UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GERALD D. MILLER

Appeal 2008-1752
Application 10/859,023
Technology Center 1700

Decided: March 28, 2008

Before CHUNG K. PAK, PETER F. KRATZ, and LINDA M. GAUDETTE, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Examiner's final rejection of claims 1-28, the only claims that remain pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 6.

Appellant's invention is directed to a coated substrate including a polyvinyl alcohol polymer (PVOH) barrier coating and a method of producing same. Claims 1, 13 and 15 are illustrative and reproduced below:

> 1. A coated substrate comprising:
>
> (i) a substrate having a first and second surface; and
>
> (ii) an oil and grease barrier coating on the first surface of the substrate consisting essentially of a polyvinyl alcohol coating which includes at least about 7 g/m^2 of a polyvinyl alcohol polymer, based upon the surface area of the first surface of the substrate.
>
> 13. A coated substrate comprising:
>
> (i) a substrate having a first and second surface; and
>
> (ii) a curtain coated oil and grease barrier coating on the first surface of the substrate consisting essentially of a polyvinyl alcohol coating which includes at least 5 wt.%, of the weight of the substrate, of a polyvinyl alcohol polymer.
>
> 15. A method of producing a coated substrate having a first and second surface with an oil and grease barrier coating comprising providing the substrate with an aqueous polyvinyl alcohol solution by way of a curtain coater;
>
> wherein the polyvinyl alcohol is applied to the first surface of the substrate at a coatweight of at least about 7 g/m^2 of polyvinyl alcohol polymer, based upon the surface area of the first surface of the substrate.

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Bergerioux	5,506,036	Apr. 9, 1996
Tokita	6,244,746 B1	Jun. 12, 2001
Urscheler	2003/0188839 A1	Oct. 9, 2003
Tomel, Jr.	6,692,835 B1	Feb. 17, 2004

Claims 1-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bergerioux in view of Urscheler, Tokita, and Tomel.

We affirm for reasons substantially as stated by the Examiner in the Answer and as further discussed below.

We shall consider the rejected claims separately to the extent that the Brief furnishes substantive separate arguments for each individual rejected claim for establishing the separate patentability thereof. *See* 37 C.F.R. § 41.37(a)(1)(c)(vii).

Appellant contends that all of the appealed claims are rejected in error because Bergerioux teaches away from using a PVOH grease and oil barrier layer via the requirement for thermoplastic synthetic resin layers therein. Appellant maintains that claims 1-14 and 22-24 employ "consisting essentially of" transitional phraseology that excludes the presence of polyethylene, PET or nylon layers, as taught by Bergerioux, from being present in the claimed product. Appellant urges that claims 1-12, 14, and 22-24 are rejected in error because these claims require a critical amount of polyvinyl alcohol coating weight ($7g/m^2$), a criticality that the applied Bergerioux fails to recognize.

Concerning claims 21 and 26, Appellant further asserts that the substantially pin-hole free limitation for the coating of these dependent claims is not suggested by the applied references, particularly the cratered

coatings of Urscheler. As for method claim 15, Appellant again argues the PVOH coating weight required as a non-suggested distinction over the applied prior art. Finally, with regard to claim 27, Appellant reiterates the argument with respect to the "consisting essentially of" transitional wording and the PVOH coating weight as being patentable distinctions.

We start with rejected independent claim 13. Claim 13 requires a coated substrate comprising a substrate having a curtain coated oil and grease barrier (OGB) coating on a surface thereof, with the OGB coating "consisting essentially of a polyvinyl alcohol coating which includes at least 5 wt.%, of the weight of the substrate, of a polyvinyl alcohol polymer."

Appellant does not specifically dispute that Bergerioux discloses or suggests a coated substrate wherein a polyvinyl alcohol resin (polymer) is employed as a coating/laminate layer using 0.2 to 10 grams of the resin coating per square meter of substrate surface area (Bergerioux, col. 4, l. 5 - col. 5, l. 29; Reply Br. 3). Rather, Appellant argues that the transitional claim phrase "consisting essentially of," which phrase is used in introducing the limitation describing a required barrier coating as a "polyvinyl alcohol coating which includes at least 5 wt.%, of the weight of the substrate, of a polyvinyl alcohol polymer," distinguishes the subject matter of claim 13 from the applied references, including Bergerioux. In this regard, Appellants assert that the above-identified claim language "excludes prior art which calls for polyethylene, PET, or Nylon barrier layers" (Br. 13). In contrast to this asserted construction of rejected claim 13, which argument and claim construction also applies to rejected claims 1-12, 14, 22-24 (Br. 13), Appellant notes that Bergerioux discloses that a thermoplastic resin layer comprising polyethylene is laminated to the non-substrate side of the

polyvinyl alcohol resin substrate coating layer of Bergerioux (Br. 13-15; Reply Br. 3).

We are not persuaded by this argument.

The "phrase 'consisting essentially of' limits the scope of a claim to the specified ingredients and those that do not *materially affect* the *basic* and *novel* characteristic(s) of a composition." *In re Herz*, 537 F.2d 549, 551-52 (CCPA 1976) [emphasis added]; *see also PPG Indus., Inc. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354 (Fed. Cir. 1998) ("By using the term "consisting essentially of," the drafter signals that the invention necessarily includes the listed ingredients and is open to unlisted ingredients that do not materially affect the basic and novel properties of the invention").

During examination, "claims . . . are to be given their broadest reasonable interpretation consistent with the specification, and . . . claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). In assessing a broadest reasonable claim construction wherein a potentially exclusionary "consisting essentially of" transitional phrase is involved, it is appropriate that Appellant bears the burden of: (1) showing the basic and novel characteristics of their claimed invention, and (2) establishing how those characteristics would be materially changed by any allegedly excluded component of an applied reference. *See In re DeLajarte*, 337 F.2d 870, 873-74 (CCPA 1964); *Ex parte Hoffman*, 12 USPQ2d 1061, 1063-64 (BPAI 1989).

Here, Appellant has not satisfied this burden for several reasons. To begin with, claim 13 is not limited to a single layer substrate, nor is claim 13 limited to a single layer of barrier coating. In the first line of claim 13, the

open transitional phrase "comprising" is employed in introducing component parts of the claimed coated substrate, which leaves the claim open to other layers than the specifically listed oil and grease barrier coating component of the coated substrate. Thus, claim 13 is open to a coated substrate that includes a substrate and a barrier layer in accordance with the required listed components of claim 13, as well as other unlisted layers, such as a polyethylene layer located on an outer surface of the called for oil and grease barrier layer. This is because the first mentioned transitional phrase "comprising," as recited in claim 13 permits the inclusion of other layers and components other than those specifically listed. Furthermore, it is manifest that the intermediate product comprising the PVOH coated substrate of Bergerioux (the PVOH coated substrate prior to the addition of any other outside layers) is not precluded by the transitional phrases employed. We note that the intermediate product includes external PVOH layers thereon that are explicitly described as exhibiting "liquid resistance to organic solvents other than water and is stable up to about 140° C" (col. 4, ll. 58-66). Thus, these PVOH layers of Bergerioux would be reasonably expected to function as oil and grease resistant layers.

Moreover, even if the claim 13 "consisting essentially of" clause could be read as requiring a final product with a restriction as to the type of layers and materials that can be present anywhere in or on the coated substrate, a position with which we disagree, Appellant has not carried the burden of establishing that all thermoplastic-type layers, such as a polyethylene-containing layer as employed in Bergerioux, or other types of layers formed of other materials in forming a final product would materially affect the basic and novel characteristics of Appellant's alleged inventive

product, such as to be excluded from the claimed product thereby. In particular, Appellant's Specification makes it abundantly clear that multiple additional materials and layers can be included in the disclosed inventive product without materially affecting the basic and novel characteristics thereof (Specification, ¶ ¶ 0004, 0005, 0011-0013, 0018, 0030, 0032, 0034, 0045, 0047, and 0049).

In the face of this Specification evidence and the employment of open "comprising" language in describing the component parts of the layered product, we cannot reasonably accept Appellant's viewpoint that layers including polyethylene or other type materials as may be employed in the applied references in making final products, including layers 3 and 4 of Bergerioux, would detrimentally affect the basic and novel characteristics of the here-claimed layered product.

In reaching this conclusion, we recognize the subject Specification indicates problems can be encountered with re-pulping or biodegrading certain prior art polyethylene films used for furnishing oil and grease resistance properties (Specification ¶ 0006). On the other hand, however, Appellant discloses that polyethylene copolymer coatings are acceptable as barrier layers and that plastics may, in general, be employed in Appellant's layered product (Specification ¶ ¶ 0032, 0011-0013). Also, Bergerioux discloses that the PVOH layers therein can be re-pulped and have the attribute of readily functioning as separation layers, such that any external metal or plastic layers could be separated therefrom (col. 3, l. 62 - col. 4, l. 13). Hence, the underlying paper substrate and PVOH layered intermediate of Bergerioux would be capable of being re-pulped and/or treated as being biodegradable. Thus, the outside layers including plastic and other materials

described by Bergerioux are not clearly excluded by the present claim language. Appellant simply has not made the case that giving claim 13 its broadest reasonable construction as it would be understood by one of ordinary skill in the art when read in light of the subject Specification compels a claim construction that would result in the argued for narrow claim scope requiring exclusion of layers formed of other materials, such as the thermoplastic layers 3 and 4 of Bergerioux.

For the reasons set forth above and in the Answer, we affirm the Examiner's obviousness rejection as to claim 13.[1]

As for commonly rejected claims 1-12, 14, and 22-24, Appellant's claim construction argument, respecting the "consisting essentially of" transitional phrase, is unpersuasive of any reversible error in the Examiner's obviousness rejection for substantially the same reasons as set forth above with regard to claim 13, and for reasons further presented herein and in the Answer. Additionally and as mentioned above, Appellant urges that the last mentioned grouping of claims further require a critical amount of polyvinyl alcohol coating weight (at least about $7g/m^2$). Appellant urges this latter feature coupled with the other claim requirements, sets forth a layered product that the applied references allegedly do not render obvious to one of ordinary skill in the art (Br. 16; Reply Br. 2-6). We select claim 1 as the representative claim from this commonly rejected and argued grouping of

[1] At this juncture, we need not further address the additional references relied upon by the Examiner in rejecting claim 13, as reported in the Answer, as the teachings of Bergerioux furnishes ample evidence that establish the obviousness of this claim as set forth above. In this regard, we refer to the Answer, for the Examiner's additional findings and reliance on Urscheler, Tokita, and Tomel in rejecting the appealed claims.

claims, on which representative claim we decide this appeal as to the claims of this grouping.

We are not persuaded of reversible error in the Examiner's obviousness rejection of representative claim 1 based on the argued coating weight requirement for the PVOH in the recited product. Indeed, Appellant does not specifically dispute that Bergerioux discloses or suggests a coated substrate wherein a polyvinyl alcohol resin (polymer) is employed as a coating/laminate layer using 0.2 to 10 grams of the resin coating per square meter of substrate surface area (Bergerioux, col. 4, l. 5 - col. 5, l. 29; Reply Br. 3). Further pertaining to this matter, it is well-settled that the prior art disclosure of a range of a parameter or component that overlaps a required claimed range of a particular component or parameter presents a strong prima facie case of the obviousness thereof. *See In re Harris*, 409 F.3d 1339, 1343-344 (Fed. Cir. 2005); *In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003); *In re Geisler,* 116 F.3d 1465, 1468-69 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1577-78 (Fed. Cir. 1990); *In re Malagari*, 499 F.2d 1297, 1302-03 (CCPA 1974). Based on the overlap of the constituents and amounts required for the claimed PVOH coating and that disclosed by Bergerioux, we agree with the Examiner that the representative claim 1 product has been shown to be prima facie obvious over Bergerioux with or without the other applied references.

Appellant's assertions concerning the "consisting essentially of" transitional language and the use of additional layers by Bergerioux in forming a final product are not particularly relevant and certainly unpersuasive in rebutting the prima facie obviousness of the claimed amount of PVOH polymer based on the overlapping amount of PVOH employed by

Bergerioux in the polyvinyl alcohol resin layer thereof (Reply Br. 2-5). In this regard, Appellant has not persuasively established that the claimed minimum amount of PVOH polymer is critical as alleged. Indeed, the subject Specification discloses that the PVOH add on level is dependent on the particular substrate used and that the PVOH can be of various grades (¶¶ 0026 and 0028). This disclosure undercuts Appellant's asserted criticality argument. Appellant argues that Tokita, an additionally applied reference, teaches away from the claimed subject matter because of the use of an intermediate layer in the laminated film described therein. This argument is clearly off the mark and unpersuasive in that Appellant has not established why one of ordinary skill in the art would be discouraged from following the path set out in Bergerioux based on the somewhat different packaging film described by Tokita. Similarly, the remarks with respect to Urscheler failing to suggest the claimed amount of PVOH polymer application in Bergerioux is non-persuasive of reversible error in the Examiner's rejection in that Bergerioux supplies sufficient evidence to suggest the claimed PVOH polymer loading based on the overlapping range of amounts disclosed therein.

It follows, that on this record, we shall also sustain the Examiner's obviousness rejection of claims 1-12, 14, and 22-24.

Concerning rejected method claim 20, we note that this claim employs open "comprising" language and does not use the transitional "consisting essentially of" language. The method requires curtain coating a substrate with a PVOH polymer with a concentration of at least 5 weight percent of the weight of the substrate. Appellant does not focus any separate arguments on this claim. In this regard, we note that the PVOH coating of

Bergerioux is described as being applied as a laminate albeit Bergerioux teaches that variations within the skill of the art are contemplated (col. 5, ll. 30-36 and col. 6, ll. 66-67). Moreover, Urscheler discloses that it is well known in the coating of paper substrates that curtain coating is an available option (¶¶ 007-0015). Based on these teachings with regard to the level of skill in the coating arts, we agree with the Examiner that the applied references render the use of curtain coating for applying PVOH resin in Bergerioux obvious to one of ordinary skill in the art. Thus, the process of claim 20, wherein curtain coating is employed, is determined to have been prima facie obvious to one of ordinary skill in the relevant art.

Method claims 15-19, 25, and 28 are argued together, as a group. We select claim 15 as the representative claim on which we shall decide this appeal as to this grouping of commonly rejected claims. Like, claim 20, we note that claim 15 does not employ a "consisting essentially of" transitional phrase. Appellant again argues the PVOH coating weight required as a non-suggested distinction over the applied prior art (Br. 17). However, as we explained above, the amounts of PVOH disclosed by Bergerioux supplies sufficient evidence to suggest the claimed PVOH polymer loading based on the overlapping range of amounts of PVOH resin (polymer) disclosed therein. As for the asserted criticality of the claimed PVOH loading, we again note that the subject Specification discloses that the PVOH add on level is dependent on the particular substrate used and that the PVOH can be of various grades (¶¶ 0026 and 0028). Appellant has not fairly established criticality for the claimed PVOH loading amounts, on this record. Moreover, as for the additionally applied Urscheler, we note that the report of the formation of craters in PVOH coatings in some of the Examples

thereof has not been fairly established to represent a teaching away from or a discouragement to one of ordinary skill in the art to employ higher PVOH loadings as disclosed by Bergerioux using known curtain coating techniques. In this regard, Urscheler indicates that crater formation increases with high coating line speeds (¶ 0152). However, this disclosure would not discourage one of ordinary skill in the art from selecting lower coating speeds, using multi-layer coatings, and/or varying other process parameters to reduce or eliminate crater formation, as indicated by Urscheler (Examples 10-12 and Table 9). Thus, the arguments furnished against the Examiner's obviousness rejection of claims 15-19, 25, and 28 are not persuasive of reversible error in the stated rejection.

Given the above-noted disclosures of Bergerioux and Urscheler, the additional arguments presented with respect to each of claims 26 and 21, and the pin-hole free coating requirement thereof are not convincing of reversible error in the Examiner's obviousness rejection of these dependent claims. This is because Urscheler suggests that a PVOH-containing crater-free (pinhole-free) coating can be obtained via curtain coating techniques and Bergerioux does not intimate an insoluble problem being encountered in forming the PVOH coating thereof with respect to pin-hole formation.

Concerning the "consisting essentially of" language used in claim 27, which depends from method claim 15, we again note that the use of such a transitional phrase respecting one of the possible coatings that can be applied to the substrate has not been established to exclude the presence of other non-PVOH containing coatings, especially given the open "comprising" language employed at line 2 of claim 15, which leaves dependent claim 28 open to the formation of other coating layers. Likewise,

we are not persuaded by the greater than 7 grams per meter squared coat weight arguments again presented for this dependent claim for substantially the same reasons for which we found Appellant's contentions with respect to claim 1 regarding the coat weight limitation unpersuasive.

In light of the above and for reasons as set forth in the Examiner's Answer, we affirm the Examiner's obviousness rejection of claims 1-28.

ORDER

The decision of the Examiner to reject claims 1-28 under 35 U.S.C. § 103(a) as being unpatentable over Bergerioux in view of Urscheler, Tokita, and Tomel is 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

tf/ls

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