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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/294,370	12/06/2005	Peter S. Kezios	282199US23	7347
22850	7590	02/22/2013	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			RAUDENBUSH, ELLEN SUZANNE	
			ART UNIT	PAPER NUMBER
			1782	
			NOTIFICATION DATE	DELIVERY MODE
			02/22/2013	ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* PETER S. KEZIOS,  
CHI-CHIN CHEN, HELEN CODD, and KARL BUCHANAN

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Appeal 2011-013370  
Application 11/294,370  
Technology Center 1700

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Before ROMULO H. DELMENDO, MICHAEL P. COLAIANNI, and  
GEORGE C. BEST, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION ON APPEAL

On November 11, 2010, the Examiner finally rejected claims 1-69 and 71-84 of Application 11/294,370 under 35 U.S.C. § 103(a) as obvious. Appellants seek reversal of these rejections pursuant to 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

This appeal was heard on February 5, 2012.

For the reasons set forth below, we AFFIRM-IN-PART and enter NEW GROUNDS OF REJECTION.

## BACKGROUND

The '370 application describes methods for manufacturing polyester compositions that are alleged to have improved gas barrier properties (Spec. 1). Because of these allegedly superior gas barrier properties, these compositions are asserted to be particularly useful resins for the manufacture of beverage bottles (*id.*).

Claim 1 is representative of the '370 application's claims and is reproduced below:

1. A composition, comprising:

at least one polyester matrix resin obtained by polymerizing a mixture comprising at least one dicarboxylic acid and at least one diol without solid state polymerization;

wherein the polyester matrix resin comprises polymerized units of isophthalic acid in an amount of 4 to 30 mol % based on the total number of moles of all of the dicarboxylic acid monomer units in the polyester resin; and

wherein the polyester matrix resin has an intrinsic viscosity of from 0.7 to 0.9 at 30°C in a mixed solvent of 60% phenol and 40% 1,1 ,2,2-tetrachloroethane, wherein % is wt % based on the total weight of phenol and 1,1 ,2,2-tetrachloroethane.

(App. Br. 28 (Claims App'x)).

## REJECTIONS

1. The Examiner finally rejected claims 1-16, 80, and 81 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,788,249 ("Maresca," issued Nov. 29, 1988) in view of U.S. Patent

No. 2,901,466 (“Kibler,”<sup>1</sup> issued Aug. 25, 1959) (Final Office Action (“FOA”) 2 (Nov. 10, 2010)).

2. The Examiner finally rejected claims 17-69, 71-79,<sup>2</sup> and 82-84 under 35 U.S.C. § 103(a) as obvious over U.S. Patent Application Publication No. 2002/0137834 A1 (“Barbee,” Sept. 26, 2002) in view of Kibler (FOA 5).

## DISCUSSION

Appellants’ arguments on appeal may be divided into three groups: (1) arguments that all of the claims rejected as obvious over the combination of Maresca and Kibler should be reversed, (2) arguments that the rejections of all of the claims rejected as obvious over the combination of Barbee and Kibler should be reversed, and (3) separate arguments that the rejections of certain of the dependent claims should be reversed. We will address these arguments *seriatim*.

**Argument 1.** The Examiner finally rejected claim 1 and claims that depend directly or indirectly from claim 1 as obvious in view of the combination of Maresca and Kibler. Claim 1 requires the production of the claimed polyester matrix resin to be accomplished “without solid state

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<sup>1</sup> Throughout the briefs, the Examiner and Appellants refer to the ’466 patent as “Smith.” As is our practice, we refer to the patent by the first-named inventor rather than using a co-inventor’s name.

<sup>2</sup> The FOA and the Examiner’s Answer both state that claim 80 also is rejected over the combination of Barbee and Kibler (FOA 5; Ans. 6). Claim 80, however, depends from claim 1, which is not alleged to be obvious over this combination of references. Furthermore, the Examiner’s statement of the grounds of this rejection does not identify where either Barbee or Kibler describe the limitation added by claim 80. We therefore conclude that the Examiner’s inclusion of claim 80 in this rejection was inadvertent error.

polymerization.” The Examiner admits that Maresca does not teach a process for producing polyester matrix resins without solid state polymerization (Ans. 4). The Examiner relies upon Kibler for a description or suggestion that the polyesters can be created without solid state polymerization (*id.*).

Appellants argue that this rejection should be reversed for two reasons: (1) Appellants allege that the Examiner has not demonstrated that the combination of Maresca and Kibler establish a prima facie case of obviousness (App. Br. 11-16), and (2) Appellants allege that the Examiner failed to consider the rebuttal evidence submitted in response to the obviousness rejection (App. Br. 16-18).

*First*, Appellants argue that the combination of Maresca and Kibler does not establish a prima facie case because the Examiner has not provided an adequate reason for a person of ordinary skill in the art to turn to Kibler to modify the synthetic process described in Maresca (App. Br. 12-13). The Examiner had relied on Maresca’s cross-reference to Kibler (Ans. 10-11). Maresca states that “[t]he polyesters described herein are either commercially available or can be produced by methods well known in the art, such as those set forth in, for example, [Kibler]” (Maresca 4:35-38).

Appellants argue that Maresca’s express reference to Kibler is not a sufficient reason to combine the teachings of the two references because Kibler describes a process that can only be used to produce “linear polymers” (App. Br. 12 (quoting Kibler 1:15-18)). Appellants assert that the linear condensation polymers produced by Kibler’s methods are distinct from the ’370 application’s claimed isophthalic acid-containing polymers because the isophthalic acid-containing polymers are not linear as that term is used in Kibler (App. Br. 13-15).

Appellants' position is contradicted by Kibler's disclosure, which expressly includes isophthalic acid in a list of dicarboxylic acids that can be used in Kibler's process (Kibler 6:54-63 ("Examples of other bifunctional dicarboxylic organic acids which are adapted to the formation of linear polyesters and which can be employed in accordance with this invention as described above include . . . isophthalic acid, orthophthalic acid, hexahydro-orthophthalic acid, etc."); *see also id.* at 15:75-16:10 ). Therefore, Appellants' assertion that isophthalic acid cannot be used in Kibler's process is incorrect.

Furthermore, Kibler contains several examples of polyester (co)polymers made with isophthalic acid (*see, id.* at Examples 39-41, 55, 58, and 64). None of these examples expressly omits solid state polymerization. The Examiner, however, identified several Examples in Kibler that do omit the solid state polymerization (Ans. 4 (citing Kibler Examples 1, 3, 4, 5, and 10)). While Appellants correctly state that none of these examples describe preparation of an isophthalic acid copolymer exactly as claimed in the '370 application (App. Br. 15-16), the examples do describe processes that produce polymers and copolymers which meet or exceed the claimed intrinsic viscosity without solid state polymerization. Furthermore, Kibler's Example 68 describes the preparation of a block copolymer comprising alternating blocks of poly(hexamethylene isophthalamide) and poly(1,4-cyclohexanedimethylene isophthalate) without solid state polymerization (Kibler 19:45-62). A person of ordinary skill in the art, therefore, would have a reasonable expectation that the combination of Maresca and Kibler could be successfully used to produce the claimed isophthalic acid-containing copolymers.

*Second*, Appellants argue that the rejection should be reversed because the Examiner did not properly consider and apparently gave no weight to the Kezios Declaration (App. Br. 18). After the Examiner provided a detailed explanation of why the Kezios Declaration was insufficient (Ans. 13-15), Appellants argue that the Examiner misapprehended the Declaration (Reply Br. 5-7). Appellants assert:

The Kezios Declaration provides evidence supporting two important points with respect to the alleged obviousness of the presently claimed composition. First, the Kezios Declaration makes it clear that conventional methods of polyester manufacture included solid state polymerization. Polyester matrix resins made from processes including solid state polymerization are excluded from the claimed invention. Second, a polyester composition containing a co-monomer would have been expected to suffer from agglomeration and sticking.

(Reply Br. 7).

The Declaration's import, however, is more ambiguous than Appellants would have us believe. For example, Appellants' position is that the Kezios Declaration provides evidence that, at the time of the invention, *all* conventional methods of making high intrinsic viscosity polyester included solid state polymerization as a necessary step (Reply Br. 5 (citing Kezios Decl. ¶¶ 9, 13-15)). The relevant portion of the Declaration cites a single page of one reference as supporting Dr. Kezios's opinion (Kezios Decl. ¶ 13 (citing U.K. Thiele (ed.) *Polyester Bottle Resins: Production, Processing, Properties and Recycling*, 33 (2007))). That reference does not state that *all* conventional methods for making polyesters included solid state polymerization as a *necessary* step. (*Plastic Bottle Resins*, 33). At most, it supports the conclusion that solid state polymerization is used in a particular industrial scale production process to accomplish certain goals (*id.*

(referring to specific reaction byproducts, stating that understanding the large scale process took more than 20 years, and that the chapter would discuss the industrial solid state polymerization)). The '370 application's claims are not limited to compositions produced on the industrial-scale.

Appellants rely on the Declaration to support their assertion that a person of ordinary skill in the art, knowing that solid state polymerization of isophthalic acid-containing polyesters likely would be problematic, would simply give up. Neither Appellants nor the Declaration explain why a skilled artisan, knowing that Kibler describes processes that do not include solid state polymerization, would be so easily dissuaded from trying other synthesis procedures.

On this record, the Examiner did not err in concluding that the rebuttal evidence provided by the Kezios Declaration did not outweigh the evidence that claim 1 would have been obvious to a person of ordinary skill in the art at the time of the invention.

We therefore affirm the Examiner's rejection of claims 1-16, and 80 as obvious over the combination of Maresca and Kibler. Because we affirm the Examiner's decision to reject these claims arguably using different facts and reasoning than those relied upon by the Examiner, we denominate this a new ground of rejection under 37 C.F.R. § 41.50(b) out of an abundance of caution. *See In re Stepan Co.*, 660 F.3d 1341, 1345 (Fed. Cir. 2011).

**Argument 2.** The Examiner finally rejected independent claims 17, 36, and 52 along with the claims dependent directly or indirectly upon independent claims as obvious over the combination of Barbee and Kibler.

Appellants' arguments against this rejection are substantively the same as the arguments advanced against the combination of Maresca and Kibler (App. Br. 19-25). For the reasons given above, we affirm the

Examiner's rejection of claims 17-69, 71, 72, 74, 76, and 78 as obvious over the combination of Barbee and Kibler. For the reasons discussed above, we also denominate this a new ground of rejection under 37 C.F.R. § 41.50(b).

**Argument 3.** Appellants present a separate argument that claim 81 is not obvious over the combination of Maresca and Kibler and that claims 73, 75, 77, 79, and 82-84 are not obvious over the combination of Barbee and Kibler. Each of these claims contains a limitation requiring the presence of an —SO<sub>3</sub> group in the claimed polyester composition.

*Claim 81.* Claim 81 is a dependent claim that requires the polyester matrix resin to include “polymerized units of one or more isophthalic acid monomer units having an —SO<sub>3</sub> group.” The Examiner argues that Maresca as describing or suggesting this limitation (Ans. 6 (citing Maresca 11:50-54)). The cited portion of Maresca does not describe an —SO<sub>3</sub> substituted isophthalic acid, much less suggest its incorporation into a polyester. Rather, it describes the diamine monomer in a polyamide-polyester block copolymer. The Examiner's rejection of claim 81 as obvious over the combination of Maresca and Kibler is reversed.

*Claims 73, 75, 77, 79.* These claims further specify that either an ionomeric unit (claims 73 and 79) or a co-polyamide ionomer (claims 75 and 77) comprise an —SO<sub>3</sub> group. The Examiner never identifies where the combination of Barbee and Kibler describes or suggests either of these limitations. Thus, the rejection of claims 73, 75, 77, and 79 as obvious over the combination of Barbee and Kibler is reversed.

*Claims 82-84.* These claims Claim 81 require the polyester matrix resin to include “polymerized units of one or more isophthalic acid monomer units having an —SO<sub>3</sub> group.” The Examiner appears to cite ¶ [0044] of Barbee as describing this limitation (Ans. 12). The cited portion of Barbee,

however, does not describe or suggest these claim limitations. Thus, the rejection of claims 82-84 as obvious over the combination of Barbee and Kibler is reversed.

#### NEW GROUNDS OF REJECTION

**Claim 79.** The term “ionomeric units” in claim 79 refers to the monomers used to create the co-polyamide ionomer polymer recited in parent claims 76 and 52. The parent claims, however, contain no reference to the specific monomers used to create the co-polyamide ionomer polymer. Thus, the term “ionomeric units” in claim 79 lacks a proper antecedent basis. Claim 79, therefore, is rejected under 35 U.S.C. § 112, ¶ 2 as indefinite.

#### CONCLUSION

We have affirmed the Examiner’s rejection of claims 1-16, and 80 as obvious over the combination of Maresca and Kibler. We also have affirmed the Examiner’s rejection of claims 17-69, 71, 72, 74, 76, and 78 as obvious over the combination of Barbee and Kibler. Out of an abundance of caution, we have designated these affirmances as new grounds of rejection. We have reversed the Examiner’s obviousness rejections of claims 73, 75, 77, 79, and 81-84. Claim 79, however, also is the subject of a new ground of rejection.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b) (effective September 13, 2004, 69 Fed. Reg. 49960 (August 12, 2004), 1286 Off. Gaz. Pat. Office 21 (September 7, 2004)). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the appellant, WITHIN TWO

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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. . . .

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

AFFIRMED-IN-PART, NEW GROUND OF REJECTION  
PURSUANT TO 37 C.F.R. § 41.50(b)

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