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EXAMINER

KIANNI, KAVEH C

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* JIGNESH H. SHAH, WILLIAM J. KOZLOVSKY,  
DAVID A. LANGSAM, RAYMOND J. LEE,  
R. BRAD BETTMAN, and ERIC JEAN ZBINDEN

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Appeal 2020-005437  
Application 15/078,162  
Technology Center 2800

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Before N. WHITNEY WILSON, DEBRAL DENNETT, and  
JANE E. INGLESE, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner's August 23, 2018 decision rejecting claims 1–11<sup>2</sup> and 23–27 (“Non-Final Act.”). We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We reverse.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Samtec, Inc. as the real party in interest (Appeal Br. 2).

<sup>2</sup> Claim 12 was not rejected, only objected to and, hence, is not on appeal.

### CLAIMED SUBJECT MATTER

Appellant's disclosure generally relates to an optical block which includes a first surface that receives light entering the optical block, a second surface through which the light exits the optical block, and a reflector that reflects light from the first surface towards the second surface (Abstract). The reflector includes a textured surface that scatters or absorbs some of the light received from the first surface to attenuate the light exiting the optical block through the second surface (*id.*). Details of the claimed optical block are set forth in representative claim 1, which is reproduced below from the Claims Appendix to the Appeal Brief:

1. An optical block comprising:
  - a first surface that receives light entering the optical block;
  - a second surface through which the light exits the optical block; and
  - a reflector that reflects light from the first surface towards the second surface; wherein
    - the reflector includes a textured surface that scatters or absorbs some of the light received from the first surface to attenuate the light exiting the optical block through the second surface.

### REJECTIONS

1. Claims 1, 5, and 6 are rejected under 35 U.S.C. § 102(a)(1) and/or § 102(a)(2) as anticipated by Hoshi.<sup>3</sup>
2. Claim 1 is rejected under 35 U.S.C. § 102(a)(1) and/or § 102(a)(2) as anticipated by Mochizuki.<sup>4</sup>

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<sup>3</sup> Hoshi et al., US 4,733,065, issued March 22, 1988.

<sup>4</sup> Mochizuki et al., US 4,737,896, issued April 12, 1988.

3. Claims 2–4 are rejected under 35 U.S.C. § 103<sup>5</sup> as unpatentable over Hoshi in view of Sheng.<sup>6</sup>

4. Claim 7 is rejected under 35 U.S.C. § 103 as unpatentable over Hoshi in view of Bakker.<sup>7</sup>

5. Claims 2–4 are rejected under 35 U.S.C. § 103 as unpatentable over Mochizuki in view of Sheng.

6. Claim 7 is rejected under 35 U.S.C. § 103 as unpatentable over Mochizuki in view of Bakker.

7. Claims 1, 5, 6, 8–11, and 23–27 are rejected under 35 U.S.C. § 103 as unpatentable over Shah<sup>8</sup> in view of Timans.<sup>9</sup>

#### DISCUSSION

**Rejections 1, 3, and 4.** The Examiner finds that Hoshi teaches an optical block with a first surface 235 that receives light entering the optical block, a second surface from which the light exits the optical block, and reflector E that reflects light from the first surface towards the second surface, where the reflector includes a textured surface that scatters or absorbs some of the light received from the first surface, as shown in the annotated version of Hoshi's FIG. 28A:

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<sup>5</sup> The rejection indicates that it is under § 103(a) (Non-Final Act. 8). However, because the case is being examined under the first inventor to file provisions of the America Invents Act, the proper statutory reference is to § 103. This is true for each of the obviousness rejections on appeal.

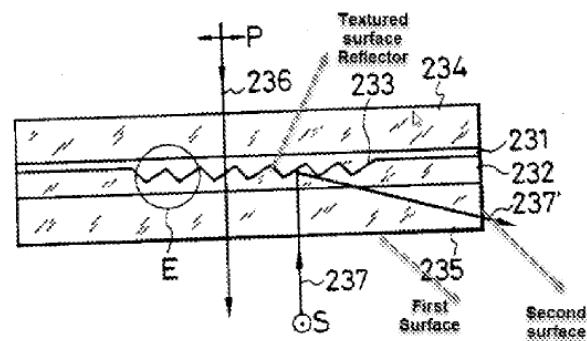
<sup>6</sup> Sheng et al., US 2009/0251741 A1, published October 8, 2009.

<sup>7</sup> Bakker, US 2005/0024614 A1, published February 3, 2005.

<sup>8</sup> Shah, US 9,470,857 B2, issued October 18, 2016.

<sup>9</sup> Timans, US 2008/0002753 A1, published January 3, 2008.

FIG. 28A



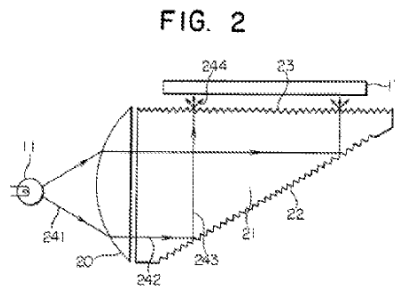
An annotated version of Hoshi's FIG. 28A shows a schematic cross-sectional view of a beam splitter.

The Examiner further finds that Hoshi's diffraction grating "both scatters and absorbs light, because a diffraction grating will do both by its very nature" because "diffraction gratings, like many optical components, are not 'perfect' and light will be lost through both scattering and absorption as light interacts with the various surfaces" (Ans. 4).

However, as explained by Appellant, the Specification specifically defines the claimed "textured surface" as "a surface with deliberately formed defects that degrade the optical quality of the surface" (Spec. ¶41). Thus, the broadest reasonable construction of the phrase "textured surface" requires the presence of deliberately formed defects that degrade the optical quality of the surface. *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). Because the Examiner finds that Hoshi's diffraction grating only scatters and/or absorbs light because it is "not perfect," the Examiner has not made an adequately supported finding that Hoshi includes a textured surface (*i.e.*, one with deliberately formed defects that degrade the optical quality of the surface).

Accordingly, we reverse the anticipation rejection of claims 1, 5, and 6 over Hoshi. Because the obviousness rejection of claims 2–4 over Hoshi in view of Sheng and claim 7 over Hoshi in view of Bakker depend on the Examiner’s finding that Hoshi discloses the claimed textured surface, and because we have determined that this finding is erroneous, we also reverse the obviousness rejections over Hoshi in view of Sheng and Hoshi in view of Bakker.

**Rejections 2, 5, and 7.** The Examiner finds that Mochizuki teaches an optical block comprising a first surface that receives light entering the optical block, a second surface 23 through which the light exits the optical block and a reflector 22 that reflects light from the first surface towards second surface 23 as shown in FIG. 2 (Non-Final Act. 5):



Mochizuki’s FIG. 2 is a sectional view of its illumination device.

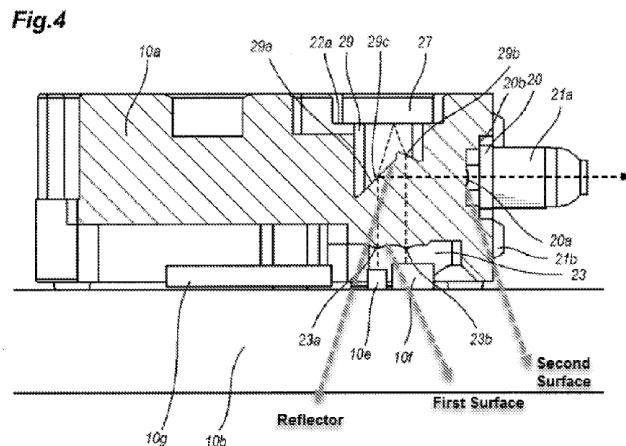
The Examiner further finds that reflector 22 includes a textured surface (*id.*). As was the case with Hoshi, the Examiner finds that reflector 22 “is [not] perfect and some light will be lost to scattering and absorption while it interacts with the surfaces of the prism structure” (Ans. 6).

However, as was the case with the anticipation rejection over Hoshi, the Examiner has not made any findings that Mochizuki’s reflector 22 is a “textured surface” as that term is used in the claim, because there have been

no findings that reflector 22 includes deliberately formed defects that degrade the optical quality of the surface. Instead, the Examiner only finds that “no reflector is perfect and some light will be lost to scattering and absorption while it interacts with the surfaces of the prism” (*id.*). The Examiner focuses on the meaning of the word “some” in the claim language “scatters or absorbs *some* of the light received” (emphasis added), and finds that reflector 22 will scatter or absorb some the light (Ans. 6–7). However, in doing so the Examiner has not adequately addressed the claim term “textured surface” which, as discussed above, has a specific meaning in the claims.

Accordingly, we reverse the anticipation rejection of claim 1 over Mochizuki. Moreover, because the obviousness rejections of claims 2–4 over Mochizuki in view of Sheng and claim 7 over Mochizuki in view of Bakker rely on the same erroneous findings with regard to Mochizuki, we also reverse those rejections.

**Rejection 7.** The Examiner finds that Shah teaches an optical block comprising a first surface 10a that receives light entering the optical block, a second surface 20a through which the light exits the optical block, and a reflector 29c that reflects light from the first surface towards the second surface, as shown in the following annotated version of Shah’s FIG. 4 (Non-Final Act. 9):



An annotated version of Shah's FIG. 4 shows a side cross section of the sub-module, which illustrates optical axes from the VCSEL to a monitor photodiode and to an external optical fiber

The Examiner further finds that Shah does not explicitly teach that the reflector includes a textured surface that scatters or absorbs some of the light received from the first surface, but that Timans teaches such a textured surface in an optical block (Non-Final Act. 10, citing Timans FIGS. 6 and 16). The Examiner determines that it would have been obvious to modify Shah's reflector by "texturing the reflecting surface so as to scatter[] or absorb[] some of the light . . . exiting the optical block through the second surface so as to direct a portion of the light to a detector . . . so as to monitor the attenuated transmission light that exits the second surface" (*id.*).

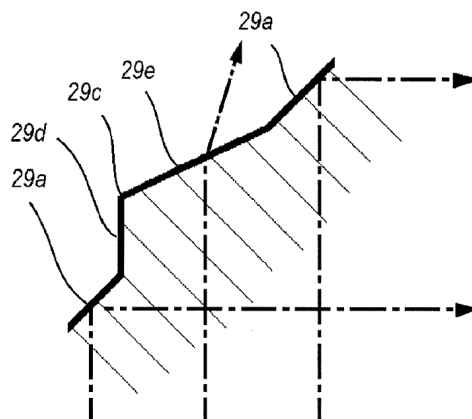
Appellant argues, *inter alia*, that the Examiner has failed to provide an adequate rationale for why a person of skill in the art would have combined the art as proposed by the Examiner (Appeal Br. 7). This argument is persuasive. The Examiner does not provide an explanation of why a person of ordinary skill in the art would have sought to attenuate the light exiting Shah's block, and has not explained why a person of skill in the art would have sought to modify Shah's block to achieve this property. In order to



establish obviousness, the Examiner must provide an articulated reasoning with some rational underpinning to support a legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In this instance, the Examiner has not done so.

In the Answer, the Examiner provides a different explanation of the rejection, finding that “Shah’s textured surface clearly reflects some light and scatters some light” and that Shah’s FIG. 4 shows that “[t]he reflected light exits surface 20a and the scattered light passes through the surface 29a and on to mirror 27 (shown by [the] dotted line in figs. 4 and 5”) (Ans. 8). The Examiner specifically points to Shah’s FIG. 5 as illustrating that surface 29a scatters some light by allowing some light to refract through surface 29e:

**Fig.5**



Shah’s FIG. 5 magnifies a structure around a blip on the reflecting surface to reflect and refract light coming from the VCSEL.

The Examiner further finds that Shah does not expressly label the reflective surface a “textured surface,” but Timans teaches a reflector which both reflects and scatters light and which is labeled a “textured surface.”

Therefore, according to the Examiner, “surface 29a of Shah is a reflecting/scattering textured surface” and “it is common in the art to use such textured surfaces where both reflection and scattering is desired” (Ans. 8).

As was the case with the rejections over Hoshi and Mochizuki, the Examiner has not construed the term “textured surface” properly in accordance with the definition set forth in the Specification. That is, regardless of how Timans uses the term “textured surface,” the claim uses that phrase in a very specific way, to mean a surface with “deliberately formed defects that degrade the optical quality of the surface.” In this instance, the Examiner has not made findings which show that Shah’s surface 29a meets this requirement. Accordingly, we reverse the rejection.

### 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, 5, 6	102(a)(1)	Hoshi		1, 5, 6
1, 5, 6	102(a)(2)	Hoshi		1, 5, 6
1	102(a)(1)	Mochizuki		1
1	102(a)(2)	Mochizuki		1
2–4	103	Hoshi, Sheng		2–4
7	103	Hoshi, Bakker		7
2–4	103	Mochizuki, Sheng		2–4
7	103	Mochizuki, Bakker		7
1, 5, 6, 8–11, 23–27	103	Shah, Timans		1, 5, 6, 8–11, 23–27
<b>Overall Outcome</b>				1–11, 23–27

REVERSED