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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* TOMOHIRO ABURADA, JEFFREY ROBERT AMADON,  
CHRIS SCOTT KOGGE, and GAUTAM NARENDRA KUDVA

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Appeal 2018-003335  
Application 14/260,925  
Technology Center 1700

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Before LINDA M. GAUDETTE, N. WHITNEY WILSON, and  
CHRISTOPHER C. KENNEDY, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

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<sup>1</sup> This Decision includes citations to the following documents: Specification filed Apr. 24, 2014 (“Spec.”); Final Office Action mailed Dec. 29, 2016 (“Final”); Appeal Brief filed July 21, 2017 (“Appeal Br.”); Examiner’s Answer mailed Dec. 12, 2017 (“Ans.”); and Reply Brief filed Feb. 7, 2018 (“Reply Br.”).

Appellant<sup>2</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's decision finally rejecting claims 8–20, 22–26, and 28–32. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

The invention “relates . . . to glass manufacturing apparatus and methods . . . with a first pull roll apparatus, a second pull roll apparatus, and a control device.” Spec. ¶ 1. The claims on appeal are directed to a method of manufacturing a glass ribbon. Appeal Br. 14–17 (Claims Appendix). Claim 8 is representative, and is reproduced below.

8. A method of manufacturing a glass ribbon comprising the steps of:

forming a glass ribbon including a first edge portion, a second edge portion, and a width defined between an outer edge of the first edge portion and an outer edge of the second edge portion;

independently operating a first pull roll apparatus such that the first pull roll apparatus rotates with a substantially constant torque to draw the glass ribbon along a draw path extending transverse to the width of the glass ribbon, the independently operating *the first pull roll apparatus engaging the first edge portion without engaging a first central portion of a first major surface of the glass ribbon or a second central portion of a second major surface of the glass ribbon that are disposed between the first edge portion and the second edge portion*;

independently operating a second pull roll apparatus such that the second pull roll apparatus rotates with a substantially constant angular velocity to further draw the glass ribbon along the draw path; and

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<sup>2</sup> Appellant is the Applicant and the real party in interest: Corning Incorporated. *See* Appeal Br. 2.

adjusting the substantially constant torque of the first pull roll apparatus based on an operating condition of at least one of the first pull roll apparatus and the second pull roll apparatus.

*Id.* at 14 (emphasis added). Claim 18, the only other independent claim on appeal, recites similar steps and includes the same limitation shown in italics in claim 1, above. *Id.* at 15–16. The Specification discloses that a “pull roll apparatus” includes a pair of draw rolls, at least one of the rolls being provided with a motor. Spec. ¶¶ 48, 50; Fig. 3.

The claims stand rejected under 35 U.S.C. § 103 as follows (*see* Ans. 3–4):

1. claim 8–18, 22–26, and 28–32<sup>3</sup> over Lakota (US 2012/0304695 A1, published Dec. 6, 2012) in view of Anderson (US 2009/0107182 A1, published Apr. 30, 2009);<sup>4</sup> and

2. claims 19 and 20 over Lakota in view of Anderson and Neubauer (US 2012/0004084 A1, published Jan. 5, 2012).

The Examiner finds Lakota discloses a method as recited in claim 8, with the exception that in Lakota’s method, the first pull roll apparatus engages not only edge portions of a glass ribbon as required by claim 8, but also first and second central portions of the glass ribbon surfaces, which is

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<sup>3</sup> The Examiner includes claims 21 and 27 in the list of claims subject to this ground of rejection. Ans. 4. Both claims were cancelled in an After-Final Amendment filed June 12, 2017. *See* Advisory Action dated June 27, 2017 (indicating the amendment was entered).

<sup>4</sup> The Examiner identifies this rejection as a new ground of rejection. Ans. 4; *see also* Advisory Action dated June 27, 2017. In the Final Office Action, claims 8–11 were rejected under 35 U.S.C. § 102(a)(1), and claims 12–18 and 21–32 were rejected under 35 U.S.C. § 103 as unpatentable over Lakota in view of Anderson. *See* Final 2–3. The Examiner does not maintain the rejection under 35 U.S.C. § 102 in the Answer.

contrary to the second step of the claimed method (*see* italicized language in claim 8 *supra* p. 2). *See* Ans. 4. The Examiner finds, however, that Lakota discloses that the glass forming apparatus can be modified to use different types of rolls. *Id.* at 5 (citing Lakota ¶ 97). The Examiner finds Anderson discloses the use of a pull roll apparatus wherein the rolls engage edge portions of a glass ribbon, but not the central portions of the ribbon. *Id.* at 4 (citing Anderson Fig. 5A). The Examiner finds one of ordinary skill in the art would have replaced Lakota’s pull roll apparatus (including the sizing rolls) with Anderson’s pull roll apparatus based on Anderson’s teaching that the use of rolls that engage only edge portions of a glass ribbon was conventional in the art. *Id.* at 4 (citing Lakota ¶¶ 36, 41), 5 (citing Anderson ¶ 6).

Appellant argues the Examiner’s obviousness determination is based on an erroneous finding that Lakota teaches that any type of roll can be used in place of the explicitly described rolls. Reply Br. 6. Appellant contends paragraph 97 of Lakota discloses only that the rolls may be formed from different materials. *Id.* Appellant argues that modifying Lakota’s method to use rolls that engage only edge portions of a glass ribbon would render Lakota’s method unsatisfactory for its intended purpose. *Id.* at 11.

Appellant’s arguments are persuasive.

Anderson discloses a conventional pull roll apparatus for use in a fusion process. *See* Anderson ¶¶ 3, 5, 6. Lakota discloses that the fusion process “is typically limited to the formation of glass having viscosity above about 100,000 poise or more and produces sheets with relatively thick undesirable ‘edge beads’ that need to be removed.” Lakota ¶ 6. Lakota discloses that “[t]here is a need in the art for a precision glass forming

process and apparatus that is capable of precision forming glass and glass ceramic compositions that cannot be fusion formed,” and “that is capable of precision forming a wide range of glass compositions having a wide range of viscosities into thin glass sheets having a relatively high precision thickness uniformity.” *Id.* ¶ 7. To address these needs, Lakota utilizes a roll forming process wherein a stream of molten glass is delivered to the center of a nip between a pair of hot forming rolls that flatten, thin, and smoothen the stream of molten glass into a flat sheet of glass. *Id.* ¶¶ 2, 64. The glass sheet is then delivered to sizing rolls having a relatively cold surface temperature. *Id.* ¶ 66. The “cold sizing rolls are precision dimensioned cylinders” “that further form and thin the glass sheet . . . to the desired precision thickness/size.” *Id.* Lakota discloses that one or more pairs of conventional pulling rolls optionally may be provided below the sizing rolls. *Id.* ¶ 69.

Given the above disclosure in Anderson and Lakota, Appellant presents a persuasive argument that “[t]he ability of the glass forming system of Lakota to thin the glass ribbon to a flat sheet with a precise thickness across the entire width of the ribbon, for which the forming rolls 14, 16 as well as the forming (sizing) rolls 24, 26 of Lakota are designed, would be destroyed.” Reply Br. 11; *see also* Appeal Br. 9. The Examiner has not explained why this argument is erroneous or unreasonable. *See* Ans. 9 (“The use of the rolls of Anderson in the apparatus of Lakota would be akin to a simple substitution of one known element for another to obtain predictable results.”).

There can be no motivation to combine the teachings of references if to do so would render the prior art invention being modified unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984).

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Because Appellant has argued persuasively that the Examiner's modification of Lakota's method to utilize Anderson's rolls would render Lakota's method unsatisfactory for its intended purpose, we do not sustain the rejection of independent claim 8 or its dependent claims 9–17 and 22–26. Nor do we sustain the rejection of independent claim 18, which is based on the same unsupported findings discussed above, or its dependent claims 28–32. *See* Ans. 7. The Examiner's citations to Neubauer, relied on in rejecting claims 19 and 20, do not cure the deficiencies in the Examiner's findings with respect to Lakota and Anderson. *See* Ans. 3. Accordingly, we do not sustain the rejection of these claims.

REVERSED