UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/005,832	12/11/2013	Sherri M. Nelson	CICT-67-PCT-US 2011P0054	2027

104330 7590 12/20/2019

Dority & Manning, P.A. and Ticona LLC
Post Office Box 1449
Greenville, SC 29602

EXAMINER	
LOPEZ, RICARDO E.	

ART UNIT	PAPER NUMBER
1786	

NOTIFICATION DATE	DELIVERY MODE
12/20/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usdocketing@dority-manning.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHERRI M. NELSON, DAVID W. EASTEP, TIMOTHY L. TIBOR, TIMOTHY A. REGAN, MICHAEL L. WESLEY, and RICHARD STIEHM

Appeal 2019-002246
Application 14/005,832
Technology Center 1700

Before KAREN M. HASTINGS, JULIA HEANEY, and BRIAN D. RANGE, *Administrative Patent Judges.*

RANGE, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–6, 10–16, 31–34, and 37–40. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

---

[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 Ticona LLC. Appeal Br. 1.

CLAIMED SUBJECT MATTER[2]

Appellant describes the invention as relating to a composite rod that could be used, for example, to transmit fluids and/or electrical signals between the sea surface and equipment located on a sea bed. Spec. ¶ 2. In particular, the Specification describes impregnating the roving (i.e., the bundle or tow of individual fibers (*id.* at ¶ 23)) with a thermoplastic polymer matrix to achieve a very small void fraction leading to excellent strength properties. *Id.* at ¶ 22. Claim 1, reproduced below with formatting added for readability and emphases added to certain recitations at issue, is illustrative:

> 1. A composite rod extending in a longitudinal direction, wherein the rod contains a core comprising a plurality of thermoplastic impregnated rovings,
>
> the rovings containing continuous fibers oriented in the longitudinal direction and a thermoplastic matrix that embeds the fibers,
>
> the fibers having a ratio of ultimate tensile strength to mass per unit length of greater than 1,000 Megapascals per gram per meter,
>
> wherein the continuous fibers constitute from 25 wt.% to 80 wt.% of the core and
>
> the thermoplastic matrix constitutes from 20 wt.% to 75 wt.% of the core, and
>
> wherein the rovings are distributed generally symmetrically about a longitudinal center of the core,
>
> **wherein the core has a void fraction of 3% or less**, and

[2] In this Decision, we refer to the Final Office Action dated January 26, 2018 ("Final Act."), the Appeal Brief filed August 22, 2018 ("Appeal Br."), and the Examiner's Answer dated November 19, 2018 ("Ans.").

wherein the rod has a minimum flexural modulus of 10 Gigapascals, a bend radius of less than 40 times the outer diameter of the rod, and a minimum ultimate tensile strength of 300 Megapascals.

Appeal Br. 11 (Claims Appendix).

REFERENCES

The Examiner relies upon the prior art below in rejecting the claims on appeal:

Hilakos	US 4,939,002	July 3, 1990
Beever	US 4,992,229	Feb. 12, 1991
Walls et al. ("Walls")	US 5,285,699	Feb. 15, 1994
Atkinson	US 2006/0280938 A1	Dec. 14, 2006

REJECTION(S)

The Examiner maintains (Ans. 3) the following rejections on appeal:

A. Claims 1–6, 10–14, 16, 31–34, and 37–39 under 35 U.S.C. § 103 as obvious over Beever in view of Atkinson and Hilakos. *Id.*

B. Claims 15 and 40 under 35 U.S.C. § 103 as obvious over Beever in view of Atkinson, Hilakos, and Walls. *Id.* at 6.

OPINION

To resolve the issues before us on appeal, we focus on the Examiner's findings and determinations that relate to the error Appellant identifies.

Independent claims 1 and 31 each recite a composite rod with thermoplastic impregnated rovings where the "core has a void fraction of 3% or less" and where the rod has other recited physical properties ("the rod has a minimum flexural modulus of 10 Gigapascals, a bend radius of less than

40 times the outer diameter of the rod, and minimum ultimate tensile strength of 300 Megapascals"). The Examiner finds that Beever teaches a composite rod having thermoplastic impregnated rovings. Ans. 4 (citing Beever). The Examiner combines the teachings of Atkinson to reach the particular numbers of filaments and filament size and strength for the rovings. *Id.* (citing Atkinson).

With respect to void fraction, the Examiner finds that Hilakos teaches filaments encapsulated to eliminate air pockets or voids between fibers with the encapsulation increasing strength. Ans. 4–5 (citing Hilakos). The Examiner determines that it would have been obvious to select Hilakos's method to manufacture the Beever rod in order to eliminate resin voids and improve strength. *Id.*

With respect to the other recited physical properties, the Examiner finds that the cited art does not explicitly recognize these properties. *Id.* at 5–6. The Examiner, however, determines that the properties would be inherent in the composite rod suggested by the prior art because of "the use of like materials and method." *Id.*

Appellant persuasively argues that the Examiner has not adequately established the void fraction and physical rod properties that claims 1 and 31 recite. Appeal Br. 4–9. Our reviewing court has held that where "the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *In re Best*, 562 F.2d 1252, 1256 (CCPA 1977); *see also In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990) ("[W]hen the PTO shows sound basis for believing that the

products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not."). Our reviewing court has also stated, however, that "[t]he mere fact that a certain thing *may* result from a given set of circumstances is not sufficient [to establish inherency.]" *In re* Rijckaert, 9 F.3d 1531, 1534 (Fed. Cir. 1993) (quoting *In re Oelrich*, 666 F.2d 578, 581–82, 212 USPQ 323, 326 (CCPA 1981)) (emphasis and bracketed additions original).

Here, Appellant provides evidence in the form of the April 10, 2018, declaration of co-inventor Mr. David Eastep ("Eastep Decl."). Mr. Eastep explains that the Hilakos reference does not establish a process with no voids. Eastep Decl. ¶¶ 9–11. Hilakos states that, for its resin impregnated strand, "visual inspection with a 10 power magnification does not reveal any resin voids between glass fibers." Hilakos 8:4-8. Mr. Eastep, however, states that 10 power magnification is not enough magnification to determine void fraction. Eastep Decl. ¶ 11. The Examiner does not dispute this particular testimony. Ans. 8. Thus, the Examiner's rejection does not establish by a preponderance of the evidence that Hilakos (or any of the cited references) necessarily teaches a process resulting in a core having "a void fraction of 3% or less" as claims 1 and 31 recite.

Mr. Eastep also provides evidence that the methods (e.g., the "poltrusion" manufacturing method of Hilakos) described by the cited art are "known immersion bath-based methods" that cannot result in rods "having the combination of properties required by independent claims 1 and 31." Eastep Decl. ¶¶ 12–15. Mr. Eastep explains that the improved rod properties that claims 1 and 31 recite are the result of using the impregnation die process disclosed by the Specification. *Id.* at ¶¶ 12–15; *see also, e.g.*, Spec.

Fig. 4 (depicting impregnation die), ¶¶ 22, 41–45, 76. The Examiner does not persuasively refute the evidence provided by Mr. Eastep by, for example, adequately explaining why the Specification and the cited references describe processes so identical that the processes would inherently produce rods with the same properties. *See* Ans. 5–6, 9–10.

Because Appellant's argument identifies error, as explained above, we do not sustain the Examiner's rejection of claims 1 and 31. Because the Examiner's treatment of the dependent claims does not cure this error, we also do not sustain the Examiner's rejection of the dependent claims.

CONCLUSION

In summary:

Claims Rejected	**35 U.S.C. §**	**Reference(s)/Basis**	**Affirmed**	**Reversed**
1–6, 10–14, 16, 31–34, 37–39	103	Beever, Atkinson, Hilakos		1–6, 10–14, 16, 31–34, 37–39
15, 40	103	Beever, Atkinson, Hilakos, Walls		15, 40
Overall Outcome				**1–6, 10–16, 31–34, 37–40**

REVERSED