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(54) LIGHTING DEVICE FOR VEHICLES HAVING LIGHT GUIDES

BELEUCHTUNGSVORRICHTUNG FÜR FAHRZEUGE MIT LICHTLEITERN

DISPOSITIF D'ÉCLAIRAGE POUR VÉHICULES DOTÉS DE GUIDES DE LUMIÈRE

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EP 3 650 745 B1

Description

Cross-reference to related applications

[0001] This patent application claims priority from Italian patent application no. 102018000010248 filed on 12/11/2018.

Technical field of the invention

[0002] The invention relates to a lighting device for vehicles, in particular a headlight for a vehicle, such as a motor vehicle, wherein one or more light guides are used, which are preferably lit by LEDs and are designed to carry out signalling functions (for example: position, direction, DRL) or aesthetic functions.

Prior art

[0003] As it is known, a vehicle lighting device comprises a cup-shaped body or housing, which is generally manufactured by moulding of a synthetic plastic material, at least one lighting element, which is housed in the cup-shaped body, and a transparent element, which closes a front opening of the cup-shaped body and, in use, faces the driving direction of the vehicle.

[0004] More and more often, light guides, which are lit by means of one or more LEDs (or by means of other different light sources), are used as lighting elements, in particular in order to carry out signalling functions, as position lamps, direction lights, DRL, etcetera.

[0005] In modern headlights, the transparent element or lens closing the front opening of the headlight body is optically neutral and different light guides are placed inside the headlight body so as to be visible through the transparent element.

[0006] According to these configurations, the LEDs (or other different lighting sources) used to light the light guides are carried at the back by the cup-shaped housing or body, in the area of a rear through seat thereof, which is not necessarily aligned with the front opening, or in the area of a lateral through seat thereof, since the light guides usually consist of elongated rod-shaped elements, which are flexible or anyway curved and receive the light at a first end of theirs in order to be then partly or entirely lit over their length or in order to be lit only in the area of a second end of theirs, which is opposite the first one.

[0007] Said rear or lateral through seat of the cup-shaped body is closed by a plate-shaped support element carrying the LED/s and externally fixed, in a removable manner, to the cup-shaped body or housing.

[0008] The plate-shaped support element is usually provided with the necessary electrical connections and with heat dissipators used to dispose of the heat produced, in use, by the LEDs.

[0009] Since the light guides are assembled on the headlight body or housing before mounting the plate-

shaped support with the LEDs already assembled on it, there is the problem of ensuring a correct placing of the first ends of the light guides relative to the respective lighting LEDs, which are all carried by the same plate-shaped support.

[0010] The solution of this problem is complicated by the necessary assembling tolerances for the light guides, which are relatively wide.

[0011] In order to solve this problem, the light guides are assembled, on the side of their first end, on an interface element, which is preferably provided with elastically deformable seats, which are configured to receive, in a through manner, the first ends of the light guide or of the bundle of light guides to be lit.

[0012] The interface element is configured to be housed in the aforesaid rear or lateral through seat of the cup-shaped housing or body with a radial clearance.

[0013] Subsequently, an adapter element is fixed on the interface element in an integral manner, on the opposite side relative to the light guides, and is coupled, substantially without clearances, within the through seat, said adapter element being provided with through seats, which are designed to be coupled, substantially without clearances, to the first ends of the light guides, which, therefore, are forced to assume a correct position relative to the housing.

[0014] Finally, on top of the adapter element there is fixed the plate-shaped support element carrying the LEDs, which, hence, are aligned with the light guides to be lit.

[0015] The known solution described above, despite being extremely functional in order to recover the assembling tolerances along the Y and Z axes of the vehicle, namely those axes that are parallel to the lying plane of the plate-shaped support element, does not solve the problem of recovering the assembling tolerances of the light guides also along the X axis of the vehicle, namely along a direction that is perpendicular to the lying plane of the plate-shaped support element and is generally aligned with or parallel to the optical axis of the lighting device.

[0016] This drawback can turn out to be particularly serious because a wrong distance between the first end of the light guide and the respective LED (or other lighting source) strongly affects the photometric performances of the lighting device.

[0017] US 2016/281954 A1 discloses such a lighting device for a vehicle.

Summary of the invention

[0018] The object of the invention is to provide a lighting device for vehicles, in particular a headlight or lamp for motor vehicles, which is not affected by the drawbacks of the prior art and, in particular, allows, in a simple, economic and compact fashion, for the recovery of assembling clearances of the light guides along all the three axes defining the position thereof relative to the lighting

LED/s (or other light source).

[0019] Therefore, according to the invention, there is provided a lighting device for vehicles, in particular a headlight or lamp for motor vehicles, according to the appended claims.

Brief Description of the Drawings

[0020] Further features and advantages of the invention will be best understood with reference to the following description of a non-limiting embodiment thereof, given merely by way of example and with reference to the figures of the accompanying drawings, wherein:

- figure 1 shows a partial, three-quarter, perspective, front view of a headlight for a vehicle, in particular a motor vehicle, according to the invention;
- figure 2 shows a partial, three-quarter, perspective, rear view of the headlight of figure 1, with parts removed for sake of simplicity;
- figure 3 shows, on a larger scale, a sectional view of a detail of a rear part removed from figure 2 of the headlight of figure 1;
- figures 4 and 5 show two perspective views, namely a front and a rear three-quarter views, respectively, the one of figure 5 being a partly sectional view, of the detail of figure 3 concerning the rear part removed from figure 2 of the headlight of figure 1;
- figures 6 and 7 show two three-quarter, perspective, rear views, the one of figure 7 in an exploded configuration, of the same detail of figures 4 and 5.

Detailed description

[0021] With reference to figure 1, reference number 1 indicates, as a whole, a front headlight for motor vehicles, which is configured to be fixed in a known manner, which is not shown herein for the sake of simplicity, to the body of a vehicle (which is also known and not shown).

[0022] Hereinafter reference will be made to a vehicle front headlight, but the description also applies to any lighting device for vehicles, headlight or lamp, which uses light guides as lighting element.

[0023] The lighting device 1 comprises a housing 2, at least one lighting element 3, which is at least partly housed in the housing 2 so as to be at least partly visible from the outside through a front opening 4 of the housing 2, and at least one light source 5, which is arranged on a support element 6, well shown in figure 3, and is configured to at least partly light the lighting element 3.

[0024] The lighting element, according to an aspect of the invention, consists of at least one known light guide 3, which has an elongated shape and includes a first end 7 facing away from the front opening 4.

[0025] In the non-limiting example shown herein, the lighting element consists of a bundle of light guides 3 beside one another, whose respective first ends 7 are each operatively associated with a respective LED or

group of LEDs 5 carried by the support element 6.

[0026] The support element 6 is coupled to the housing 2 in a removable manner so as to close a through seat 8 of the housing 2 arranged at the back or on the side thereof.

[0027] The end 7 of each light guide 3 is housed so as to go through an interface element 9 and an adapter element 10, which, in turn, is coupled to the interface element 9 in an integral manner and is arranged between the latter and the support element 6 for the LEDs 5, facing them.

[0028] The adapter element 10 and the interface element 9 are both housed, in the way described below, within the through seat 8 of the housing 2.

[0029] The adapter element 10 is constrained to the interface element 9 by means of a screw 11 and a threaded nut 12.

[0030] According to a feature of the invention, the screw 11 comprises (figure 5) an activation head 13 and a shank 14 having a first threaded stretch 15 and a second threaded stretch 16 arranged between the activation head 13 and the threaded stretch 15.

[0031] The first threaded stretch 15 is screwed into a reception seat 18 of the interface element 9 so that the screw 11 and the interface element 9 are movable relative to one another along an axis of symmetry A of the screw 11.

[0032] According to an aspect of the invention, the first threaded stretch 15 is self-tapping and the reception seat of the interface element 9 designed to receive it, into which the first threaded stretch 15 is screwed with the possibility of making a predetermined axial movement, is defined by a smooth lateral wall of a recess defined by a cup-shaped portion 19 of a bottom wall 20 of the interface element 9.

[0033] The cup-shaped portion 19 of the bottom wall 20 projects from the bottom wall 20, on the opposite side relative to the first ends 7 of the light guides 3 and, hence, towards the front opening 4.

[0034] According to another aspect of the invention, the threaded nut 12 is screwed onto the second threaded stretch 16 so as to axially strike against a bottom wall 21 of the adapter element 10.

[0035] The adapter element 10, furthermore, has a peripherally outer edge 22, which is coupled to an annular lateral wall 23 of the through seat 8 of the housing 2.

[0036] Preferably, the interface element 9 is provided with elastically deformable seats 24, which are configured to receive, in a through manner, the respective first ends 7 of the light guides 3 of the bundle of light guides to be lit. In the example shown herein, the seats 24 are defined by elastically deformable wings, which are manufactured as one single piece together with, and axially project from, the bottom wall 20, on the same side as the cup-shaped portion 19.

[0037] Furthermore, the interface element 9 is configured to be housed in the through seat 8 of the housing 2 with a radial clearance.

[0038] The adapter element 10, on the other hand, is fixed on the interface element 9 in an integral manner, on the opposite side relative to the light guide/bundle of light guides 3 as well as to the cup-shaped portion 19, and is coupled within the through seat 8 of the housing 2 substantially without clearances.

[0039] The adapter element 10 is also provided with through seats 25, which are designed to be coupled to the first end 7 of the light guide 3 / of the bundle of light guides 3 substantially without clearances.

[0040] According to a further aspect of the invention, the support element 6 for the LEDs 5, the interface element 9 and the adapter element 10 are shaped like plates and are coupled superimposed to one another in overlapped positions.

[0041] The LEDs 5 constituting said at least one light source or a plurality of light sources to light the light guides 3 are powered by an electric connector 26, which is integrated with the support element 6 and projects from the latter on the opposite side relative to the ends 7 of the light guides or of the bundle of light guides 3.

[0042] The support element 6 is further provided with an annular collar 27 (figure 3), which projects towards the light guide 3 or the bundle of light guides 3 and is coupled in contact, substantially without clearances and in a fluid-tight manner, to the annular lateral wall 23 of the through seat 8 of the housing 2.

[0043] On the opposite side relative to the annular collar 27, the support element 6 is also provided with a flange 28, which is fixed by means of removable connection means, preferably, like in the example shown herein, consisting of screws 30, against a peripheral front edge 31 of the through seat 8 of the housing 2.

[0044] In use, the light guides 3 are fitted in position on the housing 2 with their ends 7 bent on the opposite sides relative to the front opening 4; the ends 7 are then inserted, one at a time, into the seats 24 of the interface element 9 and the latter is introduced into the through seat 8, where it is housed with a radial clearance.

[0045] Subsequently, the adapter element 10 is fitted against the interface element 9, inserting the ends 7 of the light guides 3 into the through seats 25 and the screw 11, without the threaded nut 12 and already at least partially screwed into the reception seat 18, into a through hole 32 made through the bottom wall 21 of the adapter element 10. During this mounting operation, the adapter element 10 is also inserted into the through seat 8, coupling its radially outer peripheral edge 22 to the lateral wall 23.

[0046] This operation causes the interface element 9 to be repositioned in the seat 8 and, especially, the single ends 7 of the light guides 3 to be repositioned relative to the lateral wall 23 and in the elastically deformable through seats 24 of the interface element 9, thus recovering the assembling tolerances of the light guides 3 along the axes Y and Z of the X,Y,Z reference system schematically shown in figure 5.

[0047] Finally, the nut 12 is fitted on the threaded

stretch 16 until it strikes against the bottom wall 21 and, subsequently, by acting, with suitable tools, both upon the activation head 13 and upon the nut 12, the threaded stretch 15 is further screwed into or unscrewed from the reception seat 18, always causing the nut 12 to strike again against the bottom wall 21.

[0048] By so doing, it is possible to also recover the assembling tolerances of the light guides 3 along the axis X, without for this reason altering or complicating the operations for the recovery of the assembling tolerances along the axes Y and Z.

[0049] Finally, it is clear that the invention also applies to a vehicle comprising a lighting device 1, headlight or lamp, of the type described above, thus allowing, in use, for a better lighting of the road.

[0050] Therefore, all the objects of the invention are reached.

Claims

1. A lighting device (1) for a vehicle, in particular a headlight for a motor vehicle, comprising a housing (2), at least one lighting element (3) housed at least partially inside the housing (2) so as to be at least partially visible from the outside via a front opening (4) of the housing (2), and at least one light source (5) arranged on a support element (6) coupled to the housing (2), in a detachable manner, to close a through seat (8) of the housing (2) arranged at the rear or at the sides thereof, said at least one light source (5) being configured to illuminate said at least one lighting element, which consists of a light guide (3) having an elongated shape and including a first end (7) operatively associated with said at least one light source (5); wherein the first end (7) of the light guide (3) is housed passing through an interface element (9) and an adapter element (10), which in turn is coupled integral with the interface element (9) and interposed between the latter and the support element (6) of said at least one light source (5) facing thereto, the adapter element (10) and the interface element (9) both being housed inside said through seat (8) of the housing (2); wherein the adapter element (10) is constrained to the interface element (9) by a screw (11) and a threaded nut (12); **characterised in that** the screw (11) comprises an activation head (13) and a shank (14) having a first threaded stretch (15) and a second threaded stretch (16) arranged between the activation head (13) and first threaded stretch (15), the first threaded stretch (15) being screwed inside a reception seat (18) of the interface element (9) so that the screw (11) and the interface element (9) are relatively mobile along an axis of symmetry (A) of the screw (11); the threaded nut (12) being screwed on the second threaded stretch (16) in such a manner that it couples in axial abutment against a bottom wall (21) of the adapter

element (10).

2. The lighting device according to claim 1, **characterised in that** said adapter element (10) has a peripheral outer edge (22) which couples with an annular lateral wall (23) of the through seat (8) of the housing (2).
3. The lighting device according to claim 1 or 2, **characterised in that** it comprises a plurality of lighting elements consisting in a bundle of elongated light guides (3); said interface element (9) being provided with elastically deformable seats (24) configured to receive in through-manner respective first ends (7) of the light guides (3) of said bundle of light guides (3) to be illuminated.
4. The lighting device according to one of the preceding claims, **characterised in that** said interface element (9) is configured to be housed with radial play inside said through seat (8) of the housing (2).
5. The lighting device according to one of the preceding claims, **characterised in that** the adapter element (10) is fixed integral onto the interface element (9) on the opposite side to the at least one light guide (3) or to a bundle of light guides (3) and is substantially coupled without radial play inside the through seat (8) of the housing (2).
6. The lighting device according to claim 5, **characterised in that** the adapter element (10) is provided with through seats (25) designed to couple without radial play to the first end (7) of the at least one light guide (3) or of the bundle of light guides (3).
7. The lighting device according to one of the preceding claims, **characterised in that** the first threaded stretch (15) is of the self-threading type, the reception seat (18) of the interface element (9), within which the first threaded stretch (15) is screwed, being defined by a smooth lateral wall of a recess defined by a cup-shaped portion (19) of a bottom wall (20) of the interface element (9) protruding in a cantilever fashion from the bottom wall (20) on the side opposite to the first end (7) of the at least one light guide (3).
8. The lighting device according to one of the preceding claims, **characterised in that** said support element (6) for the at least one light source (5), said interface element (9) and said adapter element (10) are shaped as plates and are coupled superimposed to one another in overlapped positions; said at least one light source being formed by an LED or by an LED assembly (5) powered by an electric connector (26) integrated with the support element (6) and protruding from the same on the side opposite to the

first end (7) of the light guide (3) or the bundle of light guides (3).

9. The lighting device according to one of the preceding claims, **characterised in that** said support element (6) is provided in a cantilever fashion towards the light guide (3) or the bundle of light guides (3) of an annular collar (27) which is coupled in contact with an annular lateral wall (23) of the through seat (8) of the housing (2) and, on the side opposite to said annular collar (27), of a flange (28), which is fixed by means of removable connection means, preferably screws (30), against a peripheral front edge (31) of the through seat (8) of the housing (2).
10. A vehicle comprising the lighting device (1) according to one of the preceding claims, the lighting device (1) being a headlight or a lamp.

Patentansprüche

1. Beleuchtungsvorrichtung (1) für ein Fahrzeug, insbesondere Scheinwerfer für ein Kraftfahrzeug, mit einem Gehäuse (2), wenigstens einem Beleuchtungselement (3), das wenigstens teilweise innerhalb des Gehäuses (2) untergebracht ist, so dass es über eine vordere Öffnung (4) des Gehäuses (2) wenigstens teilweise von außen sichtbar ist, und wenigstens einer Lichtquelle (5), die an einem mit dem Gehäuse (2) lösbar gekoppelten Trägerelement (6) angeordnet ist, um einen rückseitig oder seitlich angeordneten Durchgangssitz (8) des Gehäuses (2) zu verschließen, wobei die wenigstens eine Lichtquelle (5) dafür konfiguriert ist, das wenigstens eine Beleuchtungselement zu beleuchten, das aus einem Lichtleiter (3) besteht, der eine langgestreckte Form aufweist und ein erstes Ende (7) umfasst, das operativ der wenigstens einen Lichtquelle (5) zugeordnet ist, wobei das erste Ende (7) des Lichtleiters (3) so untergebracht ist, dass es durch ein Schnittstellenelement (9) und ein Adapterelement (10) verläuft, welches wiederum integral mit dem Schnittstellenelement (9) gekoppelt ist und zwischen dem letzteren und dem Trägerelement (6) der mindestens einen Lichtquelle (5), die diesem zugewandt ist, angeordnet ist, wobei das Adapterelement (10) und das Schnittstellenelement (9) beide innerhalb des Durchgangssitzes (8) des Gehäuses (2) untergebracht sind; wobei das Adapterelement (10) durch eine Schraube (11) und eine Gewindemutter (12) an dem Schnittstellenelement (9) gehalten wird; **dadurch gekennzeichnet, dass** die Schraube (11) einen Betätigungskopf (13) und einen Schaft (14) mit einem ersten Gewindeteil (15) und einem zweiten Gewindeteil (16) aufweist, der zwischen dem Betätigungskopf (13) und dem ersten Gewindeteil (15) angeordnet ist, wobei der erste Gewindeteil (15) in

- einen Aufnahmesitz (18) des Schnittstellenelements (9) eingeschraubt ist, so dass die Schraube (11) und das Schnittstellenelement (9) entlang einer Symmetrieachse (A) der Schraube (11) relativ beweglich sind; wobei die Gewindemutter (12) so auf den zweiten Gewindeteil (16) aufgeschraubt ist, dass sie axial an einer Bodenwand (21) des Adapterelements (10) anliegend koppelt.
2. Beleuchtungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Adapterelement (10) einen umlaufenden Außenrand (22) aufweist, der mit einer ringförmigen Seitenwand (23) des Durchgangssitzes (8) des Gehäuses (2) koppelt.
 3. Beleuchtungsvorrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** sie mehrere Beleuchtungselemente umfasst, die in einem Bündel von langgestreckten Lichtleitern (3) bestehen; wobei das Schnittstellenelement (9) mit elastisch verformbaren Sitzen (24) versehen ist, die dafür konfiguriert sind, die jeweiligen ersten Enden (7) der zu beleuchtenden Lichtleiter (3) des Bündels von Lichtleitern (3) in durchgehender Weise aufzunehmen.
 4. Beleuchtungsvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Schnittstellenelement (9) dafür konfiguriert ist, mit radialem Spiel innerhalb des Durchgangssitzes (8) des Gehäuses (2) untergebracht zu werden.
 5. Beleuchtungsvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Adapterelement (10) auf der dem wenigstens einen Lichtleiter (3) oder einem Bündel von Lichtleitern (3) gegenüberliegenden Seite integral an dem Schnittstellenelement (9) befestigt ist und im Wesentlichen ohne Radialspiel innerhalb des Durchgangssitzes (8) des Gehäuses (2) gekoppelt ist.
 6. Beleuchtungsvorrichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** das Adapterelement (10) mit Durchgangssitzen (25) versehen ist, die dafür ausgelegt sind, ohne Radialspiel mit dem ersten Ende (7) des wenigstens einen Lichtleiters (3) oder des Bündels von Lichtleitern (3) zu koppeln.
 7. Beleuchtungsvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste Gewindeteil (15) selbstschneidend ist, wobei der Aufnahmesitz (18) des Schnittstellenelements (9), in den der erste Gewindeteil (15) eingeschraubt ist, durch eine glatte Seitenwand einer Ausnehmung definiert ist, die durch einen becherförmigen Abschnitt (19) einer Bodenwand (20) des Schnittstellenelements (9) definiert ist, die von der Bodenwand (20) auf der dem ersten Ende (7) des wenigstens einen Lichtleiters (3) gegenüberliegenden Seite auskragend hervorsteht.
 8. Beleuchtungsvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Trägerelement (6) für die wenigstens eine Lichtquelle (5), das Schnittstellenelement (9) und das Adapterelement (10) als Platten ausgebildet sind und in überlappenden Positionen übereinanderliegend gekoppelt sind; wobei die wenigstens eine Lichtquelle durch eine LED oder durch eine LED-Anordnung (5) gebildet ist, die durch einen elektrischen Verbinder (26) mit Energie versorgt wird, der in das Trägerelement (6) integriert ist und von diesem auf der dem ersten Ende (7) des Lichtleiters (3) oder des Bündels von Lichtleitern (3) gegenüberliegenden Seite hervorsteht.
 9. Beleuchtungsvorrichtung nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Trägerelement (6) auskragend in Richtung zu dem Lichtleiter (3) oder dem Bündel von Lichtleitern (3) mit einem ringförmigen Kragen (27) versehen ist, der in Kontakt mit einer ringförmigen Seitenwand (23) des Durchgangssitzes (8) des Gehäuses (2) gekoppelt ist, sowie mit einem Flansch (28) auf der dem ringförmigen Kragen (27) gegenüberliegenden Seite, der mittels lösbarer Verbindungsmittel, vorzugsweise Schrauben (30), an einem umlaufenden vorderen Rand (31) des Durchgangssitzes (8) des Gehäuses (2) befestigt ist.
 10. Fahrzeug, das die Beleuchtungsvorrichtung (1) nach einem der vorangehenden Ansprüche aufweist, wobei die Beleuchtungsvorrichtung (1) ein Frontscheinwerfer oder ein Fahrzeugscheinwerfer ist.

Revendications

1. Dispositif d'éclairage (1) pour un véhicule, notamment un phare pour un véhicule à moteur, comprenant un boîtier (2), au moins un élément d'éclairage (3) logé au moins partiellement à l'intérieur du boîtier (2) afin d'être au moins partiellement visible depuis l'extérieur via une ouverture avant (4) du boîtier (2), et au moins une source de lumière (5) agencée sur un élément de support (6) couplé au boîtier (2), d'une manière détachable, afin de fermer un siège débouchant (8) du boîtier (2) agencé à l'arrière de celui-ci ou au niveau des côtés de celui-ci, ladite au moins une source de lumière (5) étant configurée pour éclairer ledit au moins un élément d'éclairage qui se compose d'un guide de lumière (3) ayant une forme allongée, et comprenant une première extrémité (7) associée, de manière opérationnelle, à ladite au moins une source de lumière (5) ; dans lequel la première extrémité (7) du guide de lumière (3) est logée en passant par un élément d'in-

- terface (9) et un élément d'adaptateur (10) qui est couplé, à son tour, de manière solidaire avec l'élément d'interface (9) et intercalé entre ce dernier et l'élément de support (6) de ladite au moins une source de lumière (5) lui faisant face, l'élément d'adaptateur (10) et l'élément d'interface (9) étant tous deux logés à l'intérieur dudit siège débouchant (8) du boîtier (2) ; dans lequel l'élément d'adaptateur (10) est retenu sur l'élément d'interface (9) par une vis (11) et un écrou fileté (12) ; **caractérisé en ce que** la vis (11) comprend une tête d'activation (13) et une tige (14) ayant un premier segment fileté (15) et un deuxième segment fileté (16) agencé entre la tête d'activation (13) et le premier segment fileté (15), le premier segment fileté (15) étant vissé à l'intérieur d'un siège de réception (18) de l'élément d'interface (9) de sorte que la vis (11) et l'élément d'interface (9) sont mobiles l'un par rapport à l'autre le long d'un axe de symétrie (A) de la vis (11) ; l'écrou fileté (12) étant vissé sur le deuxième segment fileté (16) de sorte qu'il se couple, en butée axiale, contre une paroi inférieure (21) de l'élément d'adaptateur (10).
2. Dispositif d'éclairage selon la revendication 1, **caractérisé en ce que** ledit élément d'adaptateur (10) a un bord externe périphérique (22) qui se couple avec une paroi latérale annulaire (23) du siège débouchant (8) du boîtier (2).
 3. Dispositif d'éclairage selon la revendication 1 ou 2, **caractérisé en ce qu'il** comprend une pluralité d'éléments d'éclairage se composant d'un faisceau de guides de lumière allongés (3) ; ledit élément d'interface (9) étant prévu avec des sièges élastiquement déformables (24) configurés pour recevoir, d'une manière débouchante, des premières extrémités (7) respectives des guides de lumière (3) dudit faisceau de guides de lumière (3) à éclairer.
 4. Dispositif d'éclairage selon l'une des revendications précédentes, **caractérisé en ce que** ledit élément d'interface (9) est configuré pour être logé avec un jeu radial à l'intérieur dudit siège débouchant (8) du boîtier (2).
 5. Dispositif d'éclairage selon l'une des revendications précédentes, **caractérisé en ce que** l'élément d'adaptateur (10) est fixé, de manière solidaire, sur l'élément d'interface (9) sur le côté opposé au au moins un guide de lumière (3) ou à un faisceau de guides de lumière (3) et est sensiblement couplé sans jeu radial à l'intérieur du siège débouchant (8) du boîtier (2).
 6. Dispositif d'éclairage selon la revendication 5, **caractérisé en ce que** l'élément d'adaptateur (10) est prévu avec des sièges débouchants (25) conçus pour se coupler sans jeu radial, à la première extrémité (7) du au moins un guide de lumière (3) ou du faisceau de guides de lumière (3).
 7. Dispositif d'éclairage selon l'une des revendications précédentes, **caractérisé en ce que** le premier segment fileté (15) est de type à auto-filetage, le siège de réception (18) de l'élément d'interface (9) à l'intérieur duquel le premier segment fileté (15) est vissé, étant défini par une paroi latérale lisse d'un évidement défini par une partie en forme de coupelle (19) d'une paroi inférieure (20) de l'élément d'interface (9) faisant saillie en porte-à-faux à partir de la paroi inférieure (20) sur le côté opposé à la première extrémité (7) du au moins un guide de lumière (3).
 8. Dispositif d'éclairage selon l'une des revendications précédentes, **caractérisé en ce que** ledit élément de support (6) pour la au moins une source de lumière (5), ledit élément d'interface (9) et ledit élément d'adaptateur (10) sont formés comme des plaques et sont couplés de manière superposée l'un sur l'autre dans des positions chevauchantes ; ladite au moins une source de lumière étant formée par une LED ou par un ensemble de LED (5) alimenté(e) par un connecteur électrique (26) intégré avec l'élément de support (6) et faisant saillie de ce dernier sur le côté opposé à la première extrémité (7) du guide de lumière (3) ou du faisceau de guides de lumière (3).
 9. Dispositif d'éclairage selon l'une des revendications précédentes, **caractérisé en ce que** ledit élément de support (6) est prévu en porte-à-faux, vers le guide de lumière (3) ou le faisceau de guides de lumière (3) d'un collier annulaire (27) qui est couplé en contact avec une paroi latérale annulaire (23) du siège débouchant (8) du boîtier (2), et sur le côté opposé audit collier annulaire (27), d'une bride (28) qui est fixée au moyen d'un moyen de raccordement amovible, de préférence des vis (30), contre un bord avant périphérique (31) du siège débouchant (8) du boîtier (2).
 10. Véhicule comprenant le dispositif d'éclairage (1) selon l'une des revendications précédentes, le dispositif d'éclairage (1) étant un phare ou une lampe.

FIG. 1

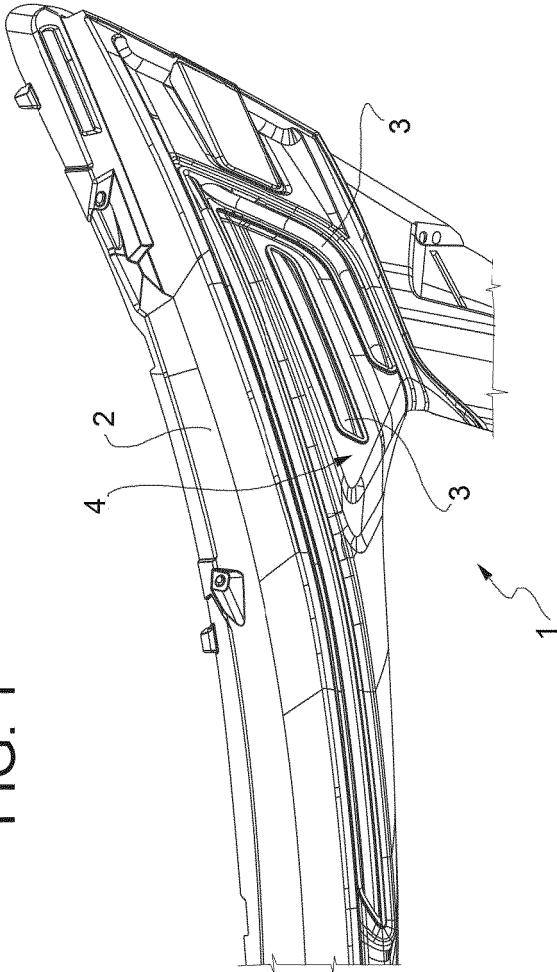


FIG. 2

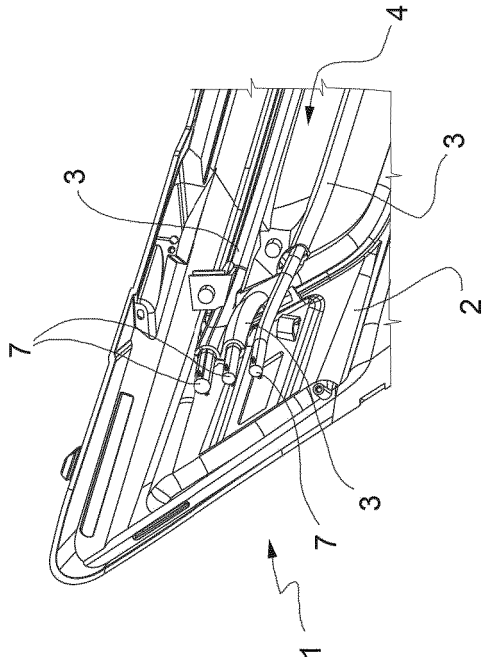


FIG. 3

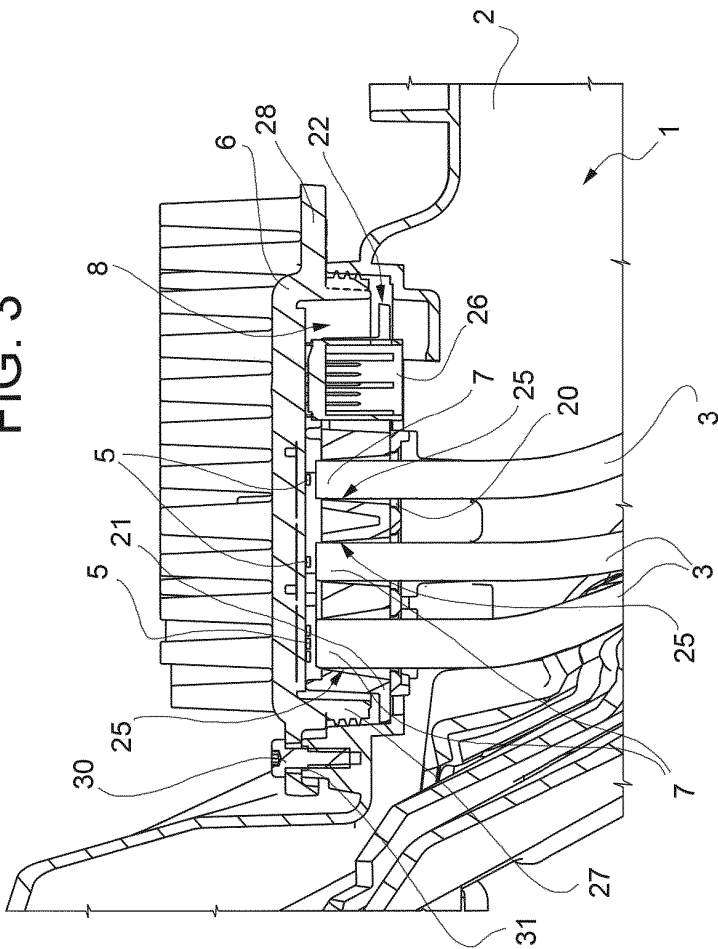
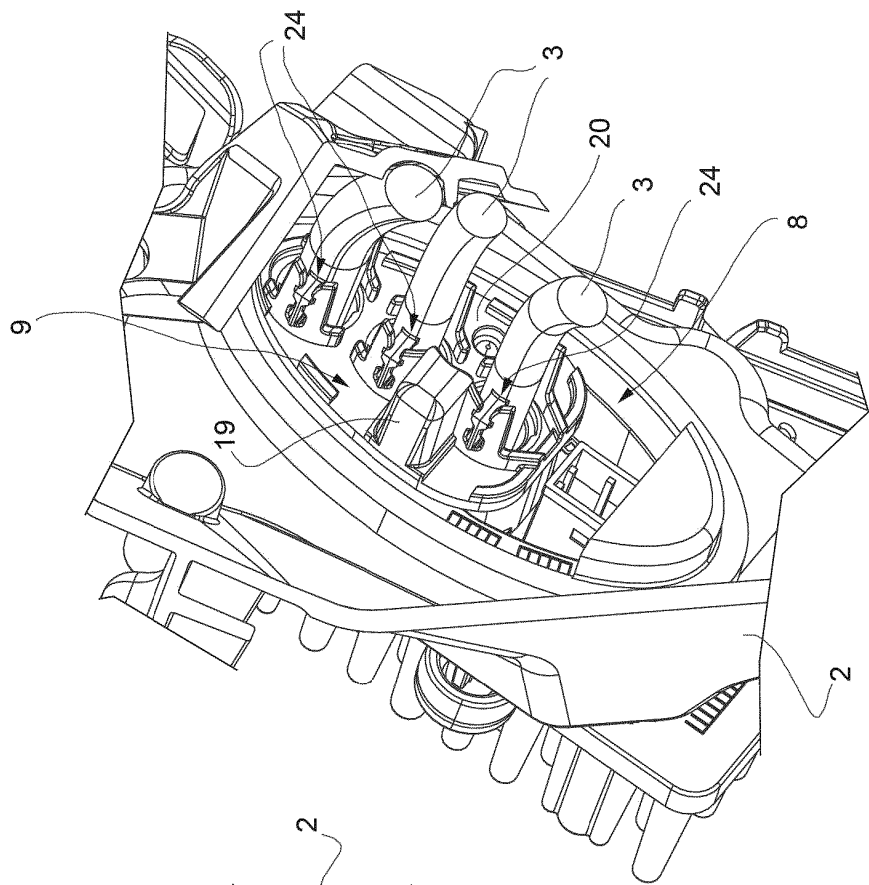


FIG. 4



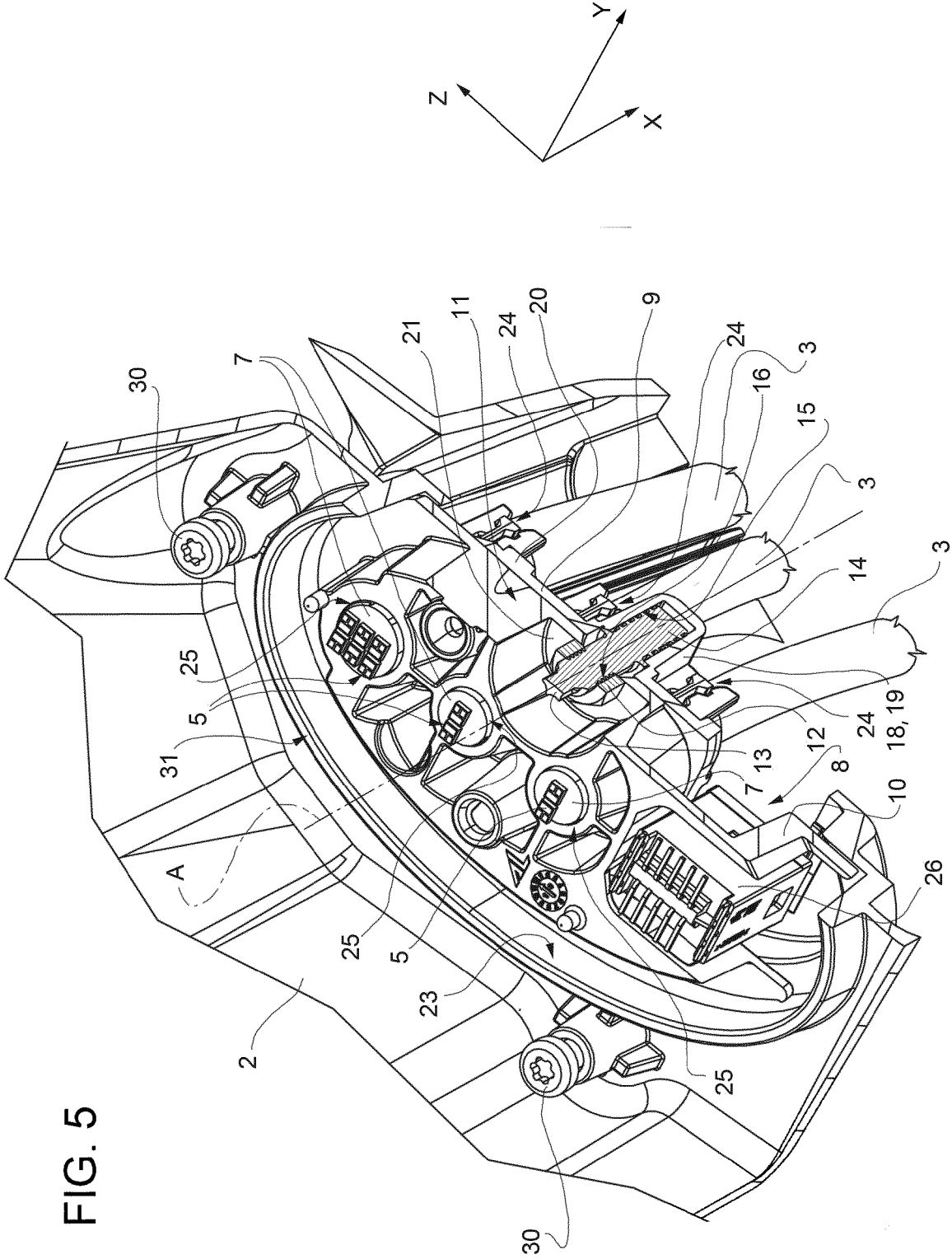


FIG. 5

FIG. 6

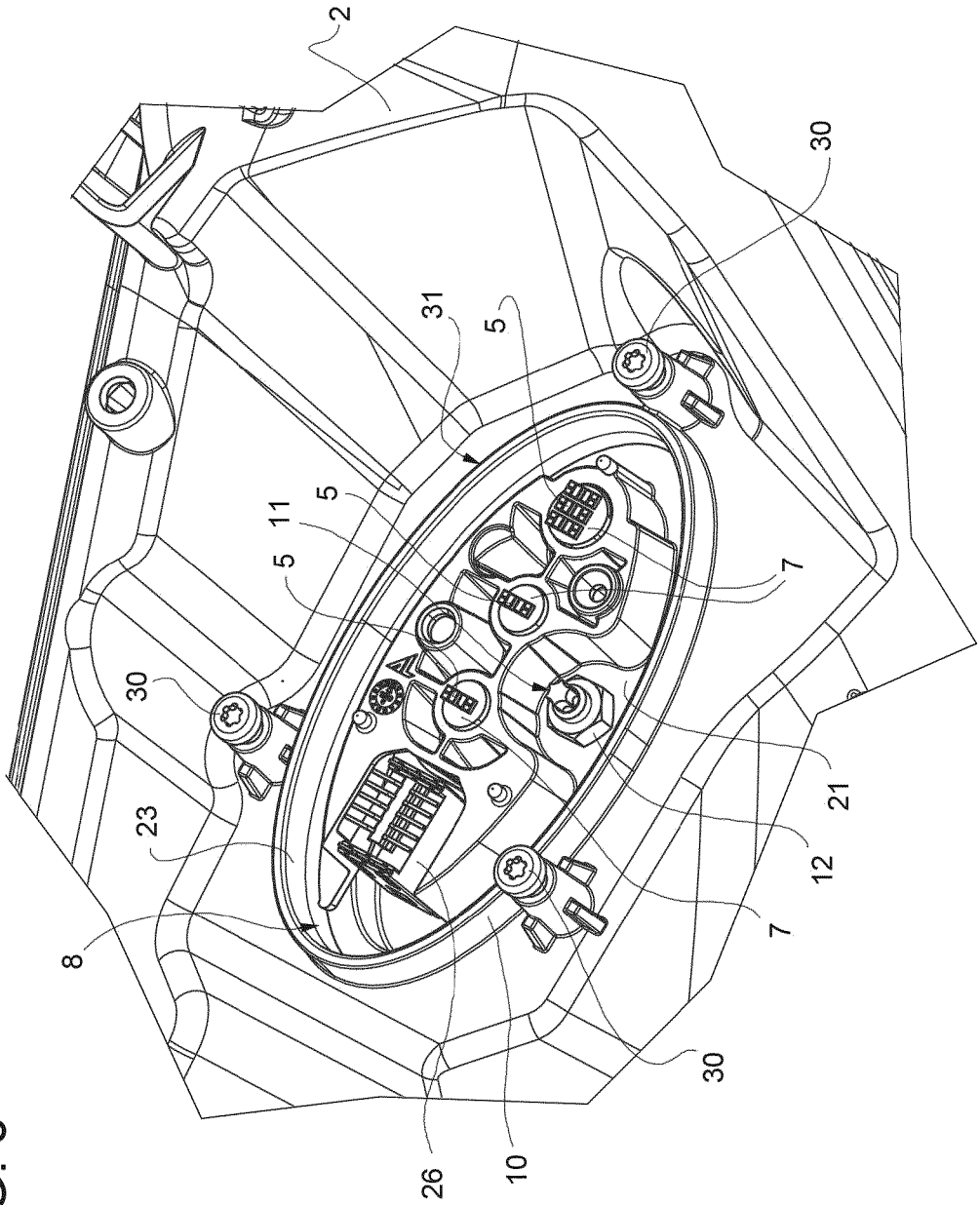
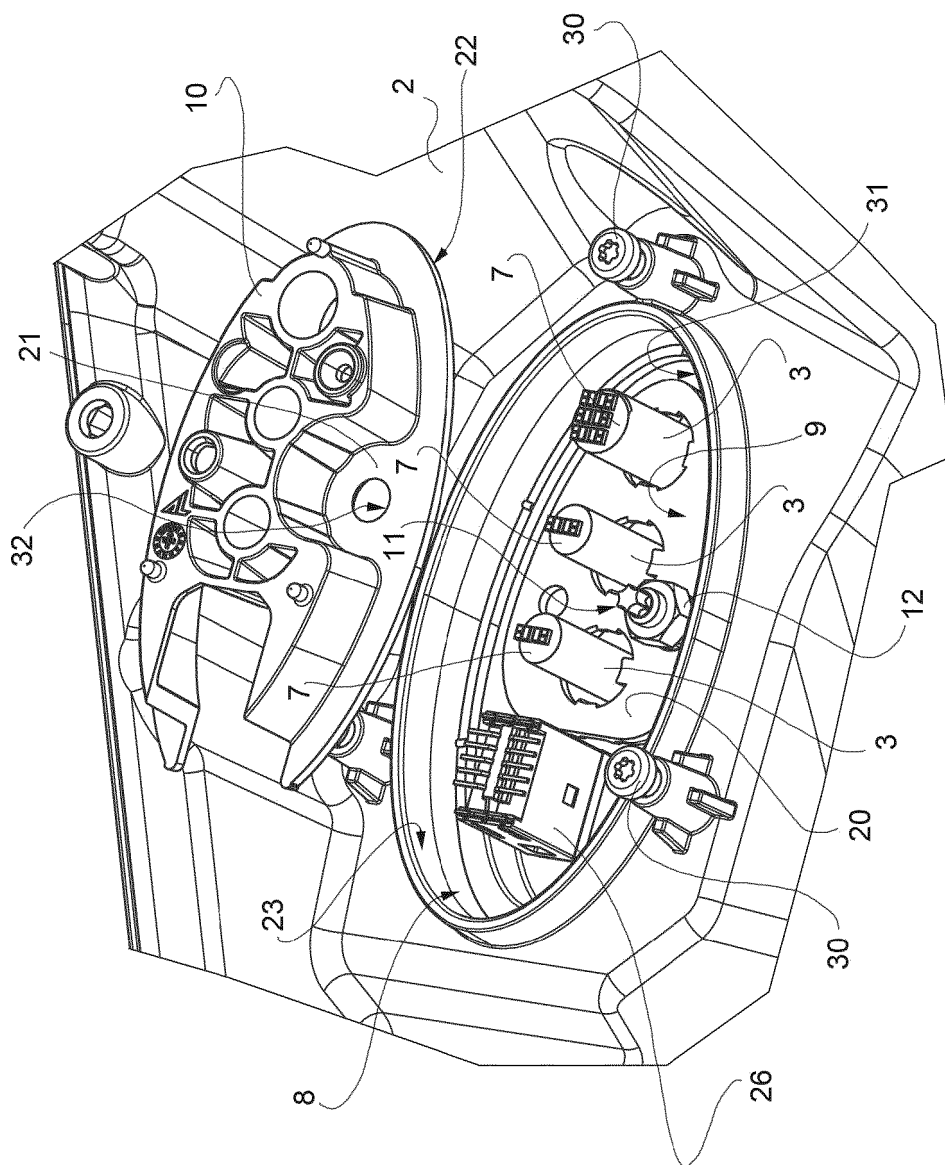


FIG. 7



REFERENCES CITED IN THE DESCRIPTION

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