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Hoffman Warnick LLC 540 Broadway 4th Floor Albany, NY 12207			ENGLISH, PATRICK NOLAND	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JIN WU, DAVID JOSEPH GERVASI,
MATTHEW MICHAEL KELLY, and QI YING LI

Appeal 2017-004559
Application 14/093,597
Technology Center 1700

Before TERRY J. OWENS, JENNIFER R. GUPTA, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

DENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL¹

STATEMENT OF THE CASE

Appellant² appeals under 35 U.S.C. § 134(a) from a rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ In our Opinion, we refer to the Specification filed December 2, 2013 (“Spec.”); the Final Action mailed April 12, 2016 (“Final Act.”); the Advisory Action mailed June 28, 2016 (“Adv. Act.”); the Appeal Br. filed August 22, 2016 (“Appeal Br.”); the Examiner’s Answer mailed November 25, 2016 (“Ans.”); and the Reply Brief filed January 24, 2017 (“Reply Br.”).

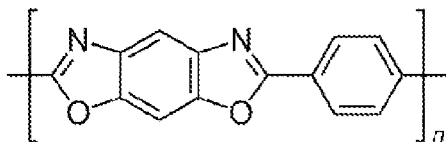
² Appellant is the Applicant, Xerox Corp. BIB Data Sheet.

The subject matter on appeal relates to “fuser members useful in electrophotographic imaging apparatuses.” Spec. ¶ 1. In the electrophotographic printing process, a fuser member can be used to fix or fuse a toner image on a support such as a paper sheet. *Id.* ¶ 3. Fillers may be incorporated into polymeric materials in fuser members. *Id.*

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A fuser member comprising:

a substrate layer comprising a polyimide having dispersed therein a plurality of poly(p-phenylene benzobisoxazole) fibers, wherein the poly(p-phenylene benzobisoxazole) is represented by:



wherein n is from 20 to 2,000.

REFERENCES

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

Deguchi et al. ("Deguchi")	US 2002/0106510 A1	Aug. 8, 2002
Chen et al. ("Chen")	US 2007/0265379 A1	Nov. 15, 2007
Wu et al. ("Wu")	US 2012/0052306 A1	Mar. 1, 2012

REJECTIONS

The Examiner maintains and Appellants seek review of the following rejections under 35 U.S.C. § 103: (1) claims 1–4, 7–14, and 17–20 over Wu

in view of Chen; and (2) claims 5, 6, 15, and 16 over Wu in view of Chen and further in view of Deguchi. Final Act. 2–8; Appeal Br. 4–7.

OPINION

Appellant argues claims 1–20 as a group. Appeal Br. 4–7. We select claim 1 as representative of the group. 37 C.F.R. § 41.37(c)(1)(iv).

Accordingly, the remaining claims stand or fall with claim 1.

The Examiner finds that Wu discloses a fuser member comprising a substrate comprising a polyimide polymer, and that additives and conductive or non-conductive fillers may be present in the composition. Final Act. 2. The Examiner acknowledges that Wu does not disclose a conductive filler comprising poly(p-phenylene benzobisoxazole) (“PPBBS”) fibers, but finds that Chen cures this deficiency. *Id.* at 3. Specifically, the Examiner finds that Chen teaches carbon nanotube/polymer nanocomposites whose polymer matrix includes polyimide, and that the nanocomposites can be combined with a second filler such as Zylon fibers, to form complex nanocomposites. *Id.* at 3–4. The Specification describes Zylon fibers as exemplary PPBBS fibers. Spec. ¶ 36. The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time of the invention to have substituted Chen’s complex carbon nanotube-polyimide nanocomposition comprising Zylon (PPBBS) fibers for the polyimide in Wu to achieve increased electrical conductivity and improved mechanical properties in the fuser. Final Act. 4.

Appellant argues that Chen teaches improved electrical properties only for nanocomposites containing functionalized, solubilized nanomaterials (or functionalized, solubilized single-walled nanotubes (“f-s-SWNTs”)), and PPBBS fibers are not included in Chen’s definition of

functionalized, solubilized nanomaterials. Appeal Br. 4. Appellant contends that the Examiner improperly concludes the combination of f-s-SWNTs and PPBBS fibers results in the improved properties. *Id.* at 5. According to Appellant, the Examiner’s reasoning would mean that any secondary filler would result in the listed improved properties, but Chen does not teach that adding PPBBS fibers to a polymer matrix improves properties. *Id.*

In response, the Examiner explains that the rejection does not merely add Chen’s PPBBS fibers into Wu’s polyimide polymer, but rather replaces the polyimide in Wu’s substrate with Chen’s carbon nanotube/polyimide nanocomposite comprising PPBBS fibers. Ans. 9. According to the Examiner, motivation to combine the prior art references is provided by Chen’s teaching of improved properties in the nanocomposite in its entirety, which contains PPBBS fibers. *Id.* at 11–12.

Appellant replies that Chen teaches improvements in the complex nanocomposites are due to addition of f-s-SWNTs, and the Examiner provides no evidence that PPBBS fibers improve properties in a fuser member substrate or a complex nanocomposite. Reply Br. 2–3. Appellant argues that consideration of Chen would lead one to add f-s-SWNTs to the fuser matrix of Wu, but such addition would not result in the claimed invention. *Id.* at 3.

Appellant’s arguments fail to identify any reversible error in the Examiner’s rejection. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011).

Appellant is correct that Chen teaches improved properties in the complex nanocomposite as a result of adding f-s-SWNTs, not PPBBS fibers, to the nanocomposite. Chen ¶ 60 (“Adding f-s-SWNTs to the matrix of a continuous fiber reinforced nanocomposite results in a complex

nanocomposite material having improved properties”). However, as detailed in the Answer, the rejection is based on using a complex nanocomposite comprising polyimide, f-s-SWNTs, and PPBBS fibers—all as taught by Chen—in Wu’s fuser member in place of the polyimide in the substrate layer. The complex nanocomposite has improved properties, even though the improvement comes from f-s-SWNTs and not from PPBBS fibers.

“[T]he name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998) (quoting Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 Int’l Rev. Indus. Prop. & Copyright L. 497, 499 (1990)). What matters in an obviousness determination is the objective reach of the claim. *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 419 (2007). Here, the reach of claim 1 is broad enough to encompass Chen’s complex nanocomposite.

Appellant chose to employ the open transitional term “comprising” in claim 1, which permits elements in addition to those specified to be included in the fuser member. *In re Crish*, 393 F.3d 1253, 1257 (Fed. Cir. 2004). In the instant rejection, the elements in addition to the polyimide comprising PPBBS fibers include f-s-SWNTs. Appellant provides no reason why inclusion of such elements is not permitted.

One of ordinary skill in the art need not see the identical problem addressed in Chen to be motivated to apply its teachings. *Cross Med. Prods., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323 (Fed. Cir. 2005). Although Chen ascribes the improved properties to f-s-SWNTs, the complex nanocomposite clearly has the benefit of those improved properties. Motivation to combine references exists when a suggestion comes from the prior art as a whole as well as when the combination of

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references results in a product or process that is more desirable. *Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006).

In view of the foregoing, we sustain the rejection of claim 1 over Wu in view of Chen. Appellant does not provide additional argument for the patentability of claims 2–20, therefore, we also sustain the rejection of claims 2–20 over the various references.

DECISION

For the above reasons, the Examiner's rejections of claims 1–20 are 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