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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MURALI K. AKKAPEDDI¹
and Brian A. Lynch

Appeal 2018-003419²
Application 14/861,481
Technology Center 1700

Before MARK NAGUMO, JAMES C. HOUSEL, and BRIAN D. RANGE,
Administrative Patent Judges.

NAGUMO, *Administrative Patent Judge.*

DECISION ON APPEAL

Graham Packaging Company, L.P. (“Akkapeddi”) timely appeals under 35 U.S.C. § 134(a) from the Final Rejection³ of all pending claims 1–9, 11–24, 26–34, 36, 37, 39, and 40. We have jurisdiction. 35 U.S.C. § 6.

¹ The applicant under 37 C.F.R. § 1.46, and hence the appellant under 35 U.S.C. § 134, is the real party in interest, identified as Graham Packaging Company, L.P. (“Akkapeddi”). (Appeal Brief, filed 7 September 2017 (“Br.”), 1.)

² A hearing scheduled for 26 September 2019, was waived by Akkapeddi. (Communication filed 12 August 2019.)

³ Office Action mailed 11 May 2017 (“Final Rejection”; cited as “FR”). The substantive rejections are set forth in the Office Action mailed 7 November 2016 (“OA”).

We affirm.

OPINION

A. Introduction⁴

The subject matter on appeal relates to polyester compositions (independent claim 1) and a wall for a package comprising such a composition (independent claim 16).

The '481 Specification discloses that injection stretch blow-molded polyester containers, especially containers made from polyethylene terephthalate (“PET”), are replacing glass and metal containers due to their better economics, lighter weight, increased breakage resistance, and better consumer acceptance. (Spec. 1 [0005].) There is, however, a need to enhance the oxygen barrier properties of PET containers so they can be used to package oxygen-sensitive food products such as tomato-based ketchups and sauces, and beverage products such as orange juice, beer, and green tea. (*Id.* at [0004]–[0005].) Prior art solutions are said to require lengthy induction periods before oxygen-scavenging properties are achieved, or to require unacceptably high levels of oxygen scavenger or oxidation catalyst. (*Id.* at 2 [0010].)

The '481 Specification provides a composition comprising a polyester base composition that is substantially free of antimony and substantially free of phosphorus, and that further comprises an oxidizable polyether-based

⁴ Application 2018-003419, *Oxygen scavenging compositions requiring no induction period*, filed 22 September 2015, as a continuation-in-part of 14/535,703, filed 07 November 2014, now abandoned. We refer to the “'481 Specification,” which we cite as “Spec.”

additive, and a transition metal salt catalyst. According to the Specification, oxygen scavenging proceeds by reaction of the small amount of oxygen that permeates into the wall of a preform or bottle with the transition metal salt catalyst to form peroxide free radicals. These free radicals are thought to initiate and propagate a free radical oxidation chain reaction with the oxidizable polyether additive, thus carrying out the oxygen scavenging in the preform or bottle. (Spec. 4–5 [0024].) The presence of “inhibitor impurities,” in particular antimony (which is often used as a condensation catalyst in the production of PET), or phosphorus (a constituent of common antioxidants) is thought to deactivate the transition metal catalyst as well as the free radical initiation and propagation, “resulting in an induction period before the onset of oxygen scavenging.” (*Id.*)

In the words of the Specification, “PET polymers formed using typical antimony metal-based catalysts typically contain about 190 ppm to about 300 ppm antimony and about 20 ppm to about 100 ppm of phosphorus.” (Spec. 7 [0030].) Thus, the Specification defines the term “substantially free of antimony” as less than 200 ppm Sb (*id.*); and the term “substantially free of phosphorus” is less than 20 ppm P (*id.*). The Specification teaches that “the antimony-free polyester base polymer is selected from PET resins formed using titanium, germanium, or aluminum metal-based catalysts.” According to Akkapeddi, the inventive compositions provide for oxygen scavenging without an induction period.

Claim 1 is representative and reads:

A composition comprising:

- a polyester base polymer that is substantially free of antimony and substantially free of phosphorous [sic: phosphorus];
- an oxidizable polyether-based additive; and
- a transition metal catalyst.

(Claims App., Br. 14; some formatting added.)

The Examiner maintains the following grounds of rejection^{5, 6}:

- A. Claims 1–9, 11, 13–24, 26, 28–34,⁷ 36, 37, 39, and 40 stand rejected under 35 U.S.C. § 102(b) in view of Cyr.⁸
- A1.⁹ Claims 1–9, 11–24, 26–34,¹⁰ 36, 37, 39, and 40 stand rejected under 35 U.S.C. § 103(a) in view Cyr.

⁵ Examiner’s Answer mailed 13 December 2017 (“Ans.”).

⁶ Because this application was filed before after 16 March 2013, the effective date of the America Invents Act, we refer to the AIA version of the statute.

⁷ Akkapeddi assumes claim 27 is rejected as anticipated (Br. 2, § 2, 1st ¶), but does not argue claim 27 separately.

⁸ Michael John Cyr et al., *Polyether containing polymers for oxygen scavenging*, U.S. Patent No. 6,455,620 B1 (2002).

⁹ The Examiner’s statement of rejection has been corrected to reflect the claims pending at the time of the Final Office Action.

¹⁰ Claim 27 is rejected in parallel with claim 12 (OA 9, ¶ 28), but is expressly omitted in the heading of the rejection in the Final Rejection (FR 3, ¶ 7.) We assume the omission of claim 27 in the heading in the Final Rejection is a word-processing error. In any event, Akkapeddi does not offer separate argument for the patentability of claim 27.

A2.⁹ Claims 1–9, 11–24, 26–34,¹¹ 36, 37, 39, and 40 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Cyr and Rosenfeld.¹²

B. Discussion

The Board’s findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

Rejection A: anticipation

The Examiner finds that Cyr describes oxygen scavenging compositions comprising a thermoplastic polymer, an oxidation catalyst, and a polyether. (OA 5, ¶ 12 (citing Cyr, col. 2, ll. 36–45).) The thermoplastic polymers include polyesters, which can be made by conventional processes (*id.* (citing Cyr, col. 6, ll. 12–14)), including polycondensation reactions using salts of antimony, germanium, tin, lead, or gallium (*id.* (citing Cyr, col. 8, ll. 38–40, Cyr examples)). The oxidation catalysts include transition metal catalysts. (*Id.* (citing Cyr, col. 4, ll. 50–65).) The Examiner finds further that Cyr discloses the optional addition of antioxidants, which include phosphorus-containing and non-phosphorus-containing compounds. (*Id.* ¶ 14 (citing Cyr, col. 10, ll. 14–24).)

¹¹ Claim 27 is rejected in parallel with claim 12 (OA 12, ¶ 41), but is expressly omitted in the heading of the rejection in the Final Rejection (FR 3, ¶ 8.) We assume the omission of claim 27 in the heading in the Final Rejection is a word-processing error. In any event, Akkapeddi does not offer separate argument for the patentability of claim 27.

¹² Jerold C. Rosenfeld, *Stabilized aromatic polyester compositions*, U.S. Patent No. 4,824,895 (1989).

The Examiner determines that, “[i]n light of Cyr’s disclosure of non-antimony catalysts, it is evident that Cyr describes polymers without any antimony which thus fall within the scope of the recited polymers that are substantially free of antimony.” (OA ¶ 13.) Similarly, the Examiner concludes that “Cyr is considered to describe polymers without any phosphorus which thus fall within the scope of the recited polymers that are substantially free of phosphorus.” (*Id.* at 6, ¶ 15.) On this basis the Examiner concludes that Cyr anticipates the claimed subject matter. (*Id.* at 7, ¶ 19.)

Akkapeddi urges the Examiner errs harmfully in finding that Cyr describes PET compositions comprising PET that are substantially free of antimony and substantially free of phosphorus merely because Cyr describes non-antimony catalysts for the polymerization of PET and non-phosphorus based optional antioxidants to stabilize the composition. Rather, in Akkapeddi’s view, significant picking and choosing among the various species disclosed by Cyr are required, thus defeating anticipation. (Br. 4 (citing *In re Arkley*, 455 F.2d 586, 589 (CCPA 1972) (any need to select elements negates anticipation).) Moreover, in Akkapeddi’s view, Cyr does not describe “a genus” from which a person having ordinary skill in the art would have “at once envisage[d]” a species of the invention. (Br. 11, ll. 1–3 (citing FR ¶ 15).) The various groups, Akkapeddi urges, do not share a common character, and thus there is no proper genus/species relationship.

The weight of the evidence, and precedent, support Akkapeddi with respect to anticipation by Cyr. Our reviewing court has explained that “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only

disclose all elements of the claim within the four corners of the document, but *must also disclose those elements arranged as in the claim.*”

Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359, 1369 (Fed. Cir. 2008) (internal quote and citation omitted; emphasis added). In the leading cases in which a small genus was found to provide a description of the individual members of the genus, the genus was found to “embrace[] a very limited number of compounds closely related to one another in structure” (*In re Schaumann*, 572 F.2d 312, 316 (CCPA 1978)); or the reference was found to provide a “pattern of . . . specific preferences [that] in connection with his generic formula constitutes a description of a definite and limited class of compounds” (*In re Petering*, 301 F.2d 676, 681 (CCPA 1962)). As Akkapeddi argues, the Examiner has not shown that any of these conditions for “immediately envisioning” embodiments of the claimed subject matter from the prior art are met by the facts of the present case.

Rejection A for anticipation is reversed.

Rejections A1 and A2: obviousness

Alternatively, the Examiner holds that it would have been obvious to follow the suggestions of Cyr to use non-antimony polymerization catalysts to prepare PET, and to use non-phosphorus antioxidants, or not to use antioxidants, thereby obtaining compositions within the scope of the appealed claims. (OA 7, ¶ 20–10, ¶ 30.) In a still further rejection, the Examiner finds that Rosenfeld describes methods of making polyesters made with catalysts, including non-antimony containing catalysts, and that Rosenfeld also describes using non-phosphorus stabilizers with the polymers, and holds that the claimed compositions would have been obvious

in view of the combined teachings of Cyr and Rosenfeld. (*Id.* at 10, ¶ 31–13, ¶ 43.) Thus, a strong case can be made for determining that the claimed compositions would have been *prima facie* obvious in view of Cyr: all one need have done is follow the suggestions of Cyr to obtain such compositions by using non-antimony polymerization catalysts, and not using antioxidants, or using only non-phosphorus-containing antioxidants, along with using the transition metal oxidation catalysts and the polyethers as oxygen scavenging agents.

Akkapeddi argues the Examiner errs harmfully in concluding that such compositions would have been obvious because the Examiner does not account for the discovery of the problem that antimony and phosphorus, which are commonly found in PET, interfere with at least the initial ability of the oxygen-scavenging composition to scavenge oxygen, resulting in an induction period. (Br. 12.)

The Federal Circuit has explained that on appeal, the appellant must not only show the existence of error, but also that the error was harmful because it affected the decision below. *In re Chapman*, 595 F.3d 1330, 1338 (Fed. Cir. 2010) (quoting *Shinseki v. Sanders*, 556 U.S. 396, 409 (2009)) (“[T]he burden of showing that the error is harmful normally falls upon the party attacking the agency’s determination.”). The difficulty with Akkapeddi’s arguments against obviousness is that Akkapeddi does not support them with any detailed discussion of experimental results of record, which, in this case, appear to be limited to the disclosures in the Specification. Our principal role, however, is review, not examination in the first instance: nor do we act as advocates, either for the Examiner or for Appellant. We decline to undertake a substantial analysis of that data in the

first instance because we would be doing so without the benefit of Akkapeddi's analysis, and without the benefit of the Examiner's response, which could range from rejection through modification to acceptance.

Put another way, Akkapeddi has, by making only conclusory arguments, failed to put a substantive argument regarding the importance of the problem solved in the resolution of the question of obviousness. *Cf. PC Connector Solutions LLC v. SmartDisk Corp.*, 406 F.3d 1359, 1364 (Fed. Cir. 2005) ("Having presented the district court with only conclusory statements regarding equivalence, without any particularized evidence and linking argument as to the 'insubstantiality of the differences' between the claimed invention and the accused device, or with respect to the 'function, way, result' test, PC Connector is now foreclosed from invoking the substantive application of the doctrine of equivalents."); *DeSilva v. DiLeonardi*, 181 F.3d 865, 866–67 (7th Cir. 1999) ("A brief must make all arguments accessible to the judges, rather than ask them to play archaeologist with the record.")

We recognize potential merit in Akkapeddi's arguments, especially if Akkapeddi were to establish unexpected results. However, without the evidentiary underpinnings identified and analyzed by Akkapeddi, and at least the opportunity for the Examiner to respond, we have not been placed in a position to evaluate the weight to be accorded to those arguments. Nor have we been placed in a position to compare that weight with the weight of the evidence supporting the Examiner's findings. Accordingly, we are not persuaded of harmful error in Rejections A1 and A2 for obviousness.

The rejections for obviousness are affirmed.

C. Order

It is ORDERED that Rejection A of claims 1–9, 11, 13–24, 26, 28–34, 36, 37, 39, and 40 35 U.S.C. § 102(b) in view of Cyr is reversed.

It is FURTHER ORDERED that Rejection A1 of claims 1–9, 11–24, 26, 28–34, 36, 37, 39, and 40 under 35 U.S.C. § 103(a) in view Cyr is affirmed;

It is FURTHER ORDERED that Rejection A2 of claims 1–9, 11–24, 26, 28–34, 36, 37, 39, and 40 under 35 U.S.C. § 103(a) in view of the combined teachings of Cyr and Rosenfeld 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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED