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(54) **LIGHTING APPARATUS COMPRISING A DIRECTED LIGHT BEAM**

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APPAREIL D'ÉCLAIRAGE COMPRENANT UN FAISCEAU LUMINEUX DIRIGÉ

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Description

[0001] The object of the present invention is a lighting apparatus provided with a light source comprising a focused (directed) light beam.

[0002] Within the field of lighting, light blade lighting devices, which are therefore provided with a light beam having a preferential plane, are becoming more and more widespread. These devices therefore need to be directed in the correct manner. Examples of lighting apparatus of the state of the art are disclosed in documents US 2011/063828 A1, GB 1 194 895 A, US 10 161 581 B1, US 2018/172253 A1, EP 3 336 422 A1 and US 2007/195520 A1. Further examples are disclosed in US 3 069 538 A and US 5 601 356 A.

[0003] The object of the present invention is to provide a lighting apparatus that can be easily directed and can meet the requirements discussed above.

[0004] This object is achieved by a lighting apparatus as per claim 1.

[0005] The features and the advantages of the lighting apparatus according to the present invention will become clear from the description given below by way of nonlimiting example and in accordance with the attached drawings, in which:

- Fig. 1A and 1B show a lighting apparatus according to the present invention in an axonometric front view and an axonometric rear view, respectively;
- Fig. 2A and 2B show a lighting apparatus according to the present invention in an exploded front view and in an exploded rear view;
- Fig. 3 shows the lighting apparatus as per the present invention in an assembled configuration; and
- Fig. 4 shows the lighting apparatus according to the present invention in a final use configuration.

[0006] With reference to the attached drawings, reference numeral 1 represents a lighting apparatus provided with a light source 20.

[0007] The light source 20 emits a focused (directed), in other words not scattered, light beam, which is therefore provided with a preferential axis and/or plane. In other words, by directing the light source 20, it is possible to direct the light beam.

[0008] In one embodiment shown in Fig. 2A, the light source 20 comprises a diffuser globe 21 that extends along one plane; in this example, the diffuser globe 21 is semicircular or semi-discoidal. Therefore, the light beam emitted by the light source 20 has a preferential plane that corresponds to the plane of the diffuser globe 21. In this embodiment, the light source 20 emits a light blade beam.

[0009] In another embodiment, the light source 20 is provided with a plurality of diffuser globes and therefore emits a light beam that is not scattered, in other words that is provided with a preferential axis and/or plane.

[0010] Preferably, the light source 20 is an LED.

[0011] The lighting apparatus 1 is an LED spotlight, for example.

[0012] The lighting apparatus 1 comprises a lamp body 10 that is supported by a support 50.

5 **[0013]** The lamp body 10 comprises a main body 30, which houses the light source 20 and is covered by an outer body 40, at least in part.

[0014] The main body 30 extends along a longitudinal axis X.

10 **[0015]** The main body 30 comprises a front portion 31 in which the light source 20 is fixed, and a rear portion 32 from which a power supply cable (not shown) leaves.

[0016] The main body 30 also houses the printed circuit board 22 for the light source 20.

15 **[0017]** A cable grommet 34 for the power supply cable is arranged in the rear portion 32, preferably in the back wall 33.

[0018] The outer body 40 is a casing intended to cover the main body 30, at least in part, in particular in order to conceal the light source 20 from the user's view, while letting out the light beam.

20 **[0019]** The outer body 40 also extends along a longitudinal axis X.

25 **[0020]** The outer body 40 defines a compartment 43 on the inside, into which at least part of the main body 30 is inserted.

[0021] The outer body 40 is provided with a front opening 41 and with a rear opening 42; the front 41 and rear 42 openings allow access to the compartment 43.

30 **[0022]** Preferably, the outer body 40 and the main body 30 are integrally joined for conjoint rotation by coupling means 44, 35. In fact, the outer body 40 acts as a handle for the user intending to direct the light beam emitted by the light source 20 of the lighting apparatus 1. The user therefore grasps the outer body 40 and rotating it about the longitudinal axis X: due to the coupling means, the rotational movement of the outer body 40 is transmitted to the main body 30 that houses the light source 20. Therefore, the lamp body 10 can rotate about the longitudinal axis X.

35 **[0023]** For example, the coupling means are at least one tab 44, which protrudes into the compartment 43 and can engage in a suitable groove 35 (or in a compartment or a depression or a channel) arranged in the main body 30.

40 **[0024]** The coupling means 44, 35 preferably also extend along a longitudinal axis X. During mounting of the lamp body 10 of the lighting apparatus 1, the main body 30 is inserted into the outer body 40 along the longitudinal axis X such that the tab 44 is inserted and slides in the groove 35.

50 **[0025]** The coupling means preferably comprise a pair of tabs 44 and a relative pair of grooves 35. The tabs 44 are preferably arranged symmetrically on the main body 30.

55 **[0026]** The outer body 40 and the main body 30 are preferably fixed to one another by locking means 36. The locking means advantageously prevent the main body

30 from leaving the outer body 40, via the front opening 41, by sliding along the longitudinal axis X.

[0027] In one embodiment, the locking means comprise a screw 36 that is associated with the main body 30 and can be screwed into a suitable abutment arranged on the outer body 40.

[0028] The screw 36 is preferably inserted from the back wall 33 of the rear portion 32, through the main body 30, and exits in the front portion 31.

[0029] Two locking screws 36 are preferably provided.

[0030] The lighting apparatus 1 also comprises a support 50.

[0031] The support 50 comprises a bearing base 51 from which a stem 52 extends that bears a bracket 53 that can support the lamp body 10.

[0032] The bearing base 51 comprises a stand 511 on which an outer body 512 is arranged such that it can rotate about a vertical axis Y. By fixing the bracket 53 to the outer body 512, the lamp body 10 can also rotate about the vertical axis Y.

[0033] The bearing base 51 preferably comprises anti-rotation means 514, for example screws or grub screws, which lock the outer body 512 with respect to the stand 511 in order to prevent any unwanted rotational movements about the vertical axis Y.

[0034] The bracket 53 is fixed to the stem 52 by means of a hinge 54 that allows said bracket to rotate about a transverse axis Z. Therefore, the lamp body 10 can rotate about the vertical axis Y.

[0035] The bracket 53 comprises an annular body 531, which defines a support compartment 532 into which the lamp body 10 can be inserted.

[0036] The body 531 is preferably obtained from a strip of flexible material folded back on itself to form a ring.

[0037] The body 531 preferably comprises two ends 533 that are joined to one another to form the annular body 531 by means of a bushing-screw system, which is preferably formed by a screw 556 inserted into a bushing 557. Each end 533 comprises a hole into which the screw 556 or the bushing 533 is inserted.

[0038] The two ends 533 are preferably externally folded with respect to the circumference of the ring to form a socket portion 538.

[0039] The socket portion 538 of the bracket 53 is held in a particular seat 539 arranged in the stem 52. The seat 539 is defined between two facing walls 570, each of which is provided with a through-hole 571.

[0040] The socket portion 538 of the bracket 53 is fixed inside the seat 539 arranged in the stem 52 by means of a pin 555. The pin 555 is preferably formed by the screw 556 and by the bushing 557 as per the bushing-screw system that closes the annular body 531 of the bracket 53.

[0041] In particular, the screw 566 is inserted into the hole 571 in the first facing wall 570 of the stem 52, passes through a first end 533 of the bracket 53 and meets, inside the seat 539, the bushing 557 that has, in turn, firstly been inserted into the hole 571 in the second facing wall

570 of the stem 52 and then passes through a second end 533 of the bracket 53.

[0042] The socket portion 538 of the bracket 53, the seat 539 of the stem 52 and the pin 555 form the hinge 54 that allows said bracket to rotate about the transverse axis Z. In particular, the seat 539 of the leg 52 represents the female component of the hinge that receives the male component represented by the socket portion 538 of the bracket 53, which are fixed for conjoint rotation by the pin 555 that defines the transverse axis of rotation Z.

[0043] The seat 539 of the stem 52 is preferably dimensioned such that it comfortably receives the socket portion 538 of the bracket 53; that is to say that the seat 539 has a greater width than the width of the socket portion 538 (when this is completely closed by the bushing-screw system). In other words, the seat 539 is provided with a space 549 that can also accommodate the socket portion 538 when the bushing-screw system is released and the two ends 533 of the annular body 531 move away from one another.

[0044] It should be noted that the lamp body 10, in particular the main body 30, is provided with a support seat 39 defined between a front abutment 391 and a rear abutment 392, into which the bracket 53 of the support 50 is inserted.

[0045] The support seat 39 is preferably an annular groove arranged in the rear portion 32 of the main body 30.

[0046] When fixing the lamp body 10 to the support 50, the annular body 531 of the bracket 53 is widened, separating the two ends 533 such that the lamp body 10 can be inserted into the particular support compartment 532, as shown in Fig. 3.

[0047] The annular body 531 of the bracket 53 is then closed, coupling the two ends 533 to one another, and inserted into the support seat 39 of the lamp body 10 positioned between the front abutment 391 and the rear abutment 392 of the main body 30.

[0048] The socket portion 538 of the bracket 53 is then inserted into the particular seat 539 arranged in the stem 52.

[0049] The screw 566 and the bushing 557 are therefore inserted into the particular hole 571 in the stem 52, and then cross the particular end 533 of the bracket 53.

[0050] The bushing-screw system is therefore operated by screwing the screw 566 into the bushing in order to completely close the annular body 531 of the bracket 53 around the lamp body 10 by fixing it in position with respect to the support 50 such that it does not rotate about the longitudinal axis X.

[0051] When the user needs to orient the light beam emitted by the light source 20, they will proceed to release the bushing-screw system such that the two ends 533 slightly separate from one another and the annular body 531 of the bracket 53 releases, that is widens, thus allowing the lamp body 10 to rotate in the interior thereof.

[0052] Therefore, the lamp body 10 is advantageously fixed to the support 50 by means of a releasable tension-

ing system (bushing-screw system), which is operable between a locked configuration in which the lamp body 10 cannot rotate with respect to the longitudinal axis X, and a released configuration, in which the lamp body 10 can rotate with respect to the longitudinal axis X.

[0053] The rotation of the lamp body 10 inside the bracket 53 of the support 50 is preferably circumferentially limited by abutment means. The abutment means advantageously limit the rotational movement by slightly less than 360° (for example approximately 358°) such that the electric cables inside the lamp body 10 do not get tangled up.

[0054] The abutment means comprise an abutment 562, which projects from the main body 30 of the lamp body 10 and can abut a particular stop 561 that projects from the annular body 531 of the bracket 53.

[0055] In particular, the abutment 562 protrudes externally from inside the support seat 39 of the main body 30 of the lamp body 10; the stop 561 protrudes into the support compartment 532 of the annular body 531 of the bracket 53.

[0056] Therefore, a lighting apparatus according to the present invention can advantageously be directed in a particularly simple manner.

[0057] The releasable tensioning system advantageously also constitutes the hinge 54 that allows the lamp body 10 to rotate with respect to the support 50.

Claims

1. A lighting apparatus (1) equipped with a light source (20) with a directed light beam, comprising a lamp body (10), extending along a longitudinal axis (X) and wherein the light source (20) is housed, supported by a support (50), and wherein the lamp body (10) is fixed to the support (50) by means of a releasable tensioning system, operable between a locked configuration wherein the rotation of the lamp body (10) relative to the longitudinal axis (X) is prevented, and a released configuration wherein the rotation of the lamp body (10) relative to the longitudinal axis (X) is allowed, **characterized in that** the support (50) comprises a bearing base (51) and a stem (52) extending from the base (51), wherein the stem (52) bears a bracket (53); wherein the bracket (53) comprises an annular body (531) defining a support compartment (532) wherein the lamp body (10) is inserted, said body (531) being equipped with two parts (533) joined together by the releasable tensioning system; wherein the two parts (533) form a socket portion (538) held in a seat (539) arranged in the stem (52); wherein the releasable tensioning system is a bushing-screw-type system consisting of pin (555) formed by a screw (556) inserted into a bushing (557); wherein the socket portion (538), the seat (539) and the pin (555) form a hinge (54) that allows the rotation of the lamp body (10) around a trans-

verse axis (Z).

2. Lighting apparatus (1) according to claim 1, wherein the seat (539) is sized so as to accommodate easily the socket portion (538) of the bracket (53).
3. Lighting apparatus (1) according to claim 2, wherein the seat (539) is wider than the width of the socket portion (538) when the releasable tensioning system is in the locked configuration.
4. Lighting apparatus (1) according to any one of the preceding claims, wherein, when the releasable tensioning system is in a released configuration, the rotation of the lamp body (10) relative to the longitudinal axis (X) is limited by abutment means in the form of at least one abutment (562), arranged protruding from the lamp body (10), suitable to abut against at least one respective stop (561) arranged protruding from the support (50).
5. Lighting apparatus (1) according to any one of the preceding claims, wherein the light source (20) is an LED with diffuser globe (21) extending along a plane parallel to the longitudinal axis (X).
6. Lighting apparatus (1) according to any one of the preceding claims, wherein the lamp body (10) comprises a main body (30), housing the light source (20), inserted at least partially into the compartment (43) defined by an outer body (40), and wherein the outer body (40) and the main body (30) are joined together in rotation by coupling means comprising at least one tab (44), protruding inside the compartment (43), inserted into a groove (45) provided on the main body (30).
7. Lighting apparatus (1) according to claim 6, wherein the outer body (40) and the main body (30) are fixed together by locking means (36) in the form of at least one screw (36), associated with the main body (30), which may be screwed into a special abutment arranged in the outer body (40).

Patentansprüche

1. Beleuchtungsrichtung (1), die mit einer Lichtquelle (20) mit einem gerichtetem Lichtstrahl ausgestattet ist, umfassend einen Lampenkörper (10), der sich entlang einer Längsachse (X) erstreckt, und wobei die Lichtquelle (20) aufgenommen ist, gestützt bzw. getragen durch eine Stütze bzw. einen Träger (50), und wobei der Lampenkörper (10) mittels eines lös- baren Spannsystems an dem Träger (50) fixiert bzw. befestigt ist, und zwar operabel zwischen einer verriegelten Konfiguration, in der die Drehung des Lampenkörpers (10) relativ zu der Längsachse (X) ver-

- hindert wird, und einer gelösten Konfiguration, in der die Drehung des Lampenkörpers (10) relativ zu der Längsachse (X) erlaubt ist, **dadurch gekennzeichnet, dass** der Träger (50) eine Lagerbasis (51) und einen Schaft (52) umfasst, der sich von der Basis (51) erstreckt, wobei der Schaft (52) eine Halterung (53) lagert; wobei die Halterung (53) einen ringförmigen Körper (531) umfasst, der ein Stütz- bzw. Trägerfach (532) definiert, in das der Lampenkörper (10) eingesetzt ist, wobei der Körper (531) mit zwei Teilen (533) ausgestattet ist, die durch das lösbare Spannsystem miteinander verbunden sind; wobei die beiden Teile (533) einen Buchsenabschnitt (538) bilden, der in einem Sitz (539) gehalten ist, der in dem Schaft (52) angeordnet ist; wobei das lösbare Spannsystem ein Buchse-Schraube-System ist, das aus einem Stift (555) besteht, der durch eine Schraube (556) gebildet ist, die in eine Buchse (557) eingesetzt ist; wobei der Buchsenabschnitt (538), der Sitz (539) und der Stift (555) ein Scharnier (54) bilden, das die Drehung des Lampenkörpers (10) um eine Querachse (Z) erlaubt.
2. Beleuchtungsvorrichtung (1) nach Anspruch 1, wobei der Sitz (539) dahingehend bemessen ist, dass er den Buchsenabschnitt (538) der Halterung (53) leicht aufzunehmen.
 3. Beleuchtungsvorrichtung (1) nach Anspruch 2, wobei der Sitz (539) breiter ist als die Breite des Buchsenabschnitts (538), wenn sich das lösbare Spannsystem in der verriegelten Konfiguration befindet.
 4. Beleuchtungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei, wenn sich das lösbare Spannsystem in einer gelösten Konfiguration befindet, die Drehung des Lampenkörpers (10) relativ zu der Längsachse (X) durch Anschlagsmittel in Form von zumindest einem Anschlag (562) begrenzt ist, der so angeordnet ist, dass er von dem Lampenkörper (10) vorsteht, und geeignet ist, gegen zumindest einen jeweiligen Stopp (561) anzuliegen, der so angeordnet ist, dass er von dem Träger (50) vorsteht.
 5. Beleuchtungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei die Lichtquelle (20) eine LED mit Diffusorkugel (21) ist, die sich entlang einer Ebene parallel zu der Längsachse (X) erstreckt.
 6. Beleuchtungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei der Lampenkörper (10) einen Hauptkörper (30) umfasst, der die Lichtquelle (20) aufnimmt, eingesetzt zumindest teilweise in das durch einen Außenkörper (40) definierte Fach (43), und wobei der Außenkörper (40) und der Hauptkörper (30) durch Kopplungsmittel drehbar miteinander verbunden sind, die zumindest eine Lasche bzw. einen Fortsatz (44) umfassen, die bzw. der in das Fach (43) hineinragt, eingesetzt in eine an dem Hauptkörper (30) bereitgestellte Nut (45).
 7. Beleuchtungsvorrichtung (1) nach Anspruch 6, wobei der Außenkörper (40) und der Hauptkörper (30) durch Verriegelungsmittel (36) in Form von zumindest einer Schraube (36) aneinander fixiert bzw. befestigt sind, verbunden mit dem Hauptkörper (30), die in einen speziellen Anschlag geschraubt werden kann, der in dem Außenkörper (40) angeordnet ist.

Revendications

1. Appareil d'éclairage (1) équipé d'une source de lumière (20) avec faisceau lumineux dirigé, comprenant un corps de lampe (10), qui s'étend le long d'un axe longitudinal (X) et dans lequel est logée la source de lumière (20), soutenu par un support (50), et dans lequel le corps de lampe (10) est fixé au support (50) au moyen d'un système de serrage libérable, qui peut être exploité entre une configuration verrouillée, dans laquelle la rotation du corps de lampe (10) par rapport à l'axe longitudinal (X) est empêchée, et une configuration libérée, dans laquelle la rotation du corps de lampe (10) par rapport à l'axe longitudinal (X) est permise, **caractérisé en ce que** le support (50) comprend une base d'appui (51) et une tige (52) s'étendant à partir de la base (51), où la tige (52) porte une console (53) ; où la console (53) comprend un corps annulaire (531) définissant un compartiment de support (532) dans lequel est inséré le corps de lampe (10), ledit corps (531) étant équipé de deux parties (533) reliées entre elles par le système de serrage libérable ; où les deux parties (533) forment une partie emboîture (538) maintenue dans un siège (539) agencé dans la tige (52) ; où le système de serrage libérable est un système de type à douille fileté constitué d'une broche (555) formée par une vis (556) insérée dans une douille (557) ; où la partie emboîture (538), le siège (539) et la broche (555) forment une charnière (54) qui permet la rotation du corps de lampe (10) autour d'un axe transversal (Z).
2. Appareil d'éclairage (1) selon la revendication 1, dans lequel le siège (539) est dimensionné de façon à loger facilement la partie emboîture (538) de la console (53).
3. Appareil d'éclairage (1) selon la revendication 2, dans lequel le siège (539) est plus large que la largeur de la partie emboîture (538) lorsque le système de serrage libérable se trouve dans la configuration verrouillée.
4. Appareil d'éclairage (1) selon l'une quelconque des revendications précédentes, dans lequel, lorsque le

système de serrage libérable se trouve dans une configuration libérée, la rotation du corps de lampe (10) par rapport à l'axe longitudinal (X) est limitée par des moyens de butée sous la forme d'au moins une butée (562), agencée en saillie depuis le corps de lampe (10) et appropriée pour venir en butée contre au moins un butoir respectif (561) agencé en saillie depuis le support (50).

5. Appareil d'éclairage (1) selon l'une quelconque des revendications précédentes, dans lequel la source de lumière (20) est une DEL avec globe diffuseur (21) s'étendant le long d'un plan parallèle à l'axe longitudinal (X).
6. Appareil d'éclairage (1) selon l'une quelconque des revendications précédentes, dans lequel le corps de lampe (10) comprend un corps principal (30), logeant la source de lumière (20), inséré au moins partiellement dans le compartiment (43) défini par un corps externe (40), et dans lequel le corps externe (40) et le corps principal (30) sont reliés entre eux en rotation par des moyens de couplage comprenant au moins une patte (44), faisant saillie à l'intérieur du compartiment (43), insérée dans une rainure (45) ménagée sur le corps principal (30).
7. Appareil d'éclairage (1) selon la revendication 6, dans lequel le corps externe (40) et le corps principal (30) sont fixés entre eux par des moyens de verrouillage (36) sous la forme d'au moins une vis (36), associée au corps principal (30), qui peut être vissée dans une butée spéciale agencée dans le corps externe (40).

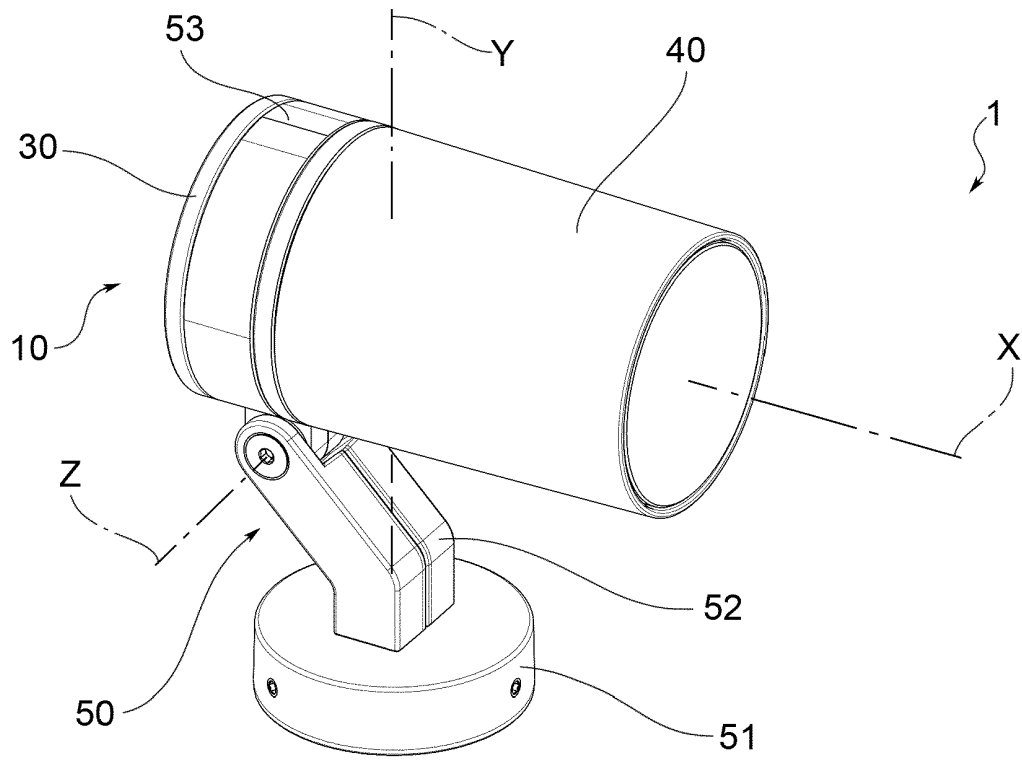


FIG. 1a

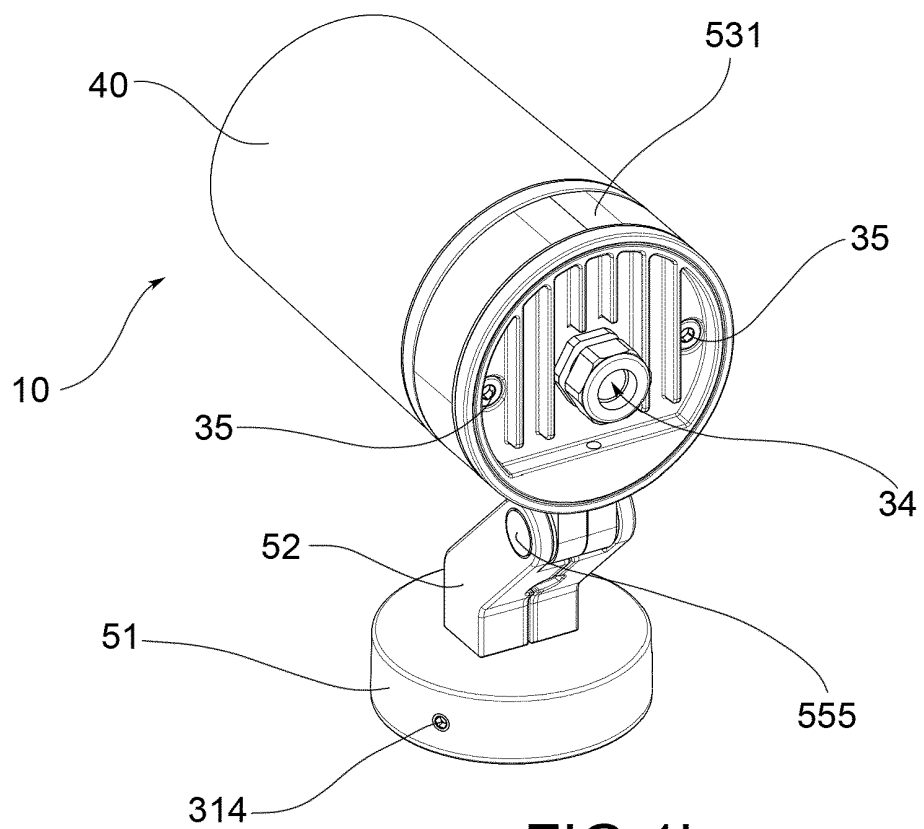
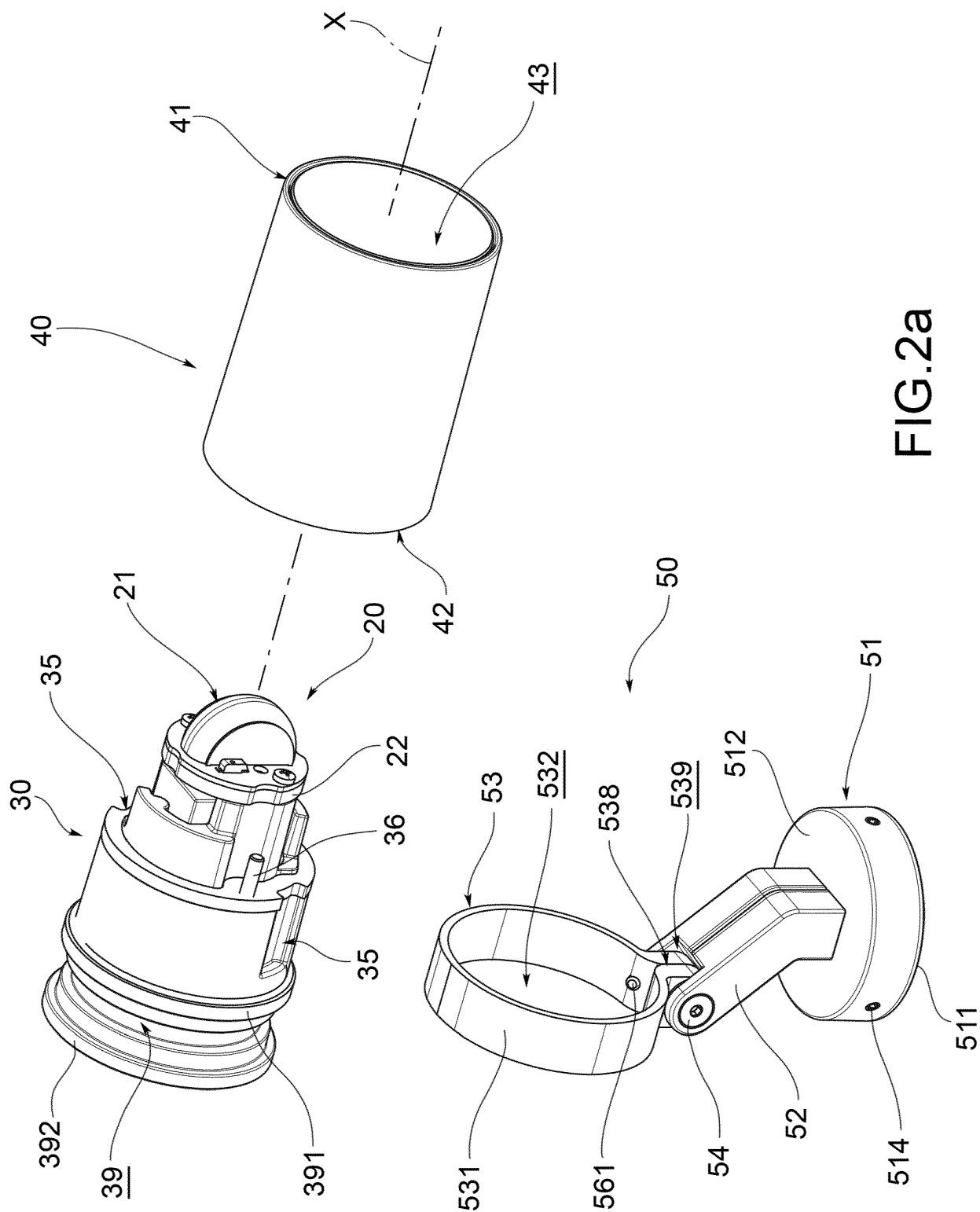


FIG. 1b



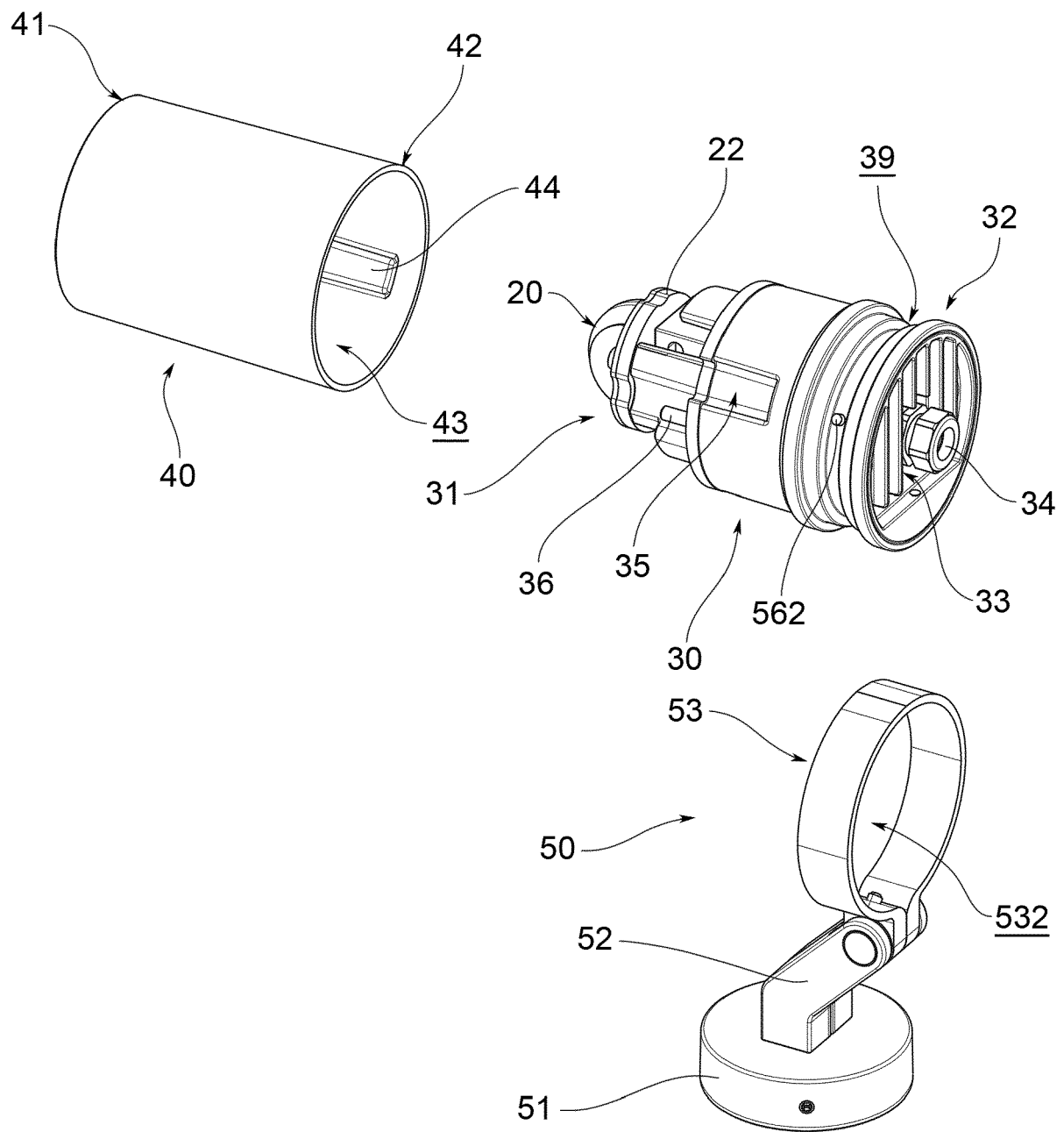


FIG.2b

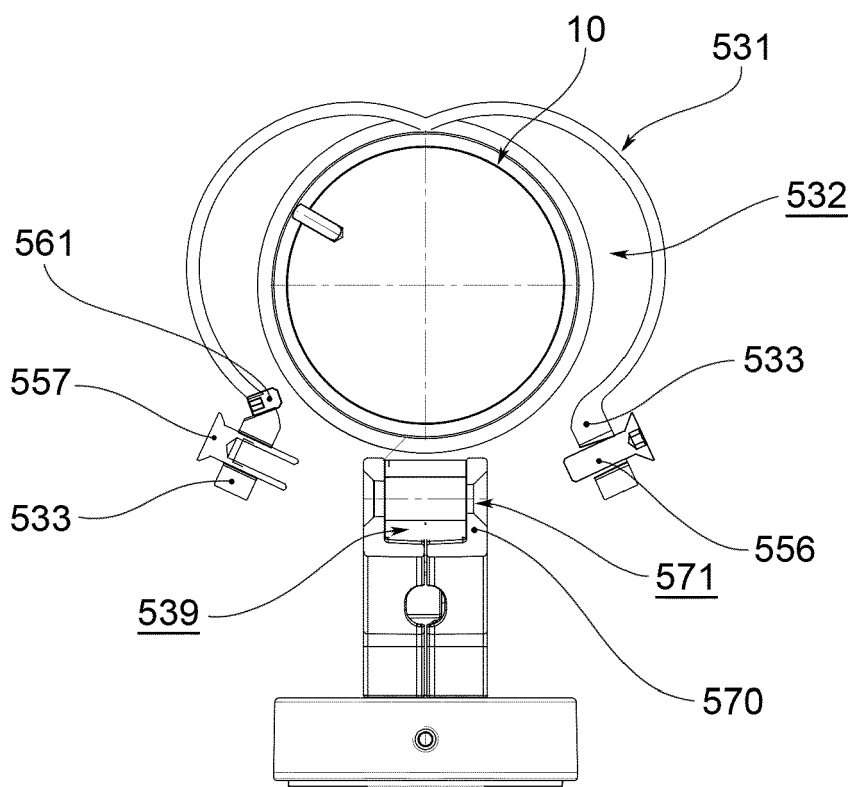


FIG.3

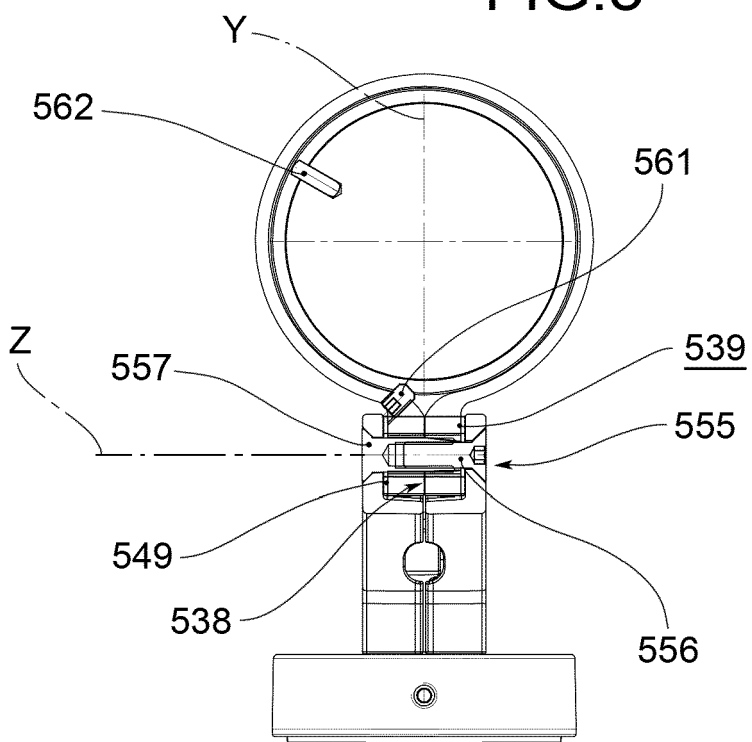


FIG.4

REFERENCES CITED IN THE DESCRIPTION

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