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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES L. GIACOBBI, MATTHEW R. MCLAUGHLIN, and
VICTORIA L. WARNER

Appeal 2017-006639
Application 14/231,340
Technology Center 2800

Before ROMULO H. DELMENDO, MARK NAGUMO, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the Examiner's decision to finally reject claims 1–15. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We REVERSE.

¹ Appellant is the Applicant, Xerox Corporation, which, according to the Appeal Brief, is the real party in interest. Appeal Brief filed July 28, 2016 (“App Br”), 3.

STATEMENT OF THE CASE

The inventors claim a printer and an apparatus that each comprise, *inter alia*, a profilometer configured to generate measurements of drops ejected onto a planar member, and a controller configured to identify inoperative inkjets in a printhead with reference to measurement data generated by the profilometer. App. Br. 5. Claims 1 and 9 illustrate the subject matter on appeal and are reproduced below, with contested limitations italicized:

1. A printer comprising:
 - a printhead configured with inkjets to eject drops of material;
 - a planar member positioned opposite the printhead to receive drops ejected from the printhead;
 - a profilometer configured to generate measurements of drops ejected onto the planar member;* and
 - a controller operatively connected to the profilometer and the printhead, *the controller being configured to move the printhead and operate the printhead to form a line of drops on the planar member, to move and operate the profilometer to enable generation of measurement data of the drops on the planar member, and to identify inoperative inkjets in the printhead with reference to the measurement data generated by the profilometer.*

9. An apparatus comprising:
 - a profilometer positioned adjacent a planar member located to receive drops of material ejected from inkjets in a printhead, the profilometer being configured to generate measurements of drops ejected onto the planar member;* and
 - a controller operatively connected to the profilometer, *the controller being configured to detect the printhead and generate a signal for the printhead to be operated to form a line of drops on the planar member, to move and operate the profilometer to enable generation of measurement data of the drops of material on the planar member, and to identify inoperable inkjets in the*

printhead with reference to the measurement data generated by the profilometer.

App. Br. 14, 16 (Claims Appendix) (emphasis added).

The Examiner sets forth the following rejections in the Final Office Action entered January 15, 2016 (“Final Act.”), and maintains the rejections in the Answer entered January 24, 2017 (“Ans.”):

I. Claims 1, 3–5, 9, and 11–13 under 35 U.S.C. § 102(a)(1) as anticipated by Kritchman et al. (US 2006/0054039 A1, published March 16, 2006); and

II. Claims 2, 6–8, 10, and 14–16 under 35 U.S.C. § 103 as unpatentable over Kritchman in view of Tochimoto et al. (US 2002/0167101 A1, published November 14, 2002).

DISCUSSION

Upon consideration of the evidence relied upon in this appeal and each of Appellant’s contentions, we reverse the Examiner’s rejection of claims 1, 3–5, 9, and 11–13 under 35 U.S.C. § 102(a)(1) (Rejection I) and rejection of claims 2, 6–8, 10, and 14–16 under 35 U.S.C. § 103 (Rejection II), for at least the reasons set forth below.

Rejection I

We decide the appeal as to Rejection I based on independent claims 1 and 9 because the remaining claims subject to this ground of rejection depend either directly or indirectly from claims 1 and 9, and are not separately argued.

The Examiner finds that Kritchman discloses a printer comprising a profilometer configured to generate measurements of drops ejected onto a planar member. Final Act. 3 (citing Kritchman ¶¶ 73, 74, and 76). The

Examiner finds that Kritchman also discloses a controller operatively connected to the profilometer that is configured to identify inoperative inkjets in the printhead with reference to measurement data generated by the profilometer. Final Act. 3–4 (citing Kritchman ¶¶ 20, 38, 64, 68, and 142–148).

Although the inventors' Specification does not explicitly define the term “profilometer,”² the Specification explains that the claimed printer and apparatus enable detection of inoperative inkjets in a three-dimensional printer by incorporating a profilometer that measures test drops ejected onto a planar member, in conjunction with a controller that analyzes measurement data generated by the profilometer to identify inoperative inkjets. Spec. ¶¶ 4, 5, 19, 20. Specifically, the Specification describes ejecting material from inkjets in the printhead of a printer onto a planar member to form a test pattern, positioning a profilometer adjacent to the planar member, and orienting the profilometer over the printed test pattern. Spec. ¶¶ 5, 18, 19. The Specification explains that the profilometer directs a laser onto the test pattern, and generates measurements of the reflections received from the test pattern. Spec. ¶ 19. The Specification indicates that the controller then analyzes the measurement data generated by the profilometer to identify inoperative inkjets, such as injects that are failing to eject material, are ejecting sporadically or errantly, or are ejecting more or less material than expected. Spec. ¶¶ 19, 20.

² Neither the Appellant nor the Examiner posits that 35 U.S.C. § 112(f) applies for the recitation “profilometer being configured to generate measurements of drops ejected onto the planar member” in claim 1.

Consistent with this description provided in the Specification, we interpret the “profilometer” recited in claims 1 and 9 according to its plain and ordinary meaning as “an instrument for measuring the topographical profile of a surface” of drops of material (by using, e.g., laser) that have been ejected from inkjets in a printhead onto a planar member, so as to generate measurements of the drops. *See e.g., Chemical Dictionary*, profilometer, <https://www.chemicool.com/definition/profilometer.html>; *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (During prosecution of patent applications, “the PTO must give claims their broadest reasonable construction consistent with the specification . . . Therefore, we look to the specification to see if it provides a definition for claim terms, but otherwise apply a broad interpretation.”).

Appellant points out that the paragraphs of Kritchman cited by the Examiner in the Final Action for supposedly disclosing a profilometer (¶¶ 73, 74, and 76) do not describe such an instrument. The Examiner responds by asserting that Kritchman discloses dispensing (jetting) a known amount of material from inkjet nozzles via a predetermined CAD configuration. Ans. 7–8 (citing Kritchman ¶ 68). The Examiner finds that Kritchman also discloses a controller that controls the operation of a three-dimensional printing apparatus, and may prepare digital data that characterizes the three-dimensional object for printing. Ans. 8 (citing Kritchman ¶ 73). The Examiner finds that “[t]herefore, Kritchman explicitly and inherently teaches a profilometer (105 (controller), 150 (dispenser), and 152 (material supply unit)[]) configured to generate measurements of drops on to a planar member (170) as claimed.” Ans. 8; Kritchman Fig. 1. The Examiner further explains that the controller disclosed in Kritchman, “which

may include a CAD system,” the dispenser “understood to mete out, deal out, distribute; to bestow in portions or from a general stock.

www.OED.com,” and the material supply unit that supplies building material to the printing apparatus, “perform the claimed function of the profilometer.” Ans. 8–9 (citing *Kritchman* ¶¶ 76, 78).

However, to anticipate, a single prior art reference must describe, either expressly or under the principles of inherency, each and every element of a claimed invention with sufficient specificity to allow one skilled in the art to readily envisage the claimed invention from the prior art reference. *See, e.g., In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990); *In re Schaumann*, 572 F.2d 312, 315 (CCPA 1978). Although *Kritchman* does disclose an apparatus for three-dimensional printing that includes a controller 105 that may be preprogrammed with a predetermined CAD configuration, material supply units 152, and material dispensers 150 (¶¶ 64, 68, 73, 74; Fig. 1), the Examiner does not identify any disclosure in *Kritchman* indicating that these three components measure the topographical profile of a surface of drops that have been ejected from the printhead of the apparatus onto a planar member, so as to generate measurements of the drops, as required by claims 1 and 9 as we have interpreted them. Therefore, the Examiner does not identify disclosure in *Kritchman* having specificity sufficient to allow one of ordinary skill in the art to readily envisage a “profilometer” as recited in claims 1 and 9.

It follows that the Examiner does not provide a sufficient factual basis to establish that *Kritchman* anticipates claims 1 and 9. We accordingly do not sustain the Examiner’s rejection of claims 1, 3–5, 9, and 11–13 under 35 U.S.C. § 102(a)(1) as anticipated by *Kritchman*.

Rejection II

Claims 2, 6–8, 10, and 14–16 each depend directly or indirectly from claims 1 and 9. We do not sustain the Examiner’s rejection of these claims under 35 U.S.C. § 103 as unpatentable over Kritchman in view of Tochimoto because this rejection suffers from at least the same reversible error as the Examiner’s rejection of claims 1, 3–5, 9, and 11–13 under 35 U.S.C. § 102(a)(1) as anticipated by Kritchman, discussed above. Final Act. 6–9.

DECISION

We reverse the Examiner’s rejection of claims 1, 3–5, 9, and 11–13 under 35 U.S.C. § 102(a)(1) and rejection of claims 2, 6–8, 10, and 14–16 under 35 U.S.C. § 103 for the reasons set forth in the Appeal Brief and above.

REVERSED