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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* ICHIRO SHIONO, MITSUHIRO MIYAUCHI, and  
YOUSONG JIANG

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Appeal 2019-003457  
Application 13/700,527  
Technology Center 1700

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Before LINDA M. GAUDETTE, MONTÉ T. SQUIRE, and  
MICHAEL G. MCMANUS, *Administrative Patent Judges*.

GAUDETTE, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

The Appellant<sup>2</sup> appeals under 35 U.S.C. § 134(a) from the Examiner’s decision finally rejecting claims 1–7 and 10–19 under 35 U.S.C. § 103(a) as

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<sup>1</sup> This Decision includes citations to the following documents: Specification filed November 28, 2012 (“Spec.”); Final Office Action dated August 10, 2017 (“Final”); Appeal Brief filed Sept. 19, 2018 (“Appeal Br.”); Examiner’s Answer dated January 28, 2019 (“Ans.”); and Reply Brief filed March 28, 2019 (“Reply Br.”).

<sup>2</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. The Appellant identifies the real party in interest as Shincron Co., Ltd. Appeal Br. 3.

unpatentable over Shiono (WO 2010/041524 A1, published Apr. 15, 2010)<sup>3</sup>  
in view of Kyo (JP2010-106339, May 13, 2010 (machine translation)).<sup>4</sup>

We AFFIRM.

### CLAIMED SUBJECT MATTER

The invention relates to a method for depositing an oil repellent film.  
Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for depositing a film, comprising the steps of:  
prior to supply of a film deposition material of an oil repellent film, irradiating positively charged ions from a source to a partial region of a base holding surface of a base holding means, thereby, the ions are irradiated only to certain bases in the region among a plurality of bases held on the base holding surface and rotating; and  
subsequently, in a state of suspending irradiation of the ions, supplying the film deposition material of the oil repellent film to all the bases by supplying the film deposition material to the whole region on the base holding surface;  
for depositing an oil repellent film on the bases.

Appeal Br. 16 (Claims Appendix).

### OPINION

The Examiner rejected claims 1–7 and 10–19 as obvious in view of Shiono and Kyo. *See generally* Final 2–9. The Appellant argues in support of patentability of claims 1, 2, and 3. *See generally* Appeal Br. 10–14. We are not convinced of reversible error in the Examiner’s conclusion of

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<sup>3</sup> The Examiner relies on US 2011/0151138A1, pub. June 23, 2011, as an English language version of this document.

<sup>4</sup> We have jurisdiction under 35 U.S.C. § 6(b).

obviousness for the reasons stated in the Examiner's Answer and below. *See* Ans. 10–15.

*Claim 1*

The Examiner found that Shiono discloses the claim 1 method with the exception that Shiono irradiates positively charged ions from a source to the entire, rather than “a partial,” region of a base holding surface. Final 2–3. The Examiner found that Kyo discloses a film deposition method wherein an ion beam irradiates only a partial region of a base holding surface such that ions are irradiated to only certain bases of a plurality of bases. *Id.* at 3. The Examiner found that the ordinary artisan at the time of the invention would have modified Shiono's method by irradiating positively charged ions on only partial regions of the base holding surface given Kyo's teaching that ion plasma discharge is more stable when irradiating smaller regions. *Id.* (citing Kyo ¶¶ 62–63).

The Appellant does not dispute the Examiner's findings as to each reference's individual teachings. *See generally* Appeal Br. 10–14. The Appellant argues, however, that the Examiner erred reversibly in determining that the ordinary artisan would have had a reason to modify Shiono's method based on Kyo's disclosure, and had a reasonable expectation of success in combining Shiono's and Kyo's methods. *See id.* The Appellant argues further that even if the two methods had been combined, the claimed invention would not have resulted. *See id.*

The Appellant argues that in Kyo's method, the ion irradiating and the film supplying steps are performed simultaneously. Appeal Br. 12. The Appellant argues that the ordinary artisan would not have modified Shiono's method to simultaneously irradiate and supply an oil repellent film, i.e., an

organic material, to the bases because “an appropriate film [might] not be formed since component molecules of the film formation material would be expected to be decomposed due to corrosions [sic] with the ion.” *Id.*

As explained by the Examiner, the proposed modification is to Shiono’s first film deposition process, not to the second film—the oil-repellent film—deposition process. *See* Ans. 11 (“Kyo’s teaching is intended to substitute Shiono’s IAD [(ion-beam assisted deposition method)] in depositing the first film.”). Shiono discloses that “the step of dispersing the first film deposition material from the evaporation source 34, the step of irradiating an ion beam of introduced gas . . . and the step of irradiating electrons, to the film deposition surface of the substrate 101, are performed in parallel (first film deposition process).” Shiono ¶ 97. Shiono discloses that following deposition of the first film, the ion gun is set to an idling state, and then an oil-repellent film is coated on the first film (second film deposition process). *Id.* ¶ 107; *compare id.*, with Spec. ¶ 63 (“[B]efore starting the film deposition step, the ion gun 38 is put in an idle operation state.”).

The Appellant argues that Kyo performs ion irradiation while supplying the film formation material in order to improve film density, while Shiono uses ion irradiation to improve adhesiveness between the substrate and the thin film. Appeal Br. 12–13. The Appellant argues that because the references use ion irradiation for different purposes, the ordinary artisan would not have expected that replacing Shiono’s ion irradiation technique with Kyo’s technique “would be desired or would actually work.” Reply Br. 3; *see also*, Appeal Br. 13.

The Appellant has not addressed and, therefore, has not identified error in the Examiner’s finding that the ordinary artisan would have

modified Shiono's first film deposition process by irradiating only partial regions of the base holding surface to improve ion plasma discharge stability as taught by Kyo (*see* Final 3; Ans. 11; Kyo ¶ 63), and would have had a reasonable expectation of success in so doing. *See* Appeal Br. 10–14; Reply Br. 2–3; *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (Although “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does . . . [an obviousness] analysis need not seek out precise teachings [in the prior art] directed to the specific subject matter of the challenged claim.”); *In re Longi*, 759 F.2d 887, 897 (Fed. Cir. 1985) (explaining that “a reasonable expectation of success, not absolute predictability” supports a conclusion of obviousness).

The Appellant argues that modifying Shiono's method based on Kyo's teaching would not have resulted in the claimed method which requires “prior to supply of a film deposition material, irradiating . . . to a partial region . . .” and “subsequently, in a state of suspending irradiation of the ions, supplying the film deposition material . . . to all the bases.” Reply Br. 2; *see also* Appeal Br. 11. The Appellant's argument is not persuasive because it is not commensurate in scope with the claim language.

Claim 1 requires irradiating positively charged ions prior to supplying a film deposition material *of an oil repellant film*. Claim 1 does not preclude simultaneously irradiating ions and supplying a film deposition material of SiO<sub>2</sub> (or a material other than an oil repellant film) as in Shiono's first film deposition process. *See* Shiono ¶ 97. As discussed above, the Examiner found that the ordinary artisan would have modified Shiono's first film deposition process to irradiate positively charged ions on only a portion,

rather than the entirety, of the base holding surface. *See* Ans. 11. Shiono discloses that irradiation is suspended prior to the second film deposition process in which a film deposition material of an oil repellant film is supplied to all the bases. Shiono ¶ 97. The Appellant has not explained with sufficient clarity why the method resulting from the Examiner’s combination of Shiono and Kyo would not have included “the specific[] . . . timing features” recited in the first paragraph of claim 1.

In sum, the Appellant has not convinced us of reversible error in the Examiner’s conclusion of obviousness as to claim 1.

### *Claim 2*

Claim 2 depends from claim 1 and recites “wherein when time of supplying a film deposition material is T1 and irradiation time of ions is T2, ions are irradiated so as to satisfy  $T2 \leq ((1/2) \times T1)$  for each base.” Appeal Br. 16 (Claims Appendix). The Examiner found that Shiono discloses an ion irradiation time of 1 to 800 seconds and a film deposition time of 3 to 20 minutes, “which overlaps with the ratio of T1 and T2 in claim 2. Ans. 15 (citing Shiono ¶¶ 100, 107). As noted by the Examiner (*see id.*), “the existence of overlapping or encompassing ranges shifts the burden to the applicant to show that his invention would not have been obvious,” *In re Peterson*, 315 F.3d 1325, 1330 (Fed. Cir. 2003).

The Appellant cites Specification paragraphs 67–73 as evidence of criticality. *See* Appeal Br. 14. These paragraphs identify the claimed ratio as “particularly preferable” (Spec. ¶ 68; *see also id.* ¶ 71), but do not include any showing of unexpected results. *See In re Geisler*, 116 F.3d 1465, 1469–70 (Fed. Cir. 1997). Accordingly, we are not convinced of error in the

Examiner's determination that claim 2 is obvious over the combination of Shiono and Kyo.

*Claim 3*

Claim 3 depends from claim 1 and recites "wherein when a region supplied with a film deposition material is A1 and ion irradiation region is A2, ions are irradiated to a base holding surface of a base holding means so as to satisfy  $A2 \leq ((1/2) \times A1)$ ." Appeal Br. 16 (Claims Appendix). The Examiner found that Kyo discloses this limitation. Final 4 (citing Kyo ¶ 61). We have reviewed Kyo paragraph 61 and agree with the Examiner's finding. Therefore, it is unclear why the Appellant contends that neither reference, alone or in combination, discloses or suggests the claim 3 limitations. *See* Appeal Br. 14. Accordingly, we are not convinced of error in the Examiner's determination that claim 3 is obvious over the combination of Shiono and Kyo.

*Claims 4–7 and 10–19*

The Appellant does not present separate arguments in support of patentability of claims 4–7 and 10–19. Accordingly, we sustain the rejection as to these claims. *See* 37 C.F.R. § 41.37(c)(iv).

CONCLUSION

For the reasons stated in the Examiner's Answer and above, the Appellant has not persuaded us of reversible error in the Examiner's conclusion of obviousness as to claims 1–7 and 10–19.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-7, 10-19	103(a)	Shiono, Kyo	1-7, 10-19	

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