



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/265,877	09/15/2016	Benny Pesach	P24045USC2/1020-1079.3	9912
123590	7590	10/07/2020	EXAMINER	
KLIGLER & ASSOCIATES PATENT ATTORNEYS LTD. P.O. BOX 57651 TEL AVIV, 61576 ISRAEL			NGUYEN, TU T	
			ART UNIT	PAPER NUMBER
			2453	
			NOTIFICATION DATE	DELIVERY MODE
			10/07/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@DKPAT.CO.IL
alon@dkpat.co.il
daniel@dkpat.co.il

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BENNY PESACH and ZAFRIR MOR

Appeal 2019-002980
Application 15/265,877
Technology Center 2400

Before ERIC S. FRAHM, JASON J. CHUNG, and BETH Z. SHAW,
Administrative Patent Judges.

SHAW, *Administrative Patent Judge.*

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–5, 7–16 and 18–20.² *See* Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Apple Inc. Appeal Br. 1.

² The Examiner objected to claims 6 and 17 as being allowable if the applicant files a Terminal Disclaimer to overcome the Double Patenting rejection, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Final Act. 6.

CLAIMED SUBJECT MATTER

The claims are directed to a projectors of structured light. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An optoelectronic device, comprising:
a semiconductor substrate; and
a monolithic array of light-emitting elements, comprising first and second sets of the light-emitting elements arranged on the substrate in respective first and second two-dimensional patterns, which are interleaved on the substrate; and
first and second conductors, which are respectively connected to separately drive the first and second sets of the light-emitting elements so that the device selectably emits light in either or both of the first and second patterns.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Iwasa	US 6,144,685	Nov. 7, 2000
Gronenborn	US 2012/0281293 A1	Nov. 8, 2012

REJECTIONS

Claims 1–4, 7–15, 18–20 are rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Gronenborn. Final Act. 2.

Claims 5 and 16 are rejected under pre–AIA 35 U.S.C. § 103(a) as being unpatentable over Gronenborn and Iwasa. Final Act. 5.

OPINION

First, Appellant argues that “Gronenborn makes clear, in both the figures and the text, that each of the subgroups 111, 112, 113 and 114 is on a separate substrate. Fig. 6 clearly shows four separate modules of this sort,

each with its own separate substrate (102), as can be appreciated by comparison with Fig. 2 above.” Appeal Br. 6.

We are not persuaded by this argument because, as the Examiner explains, and we agree, Gronenborn teaches light emitting vertical cavity surface emission lasers (VCSELs) 101 arranged on the substrate 102. Ans. 4 (citing Fig. 2, ¶ 64). As the Examiner explains, Gronenborn discloses several different arrangements of the VCSELs in different embodiments, each of which is an example of a specific arrangement of the VCSELs. *Id.* at 5. Figure 2 of Gronenborn is reproduced below.

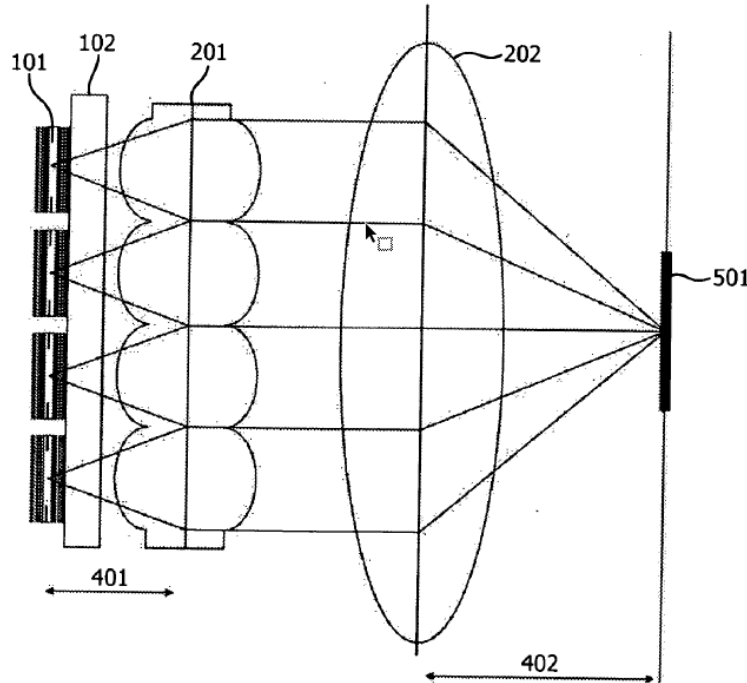
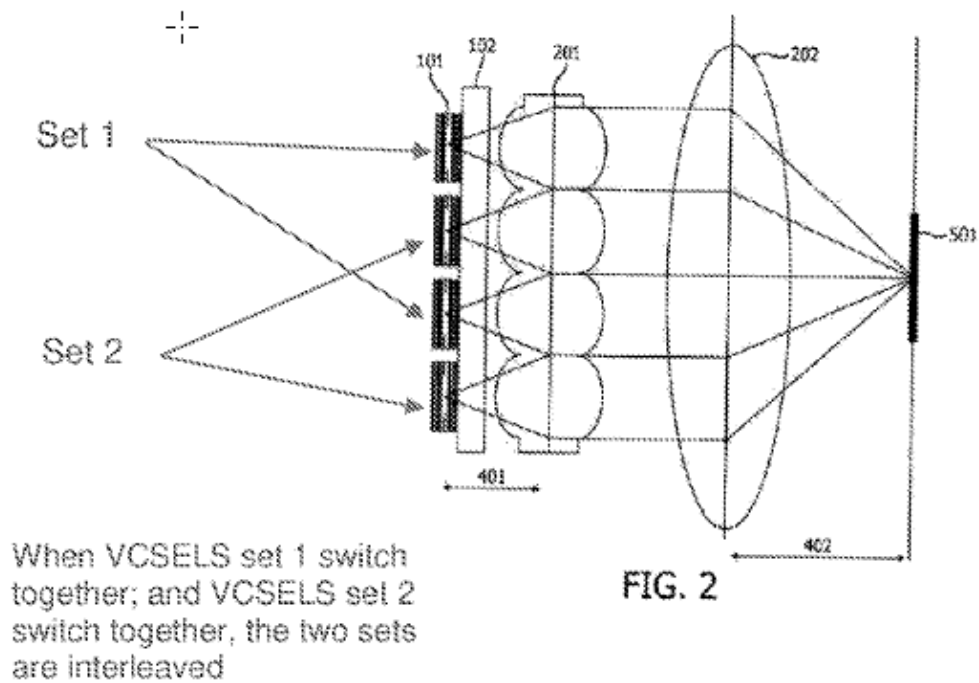


FIG. 2

Figure 2 of Gronenborn illustrates how VCSELs 101 are arranged on a substrate 102. *See* Gronenborn ¶ 64. Gronenborn explains that “[m]any VCSELs 101 are combined on one substrate 102.” *Id.* Appellant generally argues that the group of VCSELs 101 cannot teach the disputed claim

element. Appeal Br. 5. We are not persuaded by this argument, because it is not commensurate in scope with claim 1, which merely recites “a monolithic array of light-emitting elements, comprising first and second sets of the light-emitting elements arranged on the substrate in respective first and second two-dimensional patterns, which are interleaved on the substrate.” As the Examiner explains, in Figure 2, the first and third VCSELS can belong to a first group, and the second and fourth VCSELS can belong to the second group, and then the substrate 102 contains two groups of light emitting elements. Ans. 4–5.

An annotated version of Figure 2 of Gronenborn is provided by the Examiner for explanation:



This annotated Figure 2 of Gronenborn, provided by the Examiner on page 4 of the Answer, shows how the first and third VCSELS can belong to a first group, and the second and fourth VCSELS can belong to the second

group, and therefore, the substrate 102 contains two sets of the “light-emitting elements,” as required by claim 1. Appellant argues these annotations are not present in Gronenborn’s actual figures and are modifications to Gronenborn (Reply Br. 3), but these are merely annotations provided to further explain the Examiner’s findings and conclusions in the Answer, and are not substantive modifications to the reference.

Appellant also argues that Gronenborn does not teach the two patterns are “interleaved” on a substrate, as required by claim 1. The Examiner interprets “[i]nterleave” as “arranging something alternately.” Ans. 6. Appellant provide insufficient evidence to show that the Specification or claims limit “interleaved” in a way that, under a broad but reasonable interpretation, is not encompassed by Gronenborn’s teachings as explained by the Examiner. Ans. 4–6.

As the Examiner explains, Gronenborn teaches “a multitude of n large area VCSELs” with different shapes of the VCSELs of each subgroup, where the VCSELs of each subgroup may be commonly switched independently of the VCSELs of the other subgroups. Ans. 6 (citing Gronenborn ¶¶ 13–15, 51, Figs. 2, 9). Gronenborn also teaches the capability of switching between different combinations of VCSELs of the VCSEL arrays. *Id.* (citing Gronenborn ¶¶ 30, 51). This capability may be achieved by individually switching the single VCSELs or by switching between different subgroups of VCSELs. *Id.* When the first set of light emitting elements comprising the first and third VCSELs in Figure 2 are switched together, and the second set comprising the second and fourth VCSELs in Figure 2 are switched together, the two sets are arranged in interleaved pattern. *Id.* Therefore, we agree that Gronenborn teaches the claimed patterns interleaved on a substrate.

Appellant also argues that Gronenborn does not teach different conductors connected to separately drive the first and second sets of light-emitting elements on a substrate. Appeal Br. 7. The Examiner takes Official Notice that using a conductor for controlling the power level of VCSELs would have been well known in the art. Final Act. 2, 3. Therefore, the issue before us is whether the Appellant has shown error in the Examiner's taking of Official Notice.

“To adequately traverse such a finding [of Official Notice], an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art. See 37 CFR 1.111(b).” MPEP § 2144.03(C). An adequate traverse must contain adequate information or argument to create on its face, a reasonable doubt regarding the circumstances justifying notice of what is well known to one of ordinary skill in the art. *In re Boon*, 439 F.2d 724, 728 (CCPA 1971).

The Examiner offers evidence (*see* Ans. 7 (citing Offrein et. al., US 2006/0267176 A1)) to support the taking of notice that using a conductor for controlling the power level of VCSELs was well known in the art. Appellant does not contest that the use of using a conductor for controlling the power level of VCSELs was well known and expected in the art. Rather, Appellant acknowledges “this statement is not in dispute.” Appeal Br. 7. None of the Appellant’s arguments contain adequate information to create, on its face, a reasonable doubt regarding the circumstances justifying notice of what is well known to one of ordinary skill in the art.

Accordingly, we sustain the rejection of independent claim 1. For the same reasons, we also sustain the rejection of independent claim 12, which was argued together with claim 1. *See* Appeal Br. 8.

Dependent Claims 7 and 18

Claim 7 depends from claim 1, and adds, in part, “an imaging device, which is configured to capture images of the object in a low-resolution mode while only the first set of the light-emitting elements is driven to emit the light, thereby projecting a low-resolution pattern onto the object, and in a high-resolution mode while both of the first and second sets of the light-emitting elements are driven to emit the light, thereby projecting a high-resolution pattern onto the object.” Appellant argues Gronenborn does not teach “any sort of imaging device at all, let alone one capable of capturing images of an object onto which Gronenborn’s laser light is projected. . . Gronenborn could not possibly teach or suggest an imaging device with low- and high-resolution modes as recited in these claims.” Appeal Br. 7–8.

In response to Appellant’s arguments, the Answer provides additional findings, analysis and explanation in support of the Examiner’s finding that Gronenborn teaches the claimed imaging device with low and high resolution modes. *Compare* Ans. 8–9 (citing Gronenborn ¶¶ 16, 52, 56, Figs. 9, 10) *with* Final Act. 3–4. Appellant does not respond to the Examiner’s findings regarding paragraph 16 of Gronenborn (*see* Reply Br. 4), and consequently, we are not persuaded of error in the Examiner’s findings.

We have only considered those arguments that Appellant actually raised in the Briefs. Arguments Appellant could have made, but chose not to make, in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). Accordingly, we sustain the rejection of dependent claim 7, and for the same reasons, we sustain the rejection of dependent claim 18.

Appeal 2019-002980
Application 15/265,877

Dependent Claims 9 and 20

Regarding dependent claim 9, Appellant argues that Gronenborn, while it mentions a diffractive optical element (DOE), actually “teaches away” from the use of DOEs in light projection. Appeal Br. 9. In response to Appellant’s arguments, the Answer provides additional findings, analysis and explanation in support of the Examiner’s finding that Gronenborn teaches the claimed DOE. *Compare* Ans. 9–10 (citing Gronenborn ¶¶ 60, 73, 80, Figs. 10, 13, 14A-B) *with* Final Act. 4. Appellant does not respond to the Examiner’s findings regarding paragraphs 73 or 80 of Gronenborn (*see* Reply Br. 5), and consequently, we are not persuaded of error in the Examiner’s findings. Accordingly, we sustain the rejection of dependent claim 9, and for the same reasons, we sustain the rejection of dependent claim 20.

CONCLUSION

The Examiner’s rejections are affirmed.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-4, 7-15, 18-20	103	Gronenborn	1-4, 7-15, 18-20	
5, 16	103	Gronenborn, Iwasa	5, 16	
Overall Outcome			1-5, 7-16, 18-20	

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED