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PARC-XEROX/BSTZ  
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EXAMINER
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TORNOW, MARK W

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PAPER

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TSE NGA NG, ANA CLAUDIA ARIAS, and  
JURGEN H. DANIEL<sup>1</sup>

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Appeal 2015-003390  
Application 12/334,370  
Technology Center 2800

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Before ADRIENE LEPIANE HANLON, CHRISTOPHER L. OGDEN, and  
JEFFREY R. SNAY, *Administrative Patent Judges*.

OGDEN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision<sup>2</sup> rejecting claims 11–19 in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6(b).

We REVERSE.

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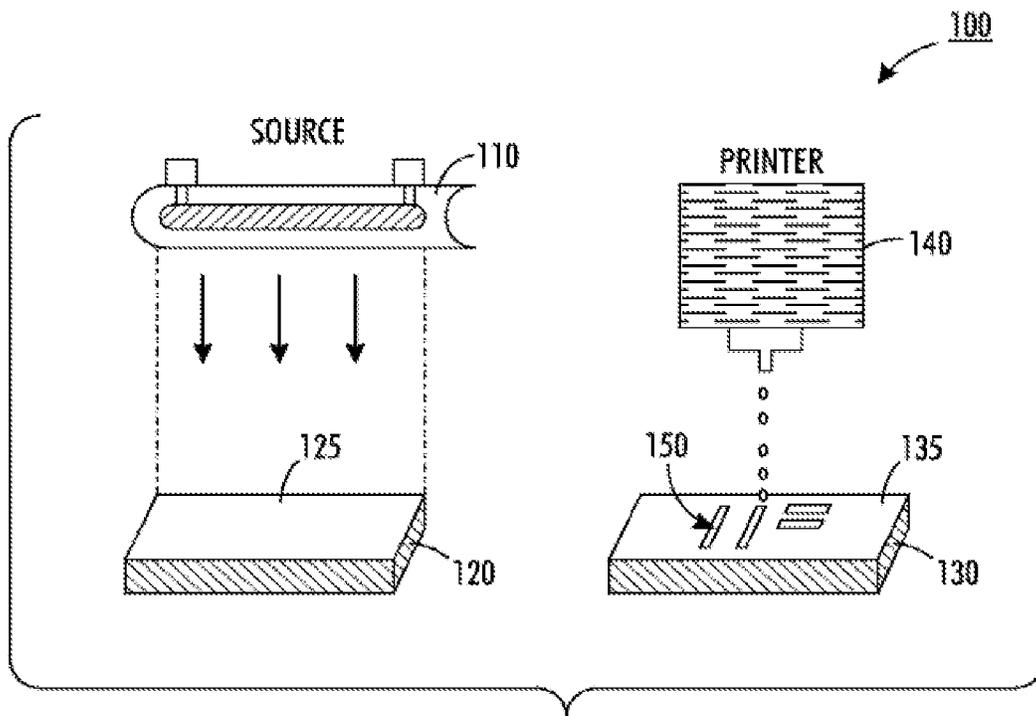
<sup>1</sup> According to Appellants, the real party in interest is Palo Alto Research Center Incorporated. Appeal Brief 3, Sept. 26, 2014 [hereinafter Br.].

<sup>2</sup> Office Action, July 16, 2014 [hereinafter Final Action].

## BACKGROUND

Appellants' Specification states that when prior art processes are used for printing circuits on a hydrophobic, dielectric polymer, conductive inks are subject to dewetting and cracking because the conductive inks tend to be hydrophilic. *See Spec.* ¶ 4. Moreover, according to the Specification, if the dielectric polymer has ferroelectric properties, coating the polymer with a printing-compatible hydrophilic layer results in the loss of the polymer's hysteresis behavior, which is useful for producing a non-volatile memory cell. *See id.* ¶ 5. To address these issues, an embodiment of Appellants' invention relates to "an apparatus having a polymer with a treated surface for printing," comprising "[a] dielectric layer made of a polymer having a surface with modified surface energy," wherein this modification "controls a feature characteristic and/or provides a hysteresis behavior." *Id.* ¶ 7.

Appellants' Figure 1 is reproduced below:



**FIG. 1**

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Figure 1 depicts “a system 100 with at least one of a UV source and an ozone-generating source and inkjet printer to perform surface treatment according to one embodiment.” *Id.* ¶ 25. The system includes “a source 110, a polymer 120, a treated polymer 130, and a printer 140.” *Id.* Polymers 120 and 130 have surfaces 125 and 135, respectively. *See id.* ¶¶ 27–28. After surface treatment, patterns 150 are printed on the surface 135. *See id.* ¶ 29.

Independent claim 11 is representative of the claims on appeal:

11. An apparatus comprising:  
a dielectric layer made of a polymer having a surface with modified surface energy, the modified surface energy controlling a feature characteristic and/or providing a hysteresis behavior, the dielectric layer including a surface and a portion below the surface, the surface of *the dielectric layer being made of the surface with the modified surface energy of the polymer and the portion below the surface of the dielectric layer being made of the polymer, the surface of the dielectric layer being either (i) more hydrophobic or (ii) less hydrophobic than the portion below the surface of the dielectric layer*; and  
a circuit pattern printed on the surface, the circuit pattern having at least one of the controlled feature characteristic and the hysteresis behavior.

Br. 12 (emphasis added).

The Examiner rejects claims 11–19 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. *See* Final Action 2–3.

## DISCUSSION

The Examiner finds that the Specification teaches treating the surface of a dielectric layer, but “does not in any way clarify the structure of the dielectric layer after the treatment—it is unknown whether the entire layer

changes structure, the top surface only, or even what structure exists at all after the treatment.” Final Action 3. According to the Examiner,

¶0028 indicates “the polymer 120 becomes the treated polymer 130” which indicates the entirety of the polymer has changed due to the treatment. ¶0028 goes on to say[,] “The treated polymer 130 has a surface 135 having a surface energy modified, or a hydrophobicity reduced, at a desire[d ]level to control the feature characteristics of the printing pattern and/or to provide hysteresis behavior to the printed circuit pattern” which does not in any way specify a difference in properties between the surface and remaining portion of the polymer layer. Without specificity of the original disclosure, the amendment to Claim 11 is considered new matter.

*Id.*

After carefully reviewing the Examiner’s findings, and Appellants’ responding arguments, we are persuaded that the Examiner erred in rejecting claim 11. The test for sufficiency of a written description is “whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharmaceuticals, Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562–63 (Fed. Cir. 1991); *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983)). Appellants’ Figure 1 specifically points to surfaces 125 and 135 as distinct structures within polymers 120 and 130, respectively. *See* Fig. 1; *see also* Spec. 27–28. Moreover, the Specification clearly refers to a *surface* modification. *See, e.g.*, Spec. ¶¶ 21 (“system to treat surface of polymer for printing”; “polymer has a surface exposed under at least one of the UV source and the ozone-generating source”), 24 (“the ferroelectric properties are retained and not affected by this surface modification”), 27 (“the chain length of the polymer molecules on the surface is shortened

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under the influence of the generated ozone”), 28 (“[t]he treated polymer 130 has a surface 135 having a surface energy modified, or a hydrophobicity reduced”). Thus, the Specification as a whole reasonably communicates to a person of ordinary skill in the art that the surface 135 of polymer 130 has a modified surface energy as recited in claim 11. A skilled artisan would understand that the disclosed surface modification leaves unmodified the portion of polymer 130 below surface 135.

Therefore, by a preponderance of the evidence on this appeal record, we are persuaded that the Specification reasonably conveys to a person of ordinary skill in the art that Appellants had possession of the invention of claim 11 at the time of filing, and that the Examiner reversibly erred in rejecting claim 11. Claims 12–19 were rejected solely because of their dependence from claim 11. *See* Final Action 3. Thus, we reverse the Examiner’s decision to reject claims 11–19.

#### DECISION

The Examiner’s decision is reversed.

REVERSED