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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* MASAMI HAYASHI, KENICHI MIYAMOTO,  
NOBUAKI ISHIGA, KENSUKE NAGAYAMA, and NAOKI TSUMURA

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Appeal 2019-000031  
Application 13/791,655  
Technology Center 1700

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Before LINDA M. GAUDETTE, DONNA M. PRAISS, and  
DEBRA L. DENNETT, *Administrative Patent Judges*.

DENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>2</sup> appeals from the Examiner's decision to reject claims 1–8 and 19 of Application 13/791,655. We have jurisdiction under 35 U.S.C. § 6(b).

For the reasons set forth below, we REVERSE.

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<sup>1</sup> In our Decision, we refer to the Specification (“Spec.”) of Application 13/791,655 (“the ’655 App.”) filed Mar. 8, 2013; the Final Office Action dated Jan. 5, 2018 (“Final Act.”); the Appeal Brief filed May 9, 2018 (“Appeal Br.”); the Examiner’s Answer dated Aug. 9, 2018 (“Ans.”); and the Reply Brief filed Sept. 25, 2018 (“Reply Br.”).

<sup>2</sup> We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Mitsubishi Electric Corporation as the real party in interest. Appeal Br. 3.

## STATEMENT OF THE CASE

The '655 Application describes a display device, particularly a display device suitable for use outdoors, and its manufacture. Spec. 1, ll. 5–7. For use outdoors, preferable display characteristics are required when an amount of incident light from outside of the display device is large—such as where the device is used under sunlight. Spec. 1, ll. 9–11. According to the Specification, aluminum alloy is used increasingly in wiring of such display devices because it is low in resistance and easily processed. Spec. 1, ll. 11–14. The Specification indicates, however, that aluminum is high in reflectivity, causing reflection of incident light on aluminum alloy wiring which is a problem in an environment with a large amount of incident light. Spec. 1, ll. 15–17. An aluminum nitride film may serve as a reflection-preventing film on the aluminum alloy wiring. Spec. 1, ll. 19–20. Applicant describes the problem of the aluminum nitride film being etched in an alkali treatment during processing, thereby decreasing the film thickness and increasing the reflectivity. Spec. 2, ll. 2–6. Applicant describes a display device and a method for its production wherein the reflection preventing film is not damaged, providing superior visibility of the displayed image.

Claim 1, representative of the '655 Application's claims, is reproduced below from the Claims Appendix of the Appeal Brief.

1. A display device comprising  
a display region including:  
a laminated wiring comprising a conductive film, a metal nitride film mainly containing Al and functioning as a reflection preventing film, and a transparent film functioning as a protection film which are sequentially laminated in this order on a base layer;  
and

an insulating film formed so as to cover said laminated wiring,  
wherein

said insulating film side is a display surface side.

Appeal Br. 14.

#### REFERENCES

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

Ishihara et al. ("Ishihara")	US 2003/0146693 A1	Aug. 7, 2003
Hiramatsu et al. ("Hiramatsu")	US 2008/0121903 A1	May 29, 2008
Inoue et al. ("Inoue")	US 2010/0053759 A1	Mar. 4, 2010
Reinfried et al. ("Reinfried")	US 2011/0199341 A1	Aug. 18, 2011
Lee et al. ("Lee")	US 2011/0279403 A1	Nov. 17, 2011

#### REJECTIONS

On appeal, the Examiner maintains the following rejections of the claims under 35 U.S.C. § 103(a)<sup>3</sup>:

1. Claims 1, 2, and 5–8 are unpatentable over the combination of Reinfried, Lee, and Inoue. Final Act. 3–6.
2. Claims 3, 4, and 19 are unpatentable over the combination of Reinfried, Lee, Inoue, Ishihara, and Hiramatsu. Final Act. 6–7.

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<sup>3</sup> Because this application was filed before the March 16, 2013, effective date of the America Invents Act, we refer to the pre-AIA version of the statute.

## DISCUSSION

*Rejection 1: Obviousness of claims 1, 2, and 5–8 over Reinfried, Lee, and Inoue*

Appellant argues independent claims 1 and 2 separately. *See* Appeal Br. 5, 10. We address independent claim 1 first.

### Claim 1

Appellant argues claims 1 and 5–8 as a group. Appeal Br. 5. We identify claim 1 as representative of the group. Claims 5–8 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

With respect to claim 1, the Examiner finds that Reinfried teaches a display device comprising a display region, a laminated wiring comprising a conductive film, and a transparent film laminated on a base layer. Final Act. 3. The Examiner finds that Reinfried also teaches inclusion of insulating films formed to cover laminated wiring. *Id.* The Examiner acknowledges that Reinfried fails to teach inclusion of a low reflection layer. *Id.* The Examiner finds that Lee teaches inclusion of at least one low reflection layer in order to reduce the visibility of underlying conductors in touchscreens. *Id.* According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time of the invention to have included a low reflection layer (as taught by Lee) over the conductors of Reinfried in order to reduce visibility of the conductors on the display side of the display device, but under the protection layer in order to maintain protection of underlying layers from moisture, corrosion, contaminants, etc. *Id.* at 3–4.

The Examiner finds that Reinfried as modified by Lee fails to teach a low reflection layer that is a metal nitride layer. *Id.* at 4. The Examiner finds that Inoue teaches use of an aluminum nitride film for a low or antireflection layer. *Id.* The Examiner concludes that it would have been

obvious to substitute Inoue's aluminum nitride antireflection film for the antireflection film in Reinfried as modified by Lee because Inoue's film provides low reflection characteristics, low electrical resistance characteristics, and enables reduction of costs and environmental loads. *Id.*

The Examiner finds that claim 1's requirement that a conductive film, a metal nitride film, and a transparent film "are sequentially laminated in this order on a base layer" is a product-by-process limitation, and notes that the patentability of a product—such as the claimed display device—is based on the product, not the process. *Id.*

Appellant argues, *inter alia*, that the Examiner fails to establish a prima facie case of obviousness. Appeal Br. 8–10. According to Appellant, the Examiner does not explain why one of ordinary skill in the art at the time of the invention would have inserted Lee's low-reflective layer between Reinfried's contacting structure ( $\text{Mo}_x\text{Ta}_y$ )/metallic layer (Al/Al alloy) and protective layer, or why such skilled artisan would then further modify Lee's low-reflective layer that does not contain aluminum with Inoue's disclosure of an anti-reflection coating composed predominantly of aluminum (as required by claim 1). *Id.* at 7–8.

Appellant persuades us of reversible error in the rejection.

"[R]ejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (quoted with approval in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007)).

The reasoning for modifying Reinfried's configuration to insert Lee's low reflection layer, and then replacing Lee's layer with Inoue's anti-reflection layer appears to be proposed out of hindsight. *See Metalcraft of*

*Mayville, Inc. v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017) (“[W]e cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.”). “Although the suggestion to combine references may flow from the nature of the problem, ‘[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.’” *Ecolochem, Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000).

Here, the Examiner determines that it would have been obvious to include an anti-reflection layer in Reinfried because (1) Lee teaches inclusion of a low reflection layer to reduce visibility of the underlying conductors, and (2) Inoue teaches use of an aluminum nitride film for a low or anti-reflection layer in order to provide low reflection characteristics and low electrical resistance characteristics. Ans. 11. The Examiner’s selection of prior art references is exactly what *Ecolochem* counsels against—defining the problem in terms of the solution disclosed by claim 1. *See Ecolochem*, 227 F.3d at 1372. The Examiner’s finding that one of ordinary skill in the art would have been motivated to insert Lee’s low reflection layer having no aluminum into Reinfried’s configuration and *then* substitute Lee’s low reflection layer with Inoue’s aluminum nitride anti-reflection film does not meet the requirement for “articulated reasoning with some rational underpinning” to combine the prior art in the manner the Examiner proposes. *See Kahn*, 441 F.3d at 988. In such a case, we infer impermissible hindsight. *In re Rouffet*, 149 F.3d 1350, 1358 (Fed. Cir. 1998) (hindsight inferred when the specific understanding or principal within the knowledge of one of ordinary skill in the art leading to the modification of the prior art in order to arrive at appellant’s claimed invention has not been explained); *In re Warner*, 379 F.2d 1011, 1017

(CCPA 1967) (“A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art.”).

The only apparent reason to combine Inoue with Reinfried and Lee is to produce the claimed invention. But it is improper to base a conclusion of obviousness upon facts gleaned only through hindsight. “The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made.” *Sensonics Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1996) (citing *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985)). “To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability. *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983). The Examiner provides no articulated reasoning for why the skilled artisan, having inserted Lee’s low reflection layer into Reinfried’s configuration, would then go further and *replace* Lee’s low reflection layer with Inoue’s anti-reflection film. The Examiner thus strays into impermissible hindsight reconstruction of the invention.

For the above reasons, we do not sustain the rejection of claim 1—or dependent claims 3–8 and 19—as obvious over Reinfried in view of Lee and Inoue.

### Claim 2

Independent claim 2 recites all of claim 1’s limitations except “a display device including.” Appeal Br. 14–15. Like claim 1, claim 2 is rejected over Reinfried, Lee, and Inoue. Final Act. 4–5. We do not sustain

the rejection of claim 2 over Reinfried in view of Lee and Inoue for the same reasons given above with respect to claim 1.

*Rejection 2: Obviousness of claims 3, 4, and 19 over Reinfried, Lee, Inoue, and Ishihara, as evidenced by Hiramatsu*

Appellant contends that claims 3, 4, and 19, dependent on claim 1, are patentable for the same reasons as claim 1. Appeal Br. 12.

The additional references relied on by the Examiner in rejecting claims 3, 4, and 19 do not cure the deficiencies in the combination of Reinfried, Lee, and Inoue discussed above. Therefore, we do not sustain the rejection of claims 3, 4, and 19 under 35 U.S.C. § 103 over the cited references.

## CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-8, 19	103(a)	Reinfried, Lee, Inoue		1-8, 19

REVERSED