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(54) **VEHICLE LIGHT STRUCTURE**

(57) A vehicle light structure comprises a base member (10) equipped with a partition wall (11), a substrate (20) deployed with a recessed portion (21) for locating on a protrusion pole (13) of the base member (10), an illuminating element (30) disposed on a mounting surface (26) of the substrate (20), the partition wall (11) adjacent to the substrate (20) in an interval fashion, and the substrate (20) prepared with two positioning edges (231,232) defying against the partition wall (11) of the base member (10) which avoids the possible damage of the illuminating element (30) caused by a fluctuation or a collision between the substrate (20).

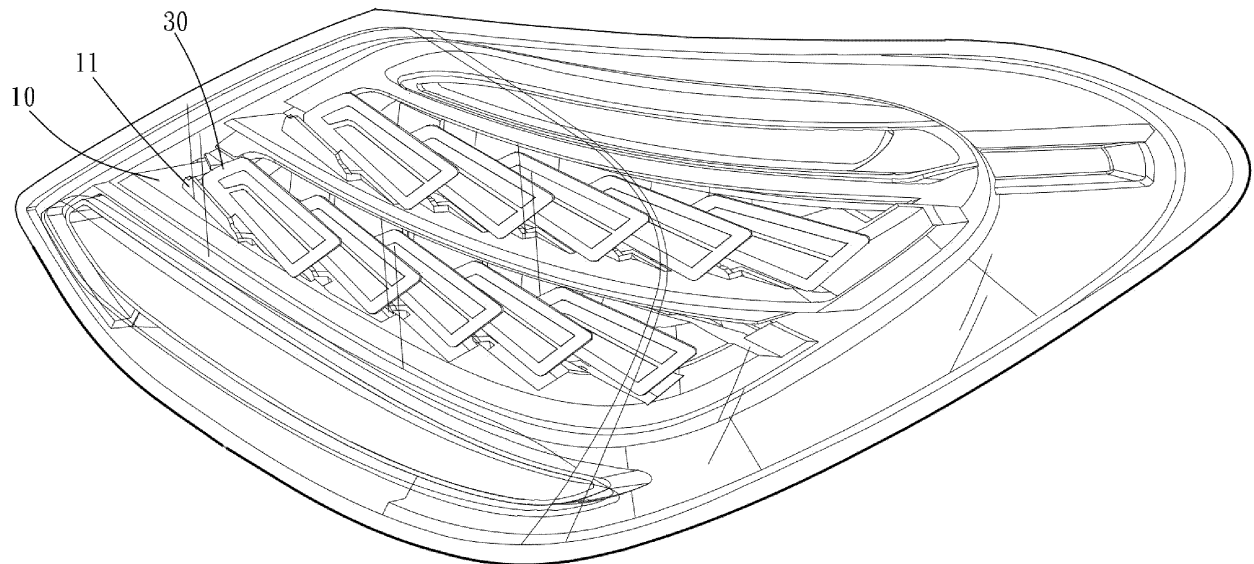


FIG. 1

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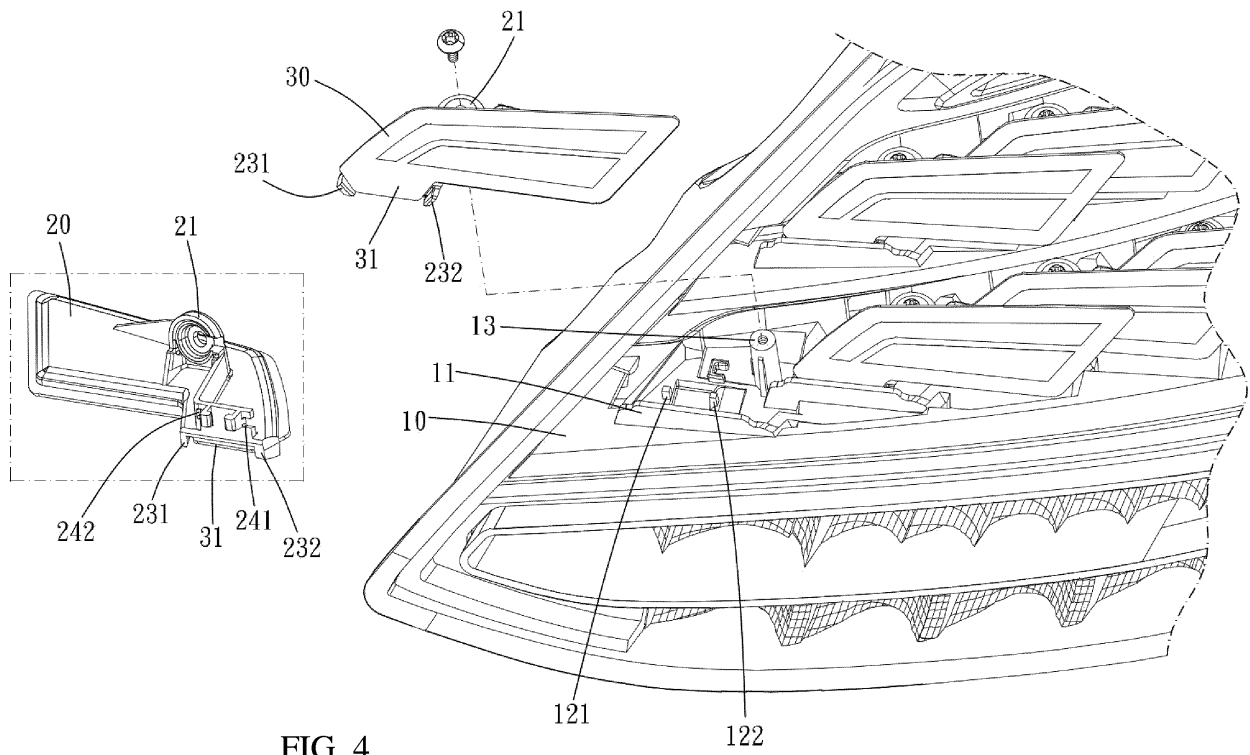


FIG. 4

Description

reduces the maintenance cost.

BACKGROUND OF THE INVENTION**BRIEF DESCRIPTION OF THE DRAWINGS****1. Field of the Invention**

5 [0005]

[0001] This invention relates to a vehicle light fixed structure, in particular a lighting unit installation, aiming to reduce the possible fluctuation and collision as transporting.

FIG. 1 is a prospective view of a vehicle light structure.

FIG. 2 is a sectional upper view of the vehicle light structure.

FIG. 3 is a magnified view of the FIG. 2.

FIG. 4 is a structural view of a lighting unit of the vehicle light structure.

2. Description of the Related Art

[0002] The organic light-emitting diode (OLED) has merits of low-glare and slightly- flexible, light-shape stabilizing and low-energy consumption which is adaptable for interior illumination of automobiles and buildings. While, the OLED has drawbacks of expensive and fragile which is adequate to prevent possible damage of the OLED caused by a fluctuation or a collision as transporting. Besides, applying the OLED lighting module on vehicles should also take the convenient installation into consideration in order to upraise operational efficiency.

15 DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0006] To be more specifically articulate the embodiment, the structure and the performance of this invention, a preferable embodiment is provided along with drawings hereinafter:

Please refer to the FIG. 1, showing an illuminating element 30 with a roughly rectangle in shape, a partition wall 11 parallel to the illuminating element 30 and a base member 10 behind the partition wall 11.

SUMMARY OF THE INVENTION

[0003] This invention aims to provide a vehicle light structure including a base member equipped with a partition plate, a substrate deployed with a recessed portion located on a protrusion pole and an illuminating element disposed on a mounting surface of the substrate, which has characteristics of the partition wall arranged adjacent to the mounting surface of the substrate, and the substrate prepared with two positioning edges defying against the partition wall of the base member; in this way, the positioning edges being capable of avoiding the possible damage of the illuminating element caused by a fluctuation or a collision between the substrate. Furthermore, the substrate is prepared with two positioning edges having two ends on its free edges. Said positioning edges may be a retainer to hold the illuminating element in place. On the bottom side away from the mounting surface is deployed with two knots to be engaged on the surface of the base member further preventing the base member and the substrate from bias. With this deployment, the light may as well be a plurality of uniform lighting modules, composed of the illuminating elements deployed on the substrate wringed by regular screws for securing the stability; the lighting modules and the base member (lamp) contribute to modularization which aims to lowering the assembly threshold and upraising structure stability.

[0007] Please refer to FIG. 2 to 4, showing the components' association and engagement of a vehicle light structure while assembling, wherein the light structure includes a base member 10 equipped with a partition wall 11 having a bottom being roughly vertical to the base member 10, and a substrate 20 deployed with a mounting surface 26 for disposing an illuminating element 30, a lighting unit composed by a light-emitting diode or an organic light-emitting diode, the substrate 20 and the illuminating element 30 assembling a lighting module, the substrate 20 deployed with a recessed portion 21, on the bottom side away from a mounting surface 26 for screwing on the protrusion pole 13 of the base member 10, the recessed portion 21 vertically extending up from the substrate 20 and locating nearby the center of gravity and when the substrate 20 screws on the protrusion pole 13 the illuminating element 30 being roughly parallel to the transparent light mask.

[0008] The base member 10 is further equipped with two protruding poles as first convexs 121 and 122, and on the bottom side away from the mounting surface 26 is disposed with two indents as second concaves 241 and 242. When the substrate 20 is screwed on to the protrusion pole 13, the first convexs 121 and 122 are individually engaged to the second concaves 241 and 242, and aforementioned structure also bears weights of the substrate 20 and the illuminating element 30 when positioning and prevents bias when installing.

[0004] Moreover, the adoption of lighting unit in this invention may employ light-emitting diode (LED) or organic light-emitting diode (OLED) of low-power consumption. As long as checking there lefts ample room for maneuver, said vehicle light structure consumes the least resources for changing a light unit which greatly

[0009] The partition plate 11 of the base member 10 is adjacent to the mounting surface 26 of the substrate 20 in an interval fashion, and on bottom side of the mounting surface 26 is disposed with two positioning edges 231 and 232 defying against the partition plate 11. In view

of this, since the illuminating element 30 lying between the partition plate 11 and the mounting surface 26 indirectly contacts the partition plate 11 which avoids the possible damage of the illuminating element 30 caused by directly colliding to the partition plate 11.

[0010] In view of this, since the recessed portion 21 is deployed nearby the gravity center of the lighting module (the substrate 20 and the illuminating element 30) which lessen/eliminate the shaking magnitude and avoid possible damage of the illuminating element 30. Besides, the light may adopt a plurality of uniform lighting modules and regular screws as a fastener for securing the conformation, and plurality of lighting modules and the base member contribute to modularization, lowering the assembly threshold and upraising structural stability. Furthermore, as long as checking there lefts ample room for maneuver, said vehicle light structure consumes the least resources for changing a light unit which greatly reduces the maintenance cost.

[0011] In this embodiment, the mounting surface 26 is parallel to the partition plate 11, the illuminating element 30 is further equipped with a ridge 31 as electrical connection port. When assembling, the ridge 31 lies between the positioning edges 231 and 232 to hold the illuminating element 30 in place. Besides, when the electrical connection port of the illuminating element 30 is located on between the positioning edges 231 and 232, it may be bended downward for landing on the groove on the opposite of the mounting surface 26. The thickness of positioning edges 231 and 232 may be wider than that of the ridge 31 avoid the ridge 31 of the illuminating element 30 directly contacting the partition plate 11, or the actual thickness of the positioning edges 231 and 232 matches the distance between the mounting surface 26 and the partition plate 11 for reducing fluctuation of the illuminating element 30.

Claims

1. A vehicle light structure comprises a base member equipped with a partition plate, a substrate deployed with a recessed portion for positioning on the base member, an illuminating element disposed on a mounting surface of the substrate, wherein the partition plate being adjacent to the mounting surface in an interval fashion, and the substrate having two positioning edges defying against the partition plate.
2. The vehicle light structure as claimed in claim 1, wherein the base member is located on the other side away from the mounting surface of the base member.
3. The vehicle light structure as claimed in claim 2, wherein the base member disposed with a protrusion pole to be screwed on a recessed portion.

4. The vehicle light structure as claimed in claim 1, wherein the base member and the substrate are separately deployed with at least one first convex and a second concave for pairing.
5. The vehicle light structure as claimed in claim 4, wherein the base member is equipped with two bulges as first convexes, and the substrate is disposed with two dents as second concaves.
6. The vehicle light structure as claimed in claim 1, wherein the illuminating element is selected from the light-emitting diode or the organic light-emitting diode.
7. The vehicle light structure as claimed in claim 1, wherein the substrate is prepared with two positioning edges on the bottom side of the mounting surface of the substrate, and the two positioning edges having two ends on its free edges.
8. The vehicle light structure as claimed in claim 7, wherein the illuminating element has a bulge located between the positioning edges and the position edges have thickness wider than that of the budge.
9. The vehicle light structure as claimed in claim 8, wherein the mounting surface is parallel to the partition plate and the thickness of the positioning edges match the distance between the mounting surface and the partition plate.
10. The vehicle light structure as claimed in claim 6, wherein the illuminating element is an organic light-emitting diode, and the illuminating element has a bulge lying between the positioning edges and as an electrical connecting port of the illuminating element.

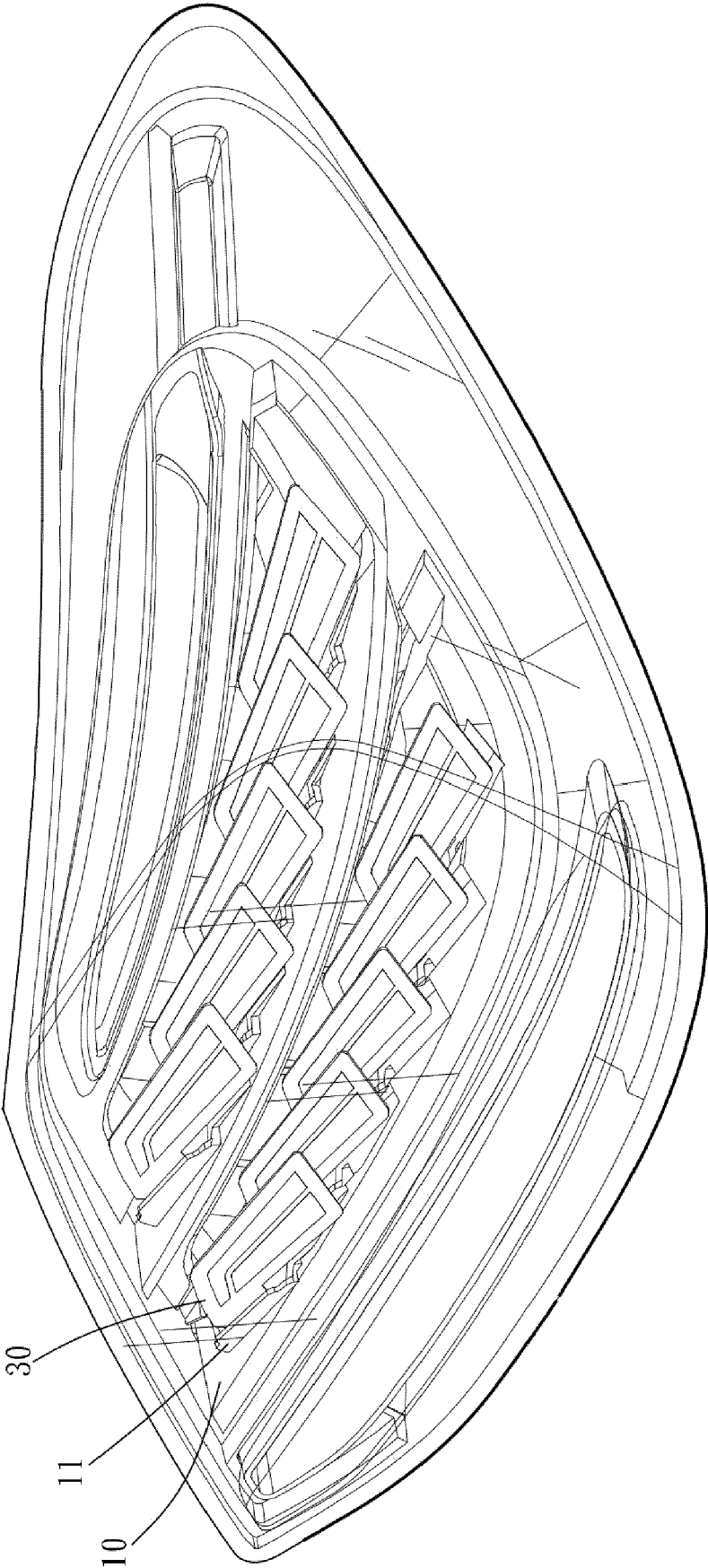
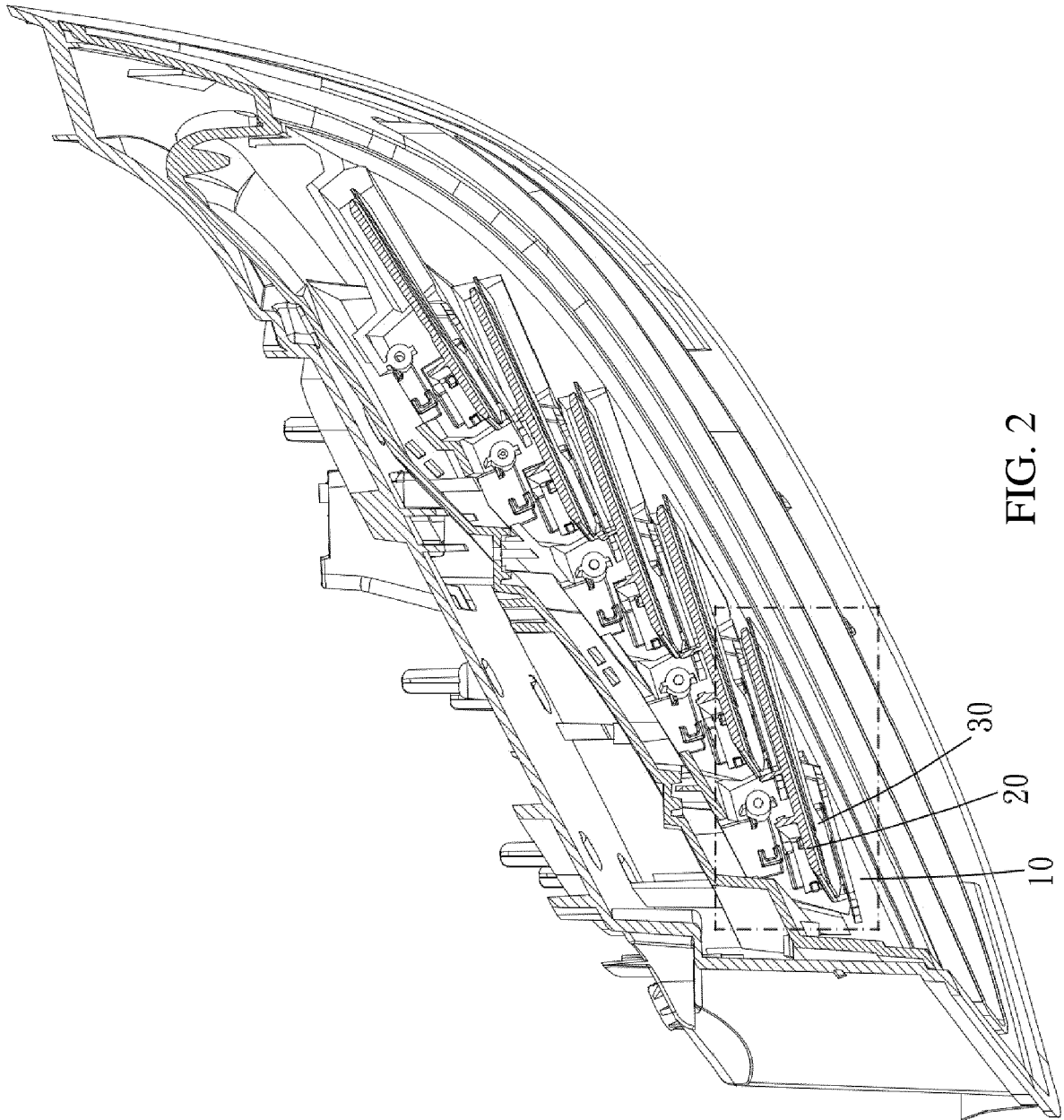


FIG. 1



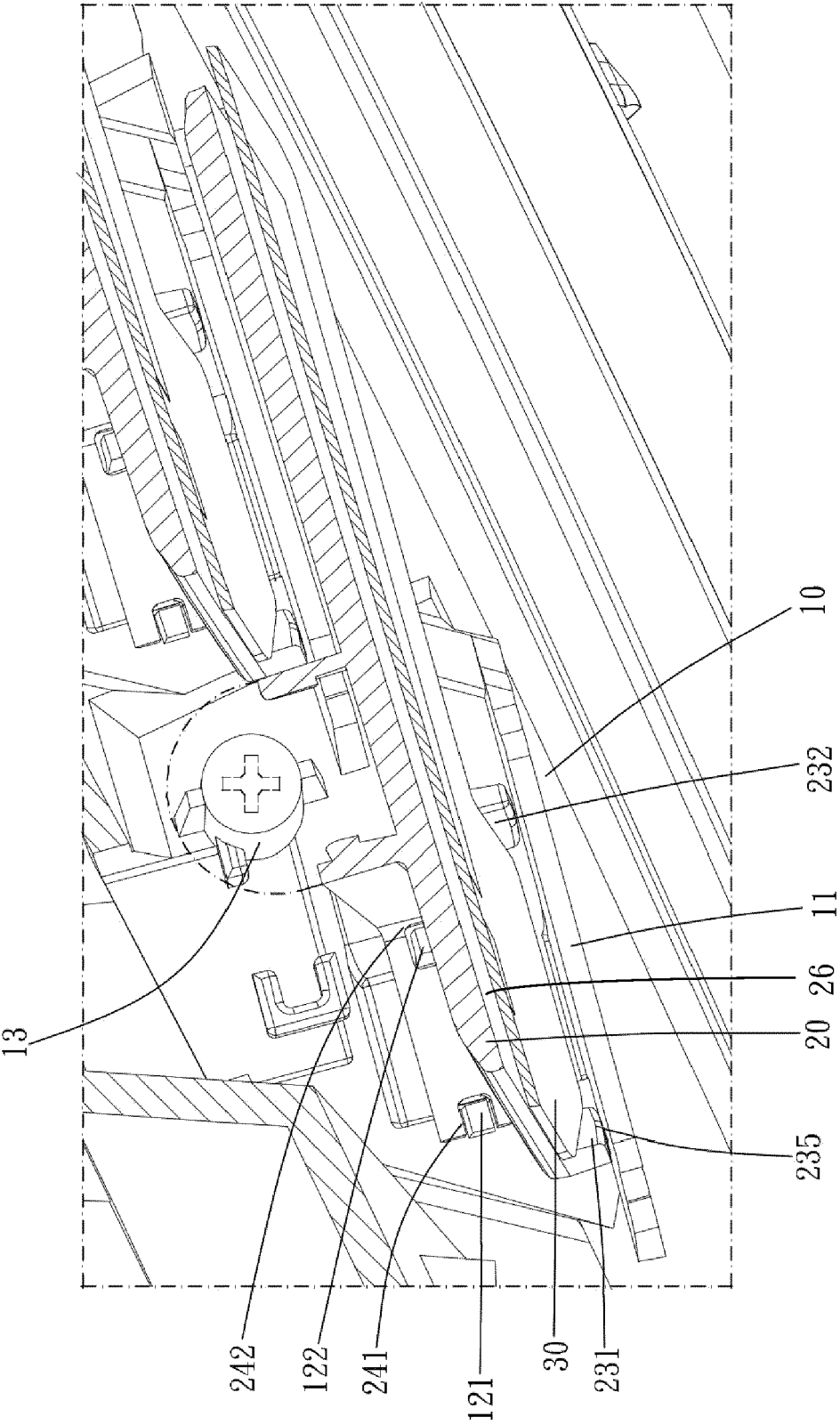


FIG. 3

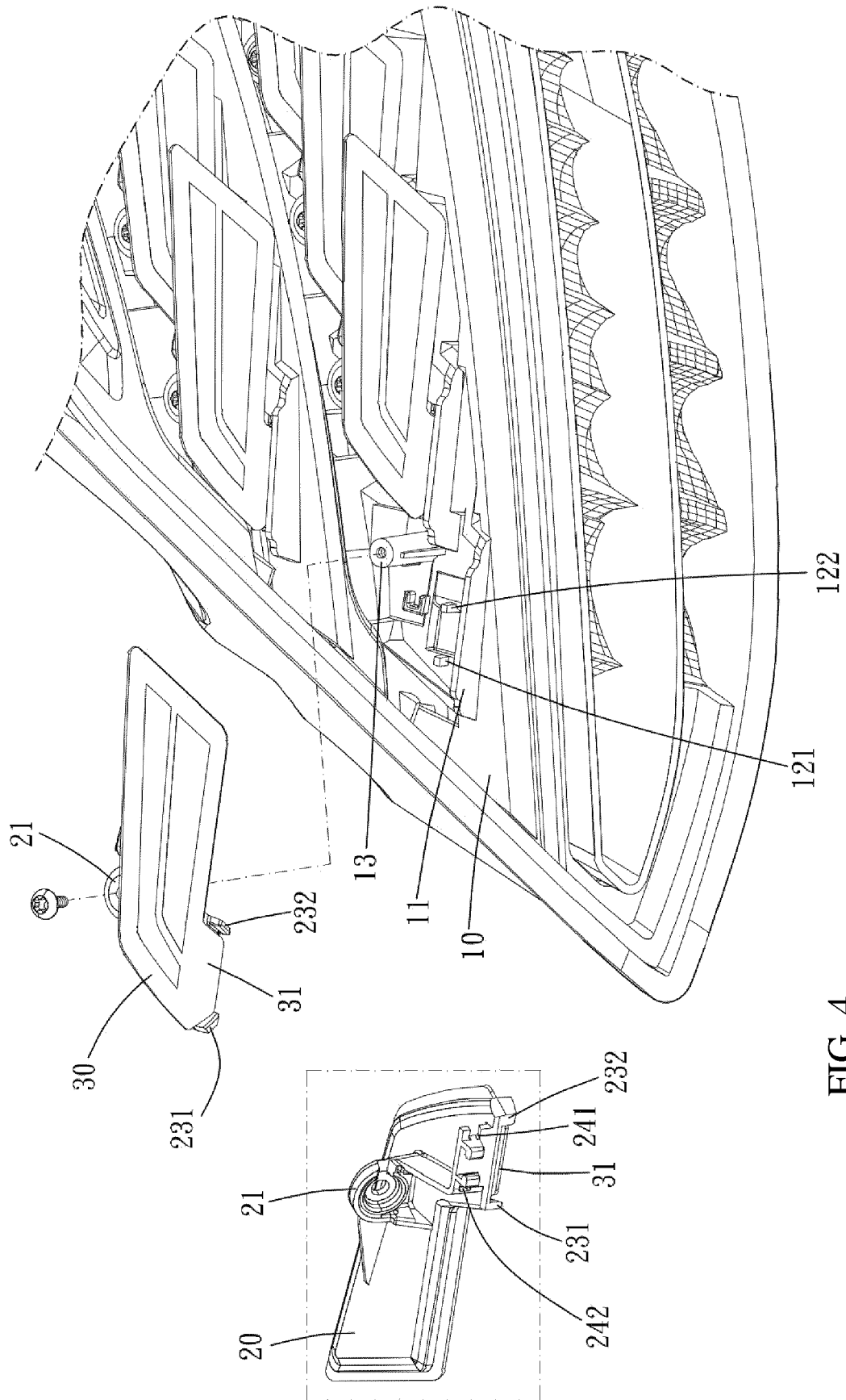


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 19 18 2261

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2018/009365 A1 (RUBIA JUAN-ANTONIO [ES] ET AL) 11 January 2018 (2018-01-11) * paragraphs [0038] - [0068]; figures 1-4 *	1-4,6,7,10	INV. F21S43/145 F21S43/19 F21S45/10
X	EP 2 915 698 A1 (HDO DRUCKGUSS UND OBERFLÄCHENTECHNIK GMBH [DE] ET AL.) 9 September 2015 (2015-09-09) * paragraphs [0001], [0020], [0021] - [0034]; figures 1-10 *	1,2,4-9	
X	CN 106 090 782 A (SHANGHAI KOITO AUTOMOTIVE LAMP) 9 November 2016 (2016-11-09) * see attached machine translation; figures 1-3 *	1-3,6	
X	WO 2016/094913 A1 (MIKROELEKTRONIK GES MIT BESCHRÄNKTER HAFTUNG AB [AT]) 23 June 2016 (2016-06-23) * page 1, lines 5-13 * * page 9, line 9 - page 10, line 3 * * figures 1-3 *	1,2,4,6	TECHNICAL FIELDS SEARCHED (IPC) F21S F21Y
X	WO 2014/038279 A1 (KONICA MINOLTA INC [JP]) 13 March 2014 (2014-03-13) * see attached machine translation; figures 1a-5 *	1,2,4,7	
A	CN 207 648 706 U (SHANGHAI KOITO AUTOMOTIVE LAMP) 24 July 2018 (2018-07-24) * see attached machine translation; figures 1-7 *	1,4-7,10	
A	EP 3 421 876 A1 (VALEO VISION [FR]) 2 January 2019 (2019-01-02) * the whole document *	1-10	
----- -/--			
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 October 2019	Examiner Goltes, Matjaz
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EUROPEAN SEARCH REPORT

Application Number
EP 19 18 2261

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	JP 2017 220309 A (KOITO MFG CO LTD) 14 December 2017 (2017-12-14) * see attached machine translation; paragraphs [0015] - [0033]; figures 1-8 * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 October 2019	Examiner Goltes, Matjaz
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2018009365 A1	11-01-2018	CN 107588392 A	16-01-2018
		EP 3270052 A1	17-01-2018
		FR 3053763 A1	12-01-2018
		JP 2018018818 A	01-02-2018
		KR 20180006329 A	17-01-2018
		US 2018009365 A1	11-01-2018
EP 2915698 A1	09-09-2015	CN 104896397 A	09-09-2015
		EP 2915698 A1	09-09-2015
		US 2015252973 A1	10-09-2015
CN 106090782 A	09-11-2016	NONE	
WO 2016094913 A1	23-06-2016	AT 516638 A1	15-07-2016
		WO 2016094913 A1	23-06-2016
WO 2014038279 A1	13-03-2014	JP 6137186 B2	31-05-2017
		JP WO2014038279 A1	08-08-2016
		WO 2014038279 A1	13-03-2014
CN 207648706 U	24-07-2018	NONE	
EP 3421876 A1	02-01-2019	CN 109140382 A	04-01-2019
		EP 3421876 A1	02-01-2019
		FR 3068109 A1	28-12-2018
		JP 2019009125 A	17-01-2019
		KR 20190001570 A	04-01-2019
		US 2018372292 A1	27-12-2018
JP 2017220309 A	14-12-2017	NONE	