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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PER MAGNUS KRISTIANSEN, DANIEL MULLER and
MICHELE GERSTER

Appeal 2020-000971
Application 13/496,207
Technology Center 1700

Before ROMULO H. DELMENDO, MICHAEL P. COLAIANNI, and
MICHAEL G. McMANUS, *Administrative Patent Judges*.

McMANUS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ seeks review of the Examiner's decision to reject claims 29–32, 35 and 39–40. We have jurisdiction under 35 U.S.C. § 6(b).

An oral hearing was heard via telephone October 1, 2020.

We affirm in part. We additionally issue a new ground of rejection pursuant to 37 C.F.R. § 41.50(b).

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as BASF SE. Appeal Brief dated July 16, 2019 (“Appeal Br.”) 1.

CLAIMED SUBJECT MATTER

The present application generally relates to polymer compositions “showing improved mechanical properties.” Specification filed March 15, 2012 (“Spec.”) 1. The Specification teaches that the described compositions show improved flexural modulus, haze, and scratch resistance. *Id.* The subject compositions comprise a polymer, an organic compound A carrying at least two amide functionalities and a compound B. *Id.*

Claim 29 is illustrative of the subject matter on appeal and is reproduced below with certain limitations bolded for emphasis:

29. A composition comprising:

(i) **at least one polymer selected from the group consisting of a polypropylene homopolymer and a polypropylene random copolymer containing ethylene** as a comonomer, wherein the total amount of propylene and the comonomer in the polymer is 100 wt%,

(ii) 150 to 300 parts per million (ppm) of an organic compound A which is 1,3,5-tris[2,2 dimethylpropionylamino] benzene, based on the weight of the polymer, and

(iii) 150 to 300 parts per million (ppm) of at least one compound B selected from the group consisting of 1,3:2,4-bis(3,4-dimethylbenzylidene)sorbitol, a **metal salt of 2,2' – methylene bis(4,6-di-tert-butylphenyl)phosphate lithium 2,2'-methylene-bis(4,6-di-tertbutylphenyl) phosphate**, aluminium-hydroxy-bis[2,2'-methylene-bis(4,6-di-tert-butylphenyl) phosphate, and a zinc glycerolate, based on the weight of the polymer.

Appeal Brief dated July 16, 2019 (“Appeal Br.”) (Claims App. i).

DISCUSSION

The Examiner rejects claims 29–32, 35, 39, and 40 as obvious over Schmidt et al. (US 2007/0149663, published June 28, 2007 (“Schmidt”)). Final Office Action dated March 8, 2019 (“Final Act.”) 3–4. In support of the rejection, the Examiner finds that Schmidt teaches a composition containing a natural or synthetic polymer which may be “polypropylene homopolymer, random copolymer, alternating or segmented copolymer, block copolymer, or a blend of polypropylene with another synthetic polymer.” *Id.* at 3 (citing Schmidt ¶¶ 184–186, 189).

The Examiner further finds that Schmidt teaches that the composition may include one or more additional compounds that may include 1,3,5-tris[2,2-dimethylpropionyl amino]benzene which, the Examiner finds, satisfies component (ii)² of claim 29. *Id.* (citing Schmidt ¶ 33). The composition may further include one or more nucleating agents including 1,3:2,4-bis(3,4-dimethylbenzylidene) sorbitol; 2,2'-methylene-bis-(4,6-di-tert-butylphenyl)phosphate; and zinc (II) monoglycerate. *Id.* (citing Schmidt ¶¶ 205, 207, 209). These compounds each fall within the scope of component (iii) of claim 29. The Examiner further finds that the components are taught to be used in concentrations that overlap the claimed ranges. *Id.*

In the “Response to Arguments” section of the Final Office Action, the Examiner indicates that Appellant’s previous argument regarding the criticality of claim 29 is not persuasive because the scope of the claim is considerably broader than Appellant’s evidentiary showing. *Id.* at 4–5.

² The second element of claim 29 is referred to alternatively as “component (ii)” or “compound A.” Similarly, the third element of claim 29 is referred to alternatively as “component (iii)” or “compound B.”

More specifically, the Examiner finds that “the Examples recite specific polymers (i.e. Moplen HP 500N), however, the claims recite generic polymers (polypropylene homopolymer).” *Id.* at 5. The Examiner further finds that Appellant failed to present “a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range” of the claimed components. *Id.*

Appellant argues that the rejection is in error. Appeal Br. 4–10. Appellants do not present separate arguments with respect to the claims other than claim 35. Accordingly, we first address appealed claim 29 and claims 30–32, 39, and 40 will stand or fall with claim 29. 37 C.F.R. § 41.37(c)(1)(iv)(2018). We address claim 35 separately.

Appellant does not meaningfully dispute that the Examiner has established a prima facie case of obviousness. Appeal Br. 5. Rather, Appellant argues that the prima facie case is rebutted by evidence that the claimed composition exhibits unexpected beneficial properties. *Id.*

Appellant asserts that the Declaration of Heinz Herbst filed October 26, 2017 (“the First Herbst Declaration”) demonstrates the high scratch resistance of compositions achieved when compound A (component (ii)) and compound B (component (iii)) are used in combination. *Id.* at 6. The data in the First Herbst Declaration concern compositions based on a polypropylene ethylene (4 mole percent) random copolymer. First Herbst Declaration 2 (indicating that the polymer is sold commercially as “RD 204 CF”). Appellant further asserts that Table 7 of the Specification shows data indicating favorable haze properties for compositions “using a combination of the organic compound A and a compound B as a phosphate.” Appeal Br. 6–8. The Specification teaches that the compositions of Table 7 are based

on “polypropylene (PP) random copolymer comprising 4 mole% ethylene (RD 204 MFI 8[)].” Appellant additionally relies on the Declaration of Heinz Herbst filed October 24, 2018 (“the Second Herbst Declaration”) as showing favorable haze properties for compositions including compounds A and B (components (ii) and (iii)) of claim 29. *Id.* at 8. The Second Herbst Declaration shows data for compositions based on the following polymers: RD 204 CF, RD 204 MFI 8, and polypropylene homopolymer (Moplen HP 500N).

Appellant asserts that, in view of the foregoing, it has submitted evidence sufficient to show beneficial properties of compositions including each of the listed compounds A and B as well as several polypropylenes. *Id.* at 8–9.

In the Answer, the Examiner determines that “the showing of unexpected results for the claimed range of (ii) and (iii) are commensurate in scope with the claims,” but “the polymers (i.e., polypropylene homopolymer and polypropylene random copolymer) in the Examples do not reflect the broadly claimed (i) polypropylenes.” Examiner’s Answer dated Sept. 18, 2019 (“Ans.”) 5. That is, the Examiner finds that submission of testing data for compositions including polypropylene homopolymer and polypropylene random copolymer comprising 4 mole percent ethylene is insufficient to demonstrate the properties of compositions including all claimed polypropylene copolymers. *Id.* at 5–6.

In its Reply Brief, Appellant argues that it has offered evidence of unexpected results for a number of compositions including compositions having three different polymers. Appellant contends that, “even though Appellants may have demonstrated only three polypropylene species, when

all the data is looked at in its totality the skilled artisan would ascertain a trend from which they can reasonably extend the probative value thereof to the scope of claimed polypropylenes.” Appellant’s Reply Brief dated Nov. 18, 2019 (“Reply Br.”) 4–5. Appellant cites *In re Kao* for the proposition that “if an applicant demonstrates that an embodiment has an unexpected result and provides an adequate basis to support the conclusion that other embodiments falling within the claim will behave in the same manner, this will generally establish that the evidence is commensurate with the claims.” Reply Br. 3–4 (quoting *In re Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011)). Appellant further asserts that the Examiner has offered no evidence to rebut its evidence of criticality. *Id.* at 5.

With respect to claim 35, Appellant asserts that the data it submitted for compositions that include a polypropylene homopolymer is commensurate in scope with the claim which requires that “the polymer is a polypropylene homopolymer.” Reply Br. 3; Appeal Br. (Claims App. ii).

Obviousness is a determination of law that is based on underlying factual inquiries including objective evidence of nonobviousness, also known as, secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Such evidence may include a showing that the claimed invention yields unexpectedly improved properties not present in the prior art. *In re Fenn*, 639 F.2d 762, 765 (CCPA 1981). “It is the established rule that ‘objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.’” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 965 (Fed. Cir. 2014) (quoting *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)).

Here, the Examiner finds that Appellant has not presented evidence of nonobviousness that is commensurate with the scope of element (i) of claim 29. Element (i) requires “at least one polymer selected from the group consisting of a polypropylene homopolymer and a polypropylene random copolymer containing ethylene as a comonomer, wherein the total amount of propylene and the comonomer in the polymer is 100 wt%.” Appeal Br. (Claims App. i). Thus, the limitation at issue may encompass a combination of polymers (“at least one polymer”) as well as a polypropylene random copolymer containing any amount of ethylene (“containing ethylene”).

Appellant has offered evidence of certain properties of a composition including a polypropylene homopolymer and compositions including a polypropylene random copolymer containing four molar percent ethylene. Appellant has not offered evidence relating to the properties of any composition including multiple polymers or any polypropylene random copolymer containing a high percentage of ethylene or even other comonomers (e.g., butene or hexene) in addition to ethylene. Nor has Appellant directed us to evidence of record indicating that such compositions would have the same properties as those for which testing data is offered. Absent such evidence, we find Appellant’s argument that one “can reasonably extend the probative value [of the testing data] to the scope of claimed polypropylenes” (Reply Br. 5) to be unpersuasive.

In view of the foregoing, we determine that Appellant has failed to show harmful error in the rejection of claim 29. As Appellant argues the claims, other than claim 35, as a group (Appeal Br. 10; Reply Br. 3), we determine that Appellant has failed to show error in the rejection of claims

29–32, 39, and 40 as obvious over Schmidt. We consider claim 35 separately.

Claim 35 requires that “the polymer is a polypropylene homopolymer.” Appeal Br. (Claims App. ii). Appellant argues that the prima facie case of obviousness of claim 35 is rebutted by the testing data. Appeal Br. 4–9; Reply Br. 3. The Examiner has determined that Appellant has shown unexpected results commensurate with the scope of claim elements (ii) and (iii) of claim 29. As discussed above, the Examiner has determined that Appellant has not shown unexpected results commensurate with the scope of claim element (i) of claim 29. Dependent claim 35, however, is more narrow in scope than claim 29 with respect to claim element (i). As claim 35 is limited to compositions where “the polymer is a polypropylene homopolymer,” and Appellant has offered evidence indicating that compositions where the polymer is a polypropylene homopolymer have improved properties, we determine that Appellant has shown error with respect to the rejection of claim 35 as obvious over Schmidt.

New Ground of Rejection

Pursuant to our discretionary authority under 37 C.F.R. § 41.50(b), we issue a new ground of rejection as to claims 29, 31, 35, and 39 under 35 U.S.C. § 112, second paragraph, for failure to particularly point out and distinctly claim the subject matter regarded as the invention, and claim 31 under 35 U.S.C. § 112, fourth paragraph, as failing to further limit the subject matter of claim 29 from which it depends.

Claim 29 requires “[a] composition comprising . . . (iii) 150 to 300 parts per million (ppm) of at least one compound B selected from the group consisting of . . . a metal salt of 2,2’-methylene bis(4,6-di-tert-butylphenyl) phosphate lithium 2,2’-methylene-bis(4,6-di-tert-butylphenyl)phosphate” Appeal Br. (Claims App. i).

The Specification teaches that “[a]n example of metal salt of an organic phosphoric acid is a **metal salt of 2,2’-methylene-bis(4,6-di-tert-butylphenyl)phosphate** Further examples of metal salts of 2,2’-methylene bis(4,6-di-tert-butylphenyl)phosphate are **lithium 2,2’-methylene-bis (4,6-di-tert-butylphenyl) phosphate** sold under the tradename ADK Stab NA 71 by Adeka.” Spec. 8–9. Thus, the Specification indicates that the lithium salt is a species of the described metal salts.

There is, thus, some ambiguity as to whether “a metal salt of 2,2’-methylene bis(4,6-di-tert-butylphenyl)phosphate lithium 2,2’-methylene-bis(4,6-di-tert-butylphenyl)phosphate” as used in claim 29 names a single compound (as the plain meaning would suggest) or lists both a genus and a species falling within such genus. The former construction is consistent with the plain meaning of the claim but may conflict with the Specification. The latter interpretation would require us to infer punctuation that is absent from the claim and would result in a Markush group broader than that described in Appellant’s briefing. *See* Appeal Br. 8–9; Reply Br. 4.

During prosecution, a claim is examined for compliance with 35 U.S.C. § 112, second paragraph, by determining whether the claim meets threshold requirements of clarity and precision. *In re Skvorecz*, 580 F.3d 1262, 1268 (Fed. Cir. 2009) (quoting MPEP § 2173.02). A claim should be rejected as indefinite when it is amenable to two or more plausible claim

constructions. *Ex Parte Miyazaki*, 89 U.S.P.Q.2d 1207, 1211 (B.P.A.I. 2008); *In re Packard*, 751 F.3d 1307, 1324 (Fed. Cir. 2014) (“There are good reasons why unnecessary incoherence and ambiguity in claim constructions should be disapproved”). Here, we determine that the “metal salt of 2,2’-methylene bis(4,6-di-tert-butylphenyl)phosphate lithium 2,2’-methylene-bis(4,6-di-tert-butylphenyl)phosphate” of claim 29 fails to meet threshold requirements of clarity and precision and is indefinite under 35 U.S.C § 112, second paragraph. This ambiguity is similarly present in claim 35 which incorporates component (iii) of claim 29. Appeal Br. (Claims App. i, ii). We further determine that claim 31 is indefinite in view of its apparent improper dependency and also fails to further limit the subject matter of claim 29. *See* 35 U.S.C § 112, second paragraph; *see also* 35 U.S.C. § 112, fourth paragraph. Claim 39 is likewise indefinite for improper dependency because it depends from canceled claim 38. *Id.*

CONCLUSION

For the reasons stated by the Examiner in the Final Office Action and the Examiner’s Answer as well as the reasons set forth above, the Examiner’s obviousness rejection is affirmed in part. More specifically, the rejection of claims 29, 30, 31, 32, 39, and 40 is affirmed. The rejection of claim 35 is reversed.

We additionally issue new grounds of rejection based on 35 U.S.C. 112, second paragraph, as to claims 29, 31, 35, and 39 and 35 U.S.C. § 112, fourth paragraph, as to claim 31.

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed	New Ground
29, 30–32, 35, 39, 40	103	Schmidt	29, 30–32, 39, 40	35	
29, 31, 35, 39	112, second paragraph	Indefiniteness			29, 31, 35, 39
31	112, fourth paragraph	Improper dependency			31
Overall Outcome			29, 30–32, 39, 40	35	29, 31, 35, 39

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

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b), which provides that “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) Request rehearing. Request that the proceeding be reheard under § 41.52 by the Board upon the same record. . . .

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Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

AFFIRMED IN PART; 37 C.F.R. § 41.50(b)