

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE
UNITED STATES PATENT AND TRADEMARK OFFICE

HESAI TECHNOLOGY CO. LTD., HESAI GROUP,
and HESAI INC.,
Petitioner,

v.

OUSTER, INC.,
Patent Owner.

IPR2023-01458
Patent 11,422,236 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

DECISION

Granting Director Review, Vacating the Decision on Institution, and
Remanding to the Patent Trial and Appeal Board
for Further Proceedings

I. INTRODUCTION

Hesai Technology Co., Ltd., Hesai Group, and Hesai Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1, 2, and 7–27 of U.S. Patent No. 11,422,236 B2 (Ex. 1001, “the ’236 patent”). Ouster Inc. (“Patent Owner”) then filed a Preliminary Response (Paper 6, “Prelim. Resp.”). On March 28, 2024, the Board issued a decision denying institution of *inter partes* review (Paper 8, “Dec.”). The Board determined that Petitioner did not establish a reasonable likelihood of prevailing with respect to at least one of the challenged claims. Dec. 2.

On April 26, 2024, Petitioner filed a request for Director Review. Paper 13 (“Director Review Request” or “DR Req.”); Ex. 3100.¹ In its Director Review Request, Petitioner argues in part that the Board misapplied Federal Circuit precedent and improperly discounted Petitioner’s reliance on a figure from the prior art to teach a challenged claim limitation. DR Req. 9, 11. I have reviewed the Director Review Request, the Board’s decision denying institution, the relevant papers, and the relevant exhibits of record in this proceeding. I determine that Director Review of the Board’s decision denying institution is appropriate. *See* Revised Interim Director Review Process² §§ 4.B, 5.A. For the reasons set forth below, I respectfully vacate the Board’s denial of institution and remand to the Board for further proceedings consistent with this decision.

¹ On May 13, 2024, counsel for Patent Owner requested leave to file a response to the Director Review Request. Ex. 3101. I denied Patent Owner’s request because my decision is based on the existing record without need for further briefing. *Id.*; *see also* Revised Interim Director Review Process § 5.A.ii.b.

² Available at www.uspto.gov/patents/ptab/decisions/revised-interim-director-review-process.

II. BACKGROUND

The '236 patent discloses an “optical system for collecting distance information,” that “includes two or more columns of pixels in a skewed grid array layout, wherein adjacent columns of pixels are vertically and horizontally offset.” Ex. 1001, 1:20–22, 4:59–61. A pixel “can include one or more detectors configured to detect incident light.” *Id.* at 5:52–54.

Figure 2, reproduced below, is an exemplary schematic representation of the claimed invention.

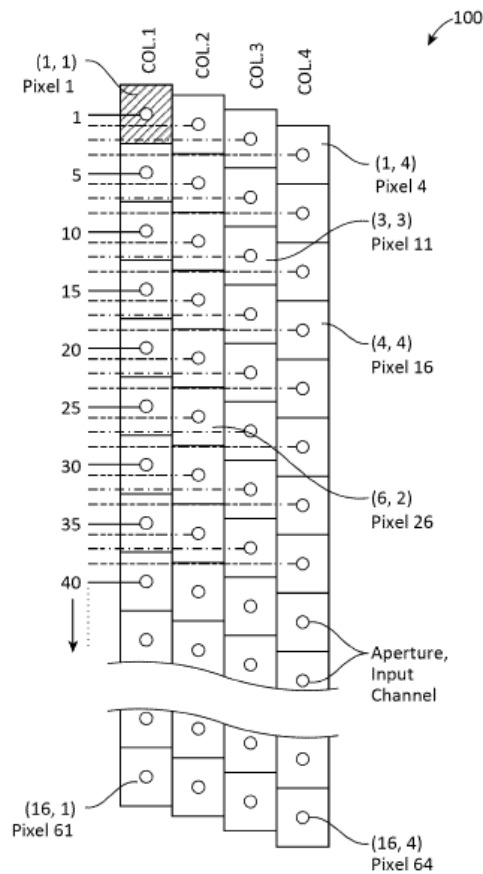


FIG. 2

Figure 2 depicts a system with “four columns of pixels,” where “each column of pixels . . . can be offset vertically from an adjacent column of pixels.” Ex. 1001, 7:44–63, 4:28–29 (describing “a second column of pixels

horizontally offset from the first column by the pixel pitch”).

Independent claim 1, excerpted below, is illustrative of the challenged claims. Dec. 6.

1. An optical system for collecting distance information, the optical system comprising:

...

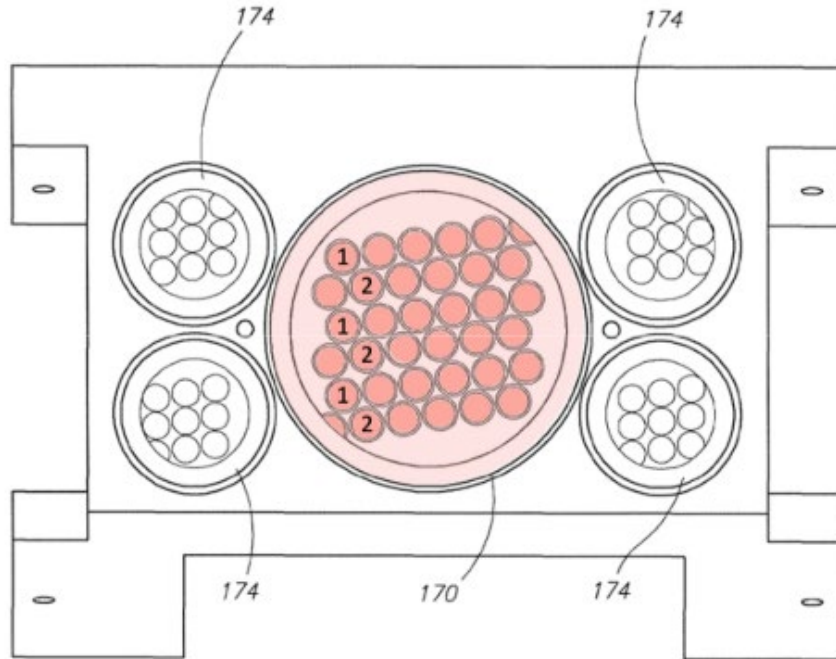
an optical imaging receive module comprising a bulk receiving optic and a plurality of pixels arranged behind the bulk receiving optic, wherein each pixel in the plurality of pixels comprises a plurality of single photon avalanche diodes (SPADs) and *wherein the plurality of pixels includes a first set of pixels arranged in a first column and a second set of pixels arranged in a second column horizontally and vertically offset from the first column.*

Ex. 1001, 18:13–43 (emphasis added).

Petitioner alleges, *inter alia*, that the combination of Hall³ and Borowski⁴ renders obvious certain challenged claims, including claim 1. *See* Pet. 10–27. Petitioner relies on Hall’s Figure 22, reproduced below with annotations and coloring added by Petitioner, to disclose the claimed optical imaging receive module comprising columns of horizontally and vertically offset pixels. Pet. 19–20.

³ Hall, US 7,969,558 B2, issued June 28, 2011 (Ex. 1004).

⁴ Borowski, US 2013/0300840 A1, published Nov. 14, 2013 (Ex. 1005).



Hall Figure 22 (annotated by Petitioner)

Figure 22 depicts 36 small circles within cavity 170, wherein Petitioner has annotated the 36 small circles with dark red coloring and wherein Petitioner has added numerals “1” and “2” to several of the small dark red circles, to delineate two columns within cavity 170. Pet. 19–20; Ex. 1004, 6:65–67. In describing this figure, Hall explains that a “single detector lens” is mounted over cavity 170, and “[b]ehind the lens of the cavity 170 are 32 *detectors* that are positioned within a tube 176 of the unit 154.” *Id.* at 6:65–57, 7:3–5 (emphasis added).

Petitioner argues that the annotated dark red circles within cavity 170 of Figure 22 are “detectors,” as otherwise discussed in Hall. Pet. 19–20 (citing Ex. 1003 (Declaration of Dr. Lambertus Hesselink), 64–65; Ex. 1004, 5:5–7, Fig. 22; Ex. 1001, 5:50–53, Fig. 2); DR Req. 2, 4–6; *see also* Ex. 1004, 6:65–7:5 (emphasis added) (“The Lidar system 154 includes a face section that has . . . one larger cavity 170 for mounting the single detector

lens.”).

Relying on Figure 22, Petitioner also asserts that “[e]ach detector is a pixel because it collects incident light for a specific location in the array.” Pet. 20. Petitioner argues that the detectors that Petitioner has marked with a “1” and “2” in annotated Figure 22 make up the claimed “first column” and “second column,” respectively, which are “horizontally and vertically offset” from one another. *Id.* at 20 (citing Ex. 1003, 65–66; Ex. 1004, Fig. 22), 20 n.7 (“Figure 22 teaches the arrangement and relative position of pixels in cavity 170.”).

Patent Owner argues that “Hall’s specification directly contradicts Figure 22” by describing “32 detectors within cavity 170 versus the 36 shown in Figure 22.” Prelim. Resp. 37–38 (emphasis added). Due to this discrepancy, Patent Owner argues it is “improper for Petitioner to assume that each dark red circle is a detector.” *Id.*

In its decision denying institution, the Board agreed with Patent Owner and determined that Hall contains a discrepancy between the description of 32 detectors in the Specification and the depiction of 36 dark red circles in annotated Figure 22. Dec. 15–16; Prelim. Resp. 37–39. Because Petitioner “d[id] not explain this discrepancy in the Petition,” the Board concluded that Petitioner did not meet its burden to show that the 36 dark red circles in annotated Figure 22 were detectors (i.e., the claimed “pixels” as argued by Petitioner) and that Hall taught the offset arrangement of pixels recited by claim 1. *See id.* at 16–17. The Board further found Dr. Hesselink’s testimony to be “conclusory and deficient.” *Id.*

In its Director Review Request, Petitioner contends that Hall’s discrepancy “regarding the *number* of detectors does not justify the Board’s

discounting Figure 22's plain depiction of the offset *arrangement*" as recited in claim 1. DR Req. 11.

III. ANALYSIS

A. *Legal Standard*

"[A] claimed invention may be anticipated or rendered obvious by a drawing in a reference." *In re Meng*, 492 F.2d 843, 847 (CCPA 1974) (citation omitted). However,

where a prior art reference includes an obvious error of a typographical or similar nature that would be apparent to one of ordinary skill in the art who would mentally disregard the errant information as a misprint or mentally substitute it for the correct information, the errant information cannot be said to disclose subject matter.

LG Elecs. Inc. v. ImmerVision, Inc., 39 F.4th 1364, 1372 (Fed. Cir. 2022) (citing *In re Yale*, 434 F.2d 666, 669 (CCPA 1970)). Even in the face of such an "obvious error," however, "[t]he remainder of the reference would remain pertinent prior art disclosure." *Id.*

B. *Obviousness*

In assessing obviousness, the Board discounted the teachings of Figure 22 of Hall in its entirety due to a discrepancy between its depiction of 36 dark red circles in Petitioner's annotation of Figure 22 and Hall's description of "32 detectors" in its Specification. Dec. 16. The question before me is whether the Board erred by relying on what appears on its face to be a typographical error in the Hall Specification to disregard the teachings of Hall's Figure 22. I agree with Petitioner that, because Hall's discrepancy relates to the *quantity* of detectors, not their *arrangement* in an offset manner, DR Req. 11, the Board erred in not considering Hall to the extent it taught the claimed arrangement of detectors.

More specifically, Hall discloses a light detection and ranging (Lidar) system with a plurality of detectors. *See* Ex. 1004, Abstract, 6:42–63, 7:59–67; *see also* Pet. 10. Hall further discloses a “cavity 170 for mounting the single detector lens,” with multiple detectors positioned behind the lens of cavity 170. Ex. 1004, 6:65–7:5 (“Behind the lens of the cavity 170 [in Fig. 22] are 32 detectors that are positioned within a tube 176 of the unit 154.”); *see* Prelim. Resp. 11–12 (admitting that “Hall discloses . . . multiple detectors behind a receive lens” in Figure 22); Pet. 10, 20.

Although the Board correctly noted a discrepancy in Hall (*see* Dec. 16), this discrepancy concerns only the quantity, not arrangement, of detectors disclosed. *Compare* Ex. 1004, 7:3–5 (describing 32 detectors), *with id.* at Fig. 22 (depicting 36 detectors). Thus, applying the law to the facts, when Hall states, “[b]ehind the lens of the cavity 170 [in Fig. 22] are 32 detectors that are positioned within a tube 176 of the unit 154,” the rest of the sentence in Hall besides the number “32” remains operative. *Id.* at 7:3–5; *LG Elecs. Inc.*, 39 F.4th at 1372.

As such, the discrepancy in Hall is an obvious typographical error in the *quantity* of detectors, but does not extend to the specific *arrangement* of those detectors as depicted in Figure 22. Moreover, the number of detectors (i.e., “pixels” as argued by Petitioner) is not recited in claim 1, making that typographical error immaterial to the obviousness arguments here. Therefore, if it were material, the Petition could not rely on the number of detectors depicted in Figure 22, given this discrepancy, but the remainder of Figure 22 was pertinent prior art, including the depicted offset of the detectors. *See LG Elecs. Inc.*, 39 F.4th at 1372 (citing *In re Yale*, 434 F.2d at 669). Thus, on this record, Hall teaches detectors in the claimed offset arrangement.

On remand, the Board shall consider all remaining issues and determine whether to institute trial consistent with this decision.

IV. CONCLUSION

Based on the record before me, I determine that the Board should have considered the non-errant portions of Figure 22 of Hall in its unpatentability analysis, i.e., the portions of Figure 22 that do not relate to the quantity of detectors. Accordingly, I vacate the Board's decision denying institution and remand to the Board to issue a decision on institution that addresses the non-errant portions of Figure 22 and all remaining issues consistent with this decision.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Director Review is granted;

FURTHER ORDERED that the Board's decision denying institution of *inter partes* review (Paper 8) is vacated; and

FURTHER ORDERED that the case is remanded to the Board for further proceedings consistent with this decision.

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