction having a boiling point of between 20° and 280° C. These fractions usually are of compounds having one or more unsaturated cyclic rings in the molecule, such as cyclo dienes, cycloalkenes and indenes. It is also possible to hydrogenate resins produced by the catalytic polymerization of unsaturated hydrocarbons. [Col. 1, line 63, to col. 2, line 20.]

Based on this record, we determine that one of ordinary skill in this art would have recognized the "low molecular weight" polymeric material required by claim 11 as specified by the term "hydrocarbon resin" as further characterized in the claim and the specification by the method and "relatively impure monomer" materials from which it is made. *See generally, In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985). Indeed, it is apparent from the recitation of the monomeric starting materials in the dictionary definitions and as further seen from Bossaert that one of ordinary skill in this art would have known that "hydrocarbon resins" are simply not the carbon and hydrogen containing product of any polymerization process using any hydrocarbon monomer that contains any type of impurity as the examiner contends (answer, paragraph bridging pages 6-7).

Thus, we must conclude that claim 11 in fact set outs and circumscribes a particular area with a reasonable degree of precision and particularity, and accordingly, we reverse the ground of rejection under § 112, second paragraph.

Turning now to the grounds of rejection under § 103(a), we have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the examiner that the claimed thermoplastic multi-layer film encompassed by appealed claim 11 would have been obvious over the combined teachings of Van Iseghem and Bossaert to one of ordinary skill in this art at the time the claimed invention was made.

The examiner finds that Van Iseghem teaches that layer **3** of the gas barrier multi-layer film taught therein can be a polyolefin composition (col. 3, lines 12-13), and that Bossaert

teaches "that specific hydrocarbon resin materials can be blended with polypropylene in order to produce materials having improved barrier properties" (answer, page 5). On this evidence, the examiner concludes that, *prima facie*, one of ordinary skill in this art would have been motivated to include the hydrocarbon resin blended with polypropylene as the polypropylene composition in layer **3** of Van Iseghem in the reasonable expectation of obtaining films with improved barrier properties (*id.*).

We agree with the examiner. We find that Bossaert does disclose multi-layer films having good barrier properties with respect to moisture and oxygen (e.g., col. 1, lines 35-37; see also "film 2" and FIGs. 6 and 7). Thus, we find that one of ordinary skill in this art routinely following the combined teachings of Van Iseghem and Bossaert would have arrived at a multi-layer film which satisfies all of the requirements of appealed claim 11. Indeed, as we pointed out above, the hydrocarbon resins disclosed in Bossaert satisfy the definition of "hydrocarbon resin" set forth in claim 11. *See, e.g., Pro-Mold & Tool Co. v. Great lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996) ("In this case, the reason to combine [the references] arose from the very nature of the subject matter involved, the size of the card intended to be enclosed."); *In re Gorman*, 933 F.2d 982, 986-87, 18 USPQ2d 1885, 1888-89 (Fed. Cir. 1991) ("The extent to which such suggestion [to select elements of various teachings in order to form the claimed invention] must be explicit in, or may be fairly inferred from, the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant's invention."); *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.").

Accordingly, since a *prima facie* case of obviousness has been established over the combined teachings of Van Iseghem and Bossaert, we have again evaluated all of the evidence of obviousness and nonobviousness based on the record as a whole, giving due consideration to the weight of appellant's arguments. *See generally, In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); *Piasecki*, *supra*.

We have carefully considered all of appellant's arguments. We, like the examiner, do not find basis in the record for the distinction that appellant would draw between a "sheet" and a "film" (brief, pages 12, 13 and 15). We also agree with the examiner (answer, page 9) that the polymeric material in layer **4** of Van Iseghem is a "sealant layer" as required in appealed claim 13, particularly since appealed claim 13 specified that such layer can be a "propylene copolymer and appellant presents no analysis in support of his position (brief, page 13). Finally, we are not convinced by appellant's arguments with respect to whether one of ordinary skill in this art would have been motivated to substitute what appellant describes as a comparable or infer barrier material "for one already offered in" Van Iseghem (*id.*, pages 14-15). As the examiner points out, the hydrocarbon resin blended with polypropylene of Bossaert is used for layer **3** of the multi-layer film of Van Iseghem and not as a replacement for the inner barrier layer **1** thereof. Indeed, one of ordinary skill in this art would have found in the combined teachings of the references the motivation to use the materials of Bossaert in the multi-layer film of Van Iseghem in the reasonable expectation of obtaining multi-layer films that have the same or similar properties as taught by Van Iseghem.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combined teachings of Van Iseghem and Bossaert with appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 11 through 13 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

We cannot, however, sustain the ground of rejection of appealed claim 20 under § 103(a) over Van Iseghem taken in view of Bossaert. The examiner states that "the films taught by [Van] Iseghem are thermoformed they are stretched to some degree" and thus "would have some degree of shrinkability when heated" (answer, page 5). Appellant points out that the films of Bossaert are "heat set to improve . . . dimensional stability" (brief, page 16). We find that Van Iseghem teaches that the film disclosed therein will retain its shape and not sag or at least not sag to a detrimental degree (col. 2, lines 5-12). Accordingly, on this record, we find that the examiner has not established that, *prima facie*, the film of Van Iseghem is heat shrinkable, and thus we reverse this ground of rejection.

We now consider the ground of rejection of appealed claims 11 and 20 under § 103(a) over Van Iseghem taken in view of Grancio. The examiner finds that Grancio teaches a thermoformable polymer blend which comprises, *inter alia*, polypropylene and a thermoplastic styrene-butadiene-styrene block copolymer and contends that one of ordinary skill in the art would have used this polypropylene composition as layer **3** of the multi-layer film of Van Iseghem, contending that the said block copolymer falls within the definition of hydrocarbon resin in claim 11 (answer, page 6). Appellant points out that even so, the composition of Grancio does not fall within the blend of polypropylene and a hydrocarbon resin as the latter term is used in claim 11 (brief, pages 15-16). On this record, we must agree with appellant that that the block copolymer is not a hydrocarbon resin as that term is used in appealed claim 11, and thus we must reverse this ground of rejection.

In summary, we affirm the ground of rejection of claims 11 through 13 under § 103(a) as being obvious over Van Iseghem in view of Bossaert and reverse all other grounds of rejection.

The examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

CHARLES F. WARREN Administrative Patent Judge	)))))	
TERRY J. OWENS Administrative Patent Judge	)))))	BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY T. SMITH Administrative Patent Judge	))	

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