



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
30.04.2008 Bulletin 2008/18

(51) Int Cl.:
F21V 21/03 ^(2006.01) **F21S 8/04** ^(2006.01)
F21V 17/12 ^(2006.01) **F21V 17/18** ^(2006.01)

(21) Application number: **07119079.7**

(22) Date of filing: **23.10.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(71) Applicant: **iGUZZINI ILLUMINAZIONE S.p.A.**
62019 Recanati-Macerata (IT)

(72) Inventor: **Gattari, Massimo**
62018 Potenza Picena (Macerata) (IT)

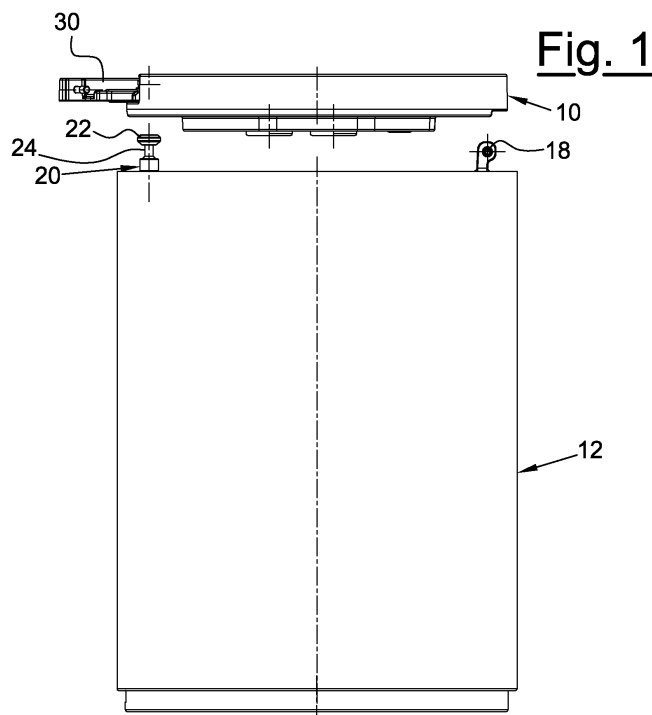
(74) Representative: **De Gregori, Antonella et al**
Ing. Barzano' & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

(30) Priority: **26.10.2006 IT MI20062061**

(54) **Quick fixing system for lighting devices**

(57) A quick fixing system for a lighting device of the type comprising at least one first component (10), like for example a support prearranged for wall and/or ceiling installation, and at least one second component (12), like a ceiling light fixture, which can be coupled to the first component (10). On the portion of the second component (12) adapted to adhere to the first component (10), a coupling element (18) cooperating with a corresponding coupling element (26) made on the first component (10),

and one or more locking elements (20), respectively cooperating with one or more locking elements (30) made on the first component (10), are provided. The joining of the coupling elements (18) and (26) forms a hinge around which the second component (12) rotates in order to adhere and be fixed to the first component (10) by means of the locking elements (30), thus allowing the quick and secure/error-free installation of the second component (12) on the first component (10).



Description

[0001] The present invention refers to a quick fixing system for lighting devices, particularly but not exclusively intended to connect together and maintain in position a lighting element and its wall or ceiling support.

[0002] Lighting devices are known composed of a ceiling or wall light fixture, internally provided with one or more light sources and prearranged for the wall, ceiling or even floor installation through the interposition of an appropriate support base.

[0003] Normally, the installation occurs first by fixing the base on the wall or ceiling by means of screws, dowels or similar means, after which the ceiling light fixture is coupled to the base itself, once the necessary electrical connections have been made.

[0004] Currently, for the coupling and mounting in position of different parts which compose the lighting device, such as for example a ceiling light fixture and its base or a lamp compartment and its frame, there is wide use of normal screws provided with washers, which result however complicated to attach and require a considerable amount of time for completing mounting operations, an aspect not to be underestimated if multiple lamps must be simultaneously installed. The use of the screws can moreover cause the lighting element to be incorrectly mounted on its base, since references are not normally given which indicate to the operator the correct position that the lighting element must take with respect to the base.

[0005] In addition, especially for the ceiling installations but also for some wall installations, it is quite difficult for the operator to carry out the coupling of ceiling light fixtures or particularly heavy components since, after having made the electrical connections, it is necessary to physically sustain the weight of the ceiling light fixture in order to maintain it in contact with its base while the mounting screws are attached and tightened.

[0006] The object of the present invention is therefore to make a fixing system between two components of a lighting device, in particular but not necessarily a ceiling light fixture and its support base, which allows a great mounting speed and practicality with respect to the known systems, independent of the use conditions, i.e. with the base mounted on walls, ceiling or on the floor. Another object of the invention is to make a fixing system for components of a lighting device which is capable of making the installation procedures more secure/without error, since only one correct mounting possibility is allowed of the two parts composing the device.

[0007] Still another object of the invention is to eliminate the problems related to the installer's supporting of the ceiling light fixture weight if the related base is attached to the ceiling or walls.

[0008] These objects according to the present invention are achieved by making a quick fixing system between two components of a lighting device as set forth in claim 1. Further characteristics of the invention are

indicated in the subsequent claims.

[0009] The characteristics and advantages of a quick fixing system between two components of a lighting device according to the present invention will be more evident from the following exemplifying and non-limiting description, referred to the attached schematic drawings in which:

Figure 1 is a side view of the two main components of a lighting device equipped with the quick fixing system according to the invention, in a first mounting step;

Figure 2 is a top plan view of the support component of the lighting device in the mounting step of figure 1; Figure 3 is a side view of the two main components of a lighting device equipped with a quick fixing system according to the present invention, in a second mounting step;

Figure 4 is a top plan view of the support component of the lighting device in the mounting step of figure 3; and

Figure 5 is a top plan view of the support component of the lighting device upon completed mounting.

[0010] With reference to the figures, an embodiment is shown of a lighting device, comprising a support 10, in the matter at hand a base adapted for wall installation and provided with one or more holes or slots 14 adapted for the insertion of wall fixing means and one or more holes 16 for the passage of the electric power cables, and a component 12 which can be coupled to the support 10, which in the illustrated example is composed of a ceiling light fixture of substantially cylindrical form, inside of which the light(s) sources (not shown) are installed.

[0011] Still with reference to the illustrated embodiment, the ceiling light fixture 12 contains, in addition to the light source, all elements necessary for the correct functioning of the light source, i.e. reflecting walls and/or screens, reactors, transformers and various electrical components, while the base 10 is prearranged only for fixing to walls, ceiling or floor. It is, however, important to specify that the light source or sources, as with all or part of the above-described elements, can also be installed on the support 10 which forms the base of the device rather than inside the ceiling light fixture 12, without the quick fixing system according to the invention (described below) having to be modified in any manner.

[0012] According to a preferred embodiment of the invention, on one of the two components of the lighting device, in the matter at hand the ceiling light fixture 12 and, more precisely, on the portion of the ceiling light fixture 12 adapted to adhere to the base 10 upon completed mounting, first coupling means are provided for belonging to the quick fixing system according to the invention, constituted by a hook 18 and a pin 20 opposite the hook 18. In the illustrated example, referred to a cylindrical section lighting device, the hook 18 and the pin 20 are found at the external edge of the ceiling light fixture

12, in diametrically opposite position, and the pin 20 is formed by a head 22 and by a shank 24 with reduced diameter with respect to the aforesaid head 22.

[0013] On the opposite component with respect to that on which the first coupling means are formed, in the particular case the base 10, further coupling means are provided for of the quick fixing system according to the invention, in the illustrated example constituted by a slot 26 and by a hole 28 appropriately arranged and sized such to respectively receive, in the coupling step of the two components 10 and 12, the hook 18 and the head 22 of the pin 20.

[0014] On the base 10, at the hole 28 in which the pin 20 is inserted, a tightening lever 30 is then hinged, in turn provided with a hole 32 of diameter substantially equal to that of the hole 28 made on the base 10, so that it too can receive the head 22 of the pin 20 in the initial mounting step of the two components of the lighting device, i.e. when the tightening lever 30 is found in open position (figures 2 and 4).

[0015] The hole 32 then communicates with a slot 34, narrower with respect to the diameter of said hole 32, whose width is appropriately sized to receive the shank 24 of the pin 20 at its interior.

[0016] According to another embodiment of the invention, not shown in the attached drawings, the two coupling means 18 and 26 respectively provided for on the two components 12 and 10 of the lighting device are instead permanently bound together, so to form an actual hinge which, in turn, permits said two components 12 and 10 to remain always coupled together.

[0017] In the illustrated embodiment, in order to proceed with the mounting of the ceiling light fixture 12 on the base 10 of the lighting device, once the provided electrical connections have been carried out, the two components 10 and 12 are brought close together (figure 1) so to counter the respective coupling means according to the only possible arrangement, so to prevent any possibility of incorrect mounting of the lighting device itself. The hook 18 of the ceiling light fixture 12 is then inserted inside the corresponding slot 26 (figure 3) such that, if the base 10 is correctly installed on any wall, a bond is formed which permits unloading part of the weight of the ceiling light fixture 12 on the base 10 itself already in this phase of the installation, allowing the operator's hands a greater freedom of movement.

[0018] By making the ceiling light fixture 12 rotate around the hinge identified by the hook 18 inserted in its corresponding slot 26, the head 22 of the pin 20 is then inserted inside the holes 28 and 32, appropriately superimposed when the tightening lever 30 is found in open position. Finally, by rotating the tightening lever 30 in turn into the closed position of figure 5, the shank 24 of the pin 20 is inserted inside the slot 34, such that the head 22 can be abutted and locked on the tightening lever 30 itself so to obtain the secure/correct fixing and definitive locking in operating position of the ceiling light fixture 12 on the base 10, also due to the fact that all components

of the fixing system according to the invention are preferably made of very strong plastic material or metal.

[0019] To make the fixing system according to the invention even more secure and stable, a Belleville friction washer (not shown) collaborating with the tightening lever 30 can be provided, so to avoid an accidental uncoupling of the tightening lever 30 itself from the head 22 of the pin 20. For the same reason, the tightening lever 30 can be equipped with a stop tooth 36 which is snap-engaged with a corresponding locking plate 38 when said lever 30 is in closed position, and a particular screw 40 also be provided for, inserted in the lever 30 itself and in a suitable threaded hole made in the base 10 in order to prevent the intentional unhooking of the two components of the lighting device by unauthorised personnel.

[0020] Moreover, particularly if the two components of the lighting device are not permanently bound to each other, a quick flush coupling device can be provided which permits a first connection between said two components, thus facilitating the subsequent engagement of the related coupling means and the definitive fixing between the components.

[0021] In case of outside installation of the lighting device, a seal element can finally be interposed, such as for example a rubber gasket, between the base and the ceiling light fixture. Due to its constructive characteristics, which permit only one correct mounting possibility, the fixing system according to the invention also allows imparting the right compression to the seal element, unlike the known systems in which too high or too low twisting moments can be imparted to the coupling screws between the components for the obtainment of the right compression on the gasket.

[0022] It is thus seen that the quick fixing system for lighting devices according to the present invention achieves the previously indicated objects, and in particular allows:

- making the installation more secure/without error, since only one correct mounting possibility is permitted;
- allowing a greater mounting speed;
- eliminating the problem of the ceiling light fixture weight for the operator who carries out the installation.

[0023] The quick fixing system for lighting devices of the present invention thus conceived is in any case susceptible to numerous modifications and variants, all coming within the same inventive concept.

[0024] Moreover, in practice the materials used, as well as their size and components, can be of any type according to technical requirements.

Claims

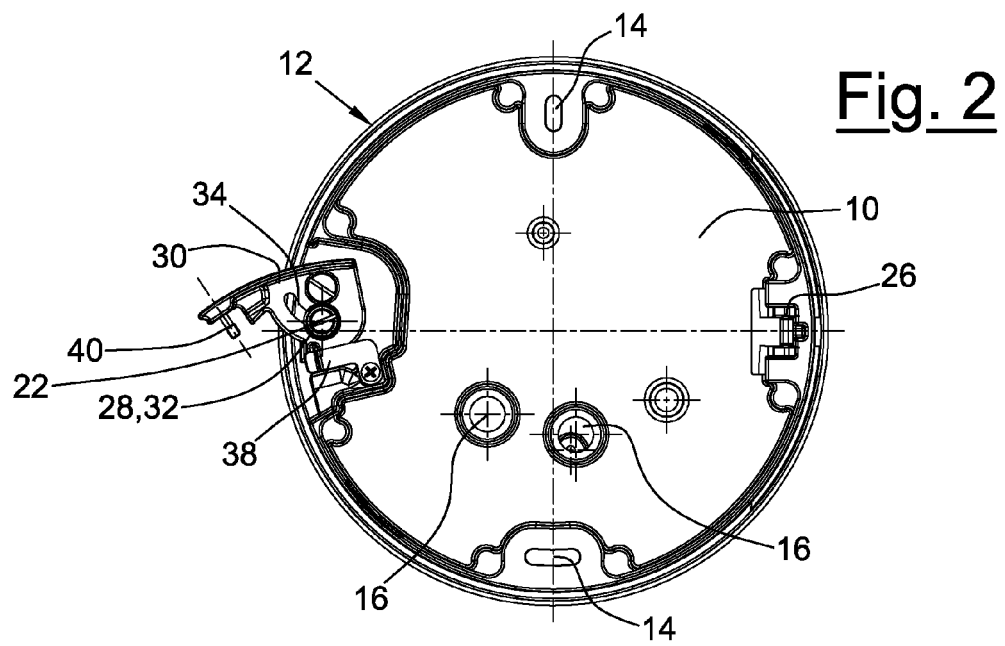
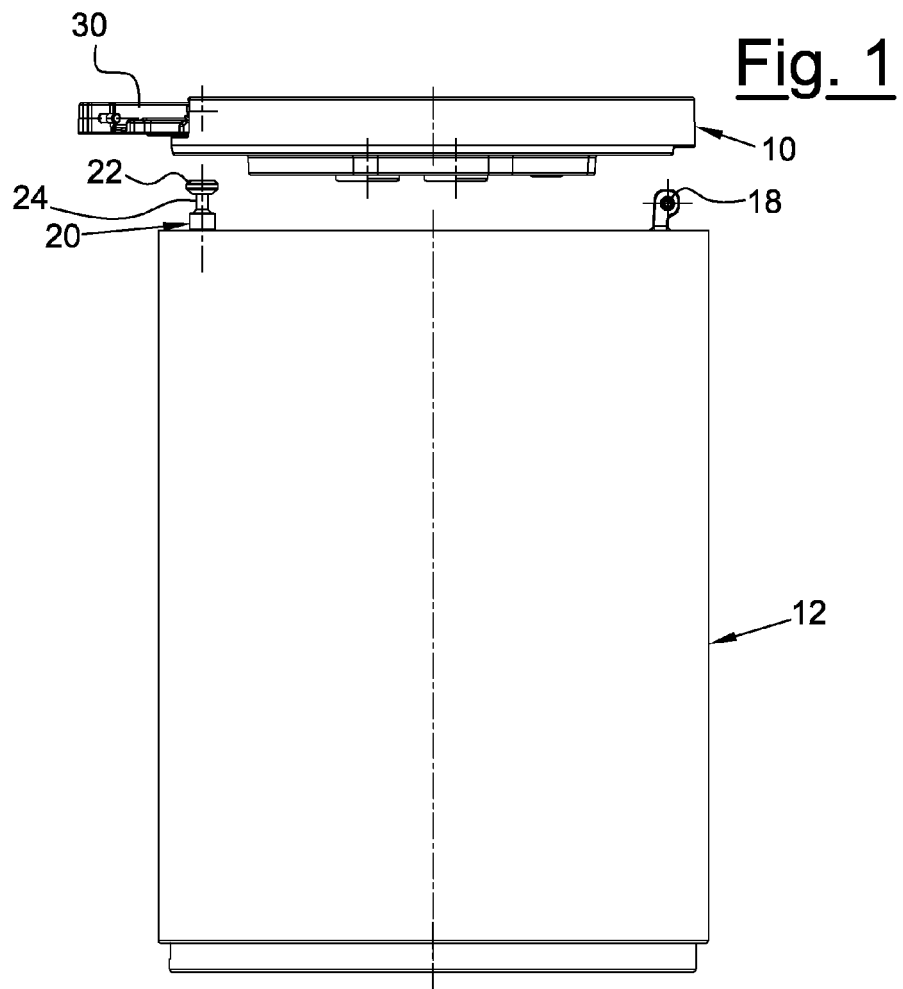
1. Quick fixing system for a lighting device of the type

comprising at least one first component (10), like a support prearranged for wall and/or ceiling installation, and at least one second component (12), like a ceiling light fixture, which can be coupled to said first component (10), **characterised in that** on the portion of said second component (12) adapted to adhere to said first component (10), a coupling element (18) cooperating with a corresponding coupling element (26) made on said first component (10) and one or more locking elements (20), respectively cooperating with one or more locking elements (30) made on said first component (10) are provided, the joining of said coupling elements (18) and (26) forming a hinge around which said second component (12) rotates in order to adhere and be fixed to said first component (10) by means of said one or more locking elements (30).

2. Quick fixing system according to claim 1, **characterised in that** said coupling elements (18) and (26) are respectively formed by a hook and by a slot which receives said hook in the coupling step of said second component (12) with said first component (10). 20
3. Quick fixing system according to claim 1, **characterised in that** said coupling elements (18) and (26) are permanently bound to each other, so to form a hinge which allows said first (10) and second (12) components to always remain coupled together. 25
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4. Quick fixing system according to claim 1, **characterised in that** said locking elements (20) and (30) are respectively formed by a pin and a tightening lever hinged on said first component (10), said tightening lever locking said pin in position in order to obtain the fixing of said second component (12) on said first component (10). 35
5. Quick fixing system according to claim 4, **characterised in that** said pin (20) is formed by a head (22) and by a shank (24) with reduced diameter with respect to said head (22). 40
6. Quick fixing system according to claim 5, **characterised in that** on said first component (10) and on said tightening lever (30), a hole (28) and a hole (32) are respectively made, having substantially equal diameter and being appropriately sized for receiving the head (22) of said pin (20) at their interior. 45
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7. Quick fixing system according to claim 6, **characterised in that** said hole (32) is in communication with a slot (34) of suitable width for receiving the shank (24) of said pin (20) at its interior. 55
8. Quick fixing system according to claims 1-7, **characterised in that** said tightening lever (30) is provided with a Belleville friction washer in order to avoid

the accidental uncoupling of said tightening lever (30) from the head (22) of said pin (20).

9. Quick fixing system according to claims 1-7, **characterised in that** said tightening lever (30) is provided with a stop tooth (36) which is snap-engaged with a corresponding locking plate (38) when said tightening lever (30) is in closed position. 5
10. Quick fixing system according to claims 1-7, **characterised in that** it comprises at least one screw (40) inserted in said tightening lever (30) and in a suitable threaded hole made on said first component (10) in order to avoid the accidental opening of said tightening lever (30). 10
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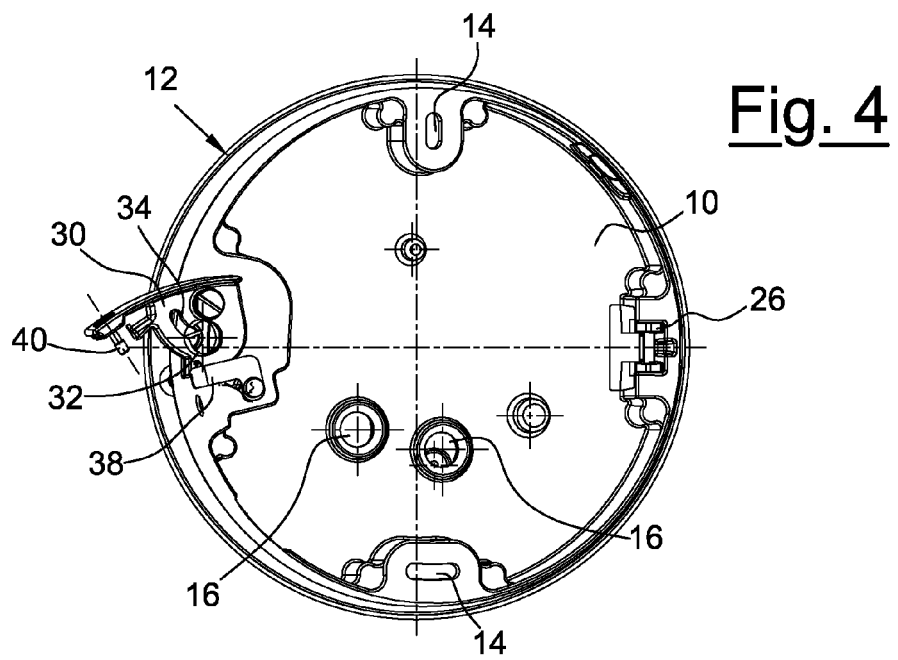
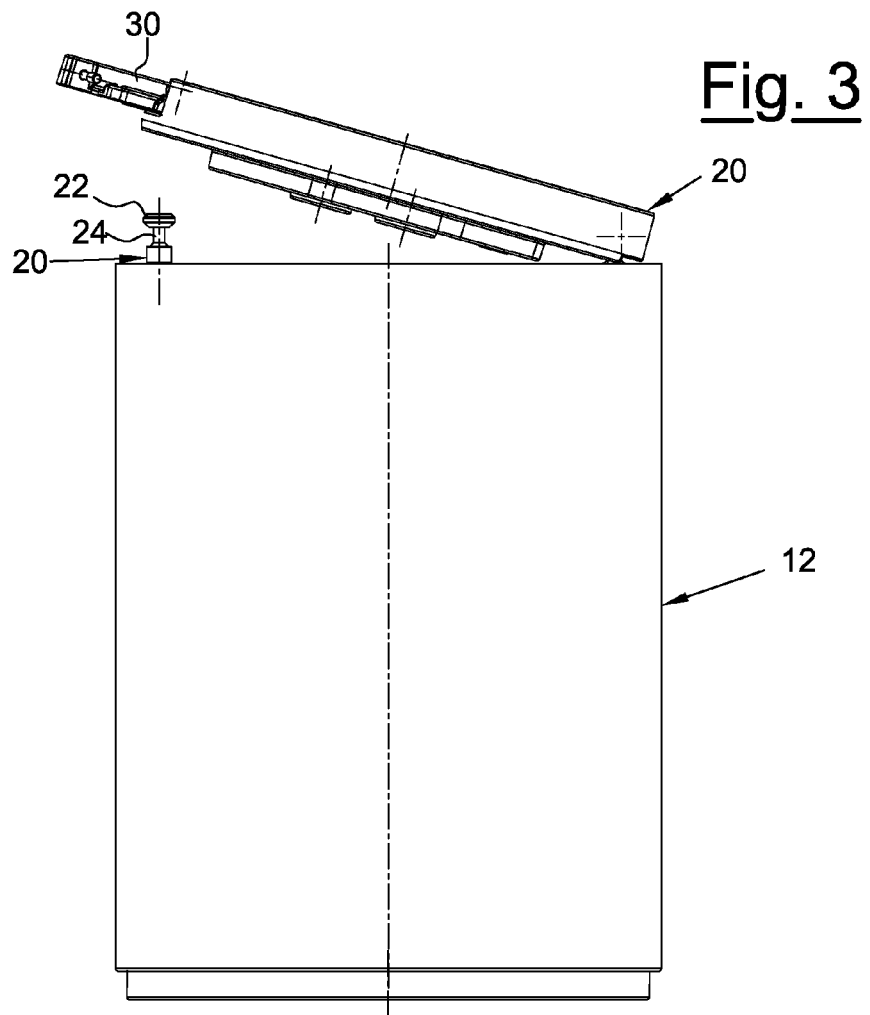


Fig. 5

