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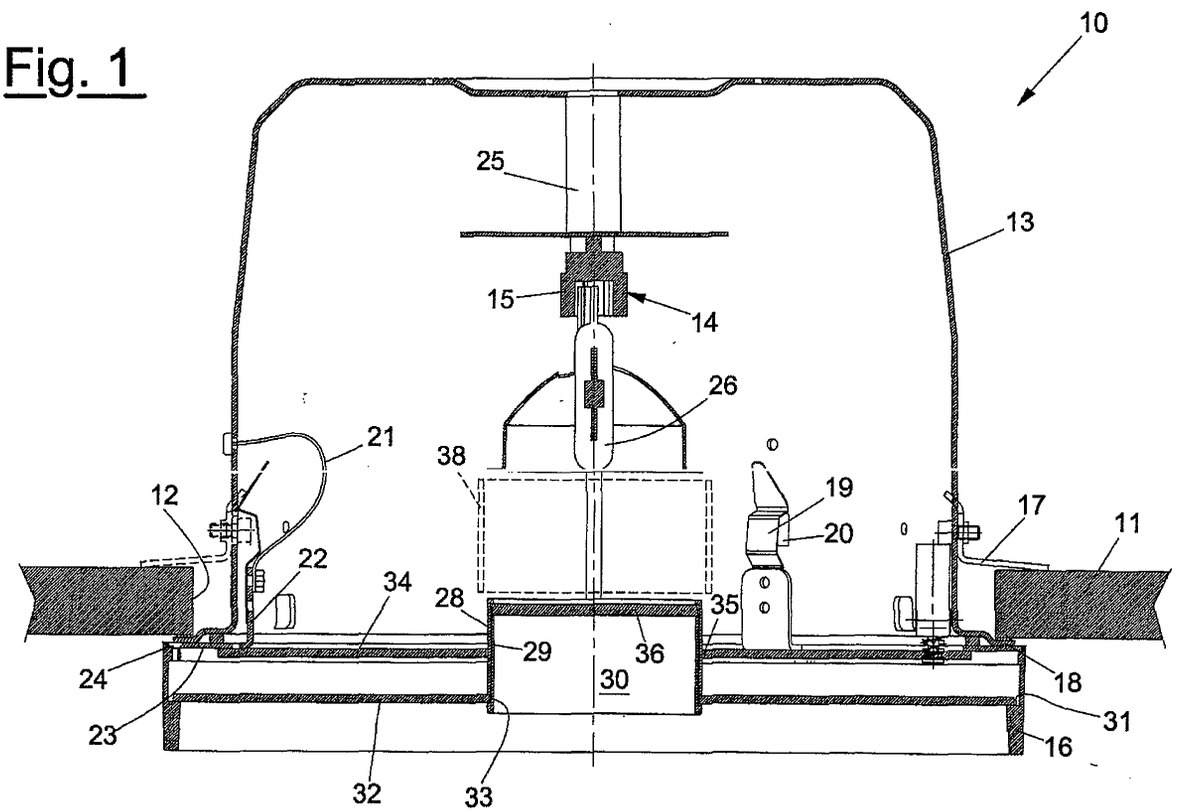
(54) Semi-built-in lighting apparatus with concentrated beam

(57) A semi-built-in lighting apparatus with concentrated beam (10) comprising a containment body or outer casing (13), which is housed in an opening (12) of a false ceiling (11), a bulb socket unit (14), with respective reflector (27), and an outer filling ring (16), in which apparatus the outer filling ring (16) foresees an inner seat (31) for housing at least one glass insert (32) and freely removable fastening means (19, 20) to the containment body or outer casing (13), a central cylindrical element (28, 29) with a limited diameter carrying at least one transparent piece of glass (36, 37) and being fixed in a central hole (33) of said at least one glass insert (32).

Fig. 1



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Description

[0001] The present invention refers to a semi-built-in lighting apparatus with concentrated beam.

[0002] The types of built-in and semi-built-in lighting apparatuses currently existing are very different and varied in terms of forms of application and possibilities of use. The type refers specifically to the surface where it is applied and to the light that one wants to be emitted.

[0003] Moreover, in semi-built-in lighting apparatuses the simplicity of installation and of intervention in the apparatus must be considered, avoiding the presence of any possible element that can create difficulties for the operator involved.

[0004] In particular, in semi-built-in lighting apparatuses, when it is necessary to have an amount of light being emitted in a concentrated beam there are various solutions that can also derive from the specific operation required.

[0005] Moreover, in known apparatuses of the type quoted above, undesired effects such as "blots" can occur in various areas thereof with asymmetric or non-uniform distribution of light creating disturbances for the user. Indeed, these "blots" are very evident near to the lighting body and create effects of light and dark, i.e. areas that are more lit and areas that are less lit.

[0006] It has been attempted to arrange a generic screen in front of the bulb to limit such disturbances or effects that, moreover, in general has led to also limiting the overall light that is emitted by the lighting apparatus.

[0007] Therefore, although such known lighting apparatuses carry out their lighting function satisfactorily, they are not always capable of fully enhancing their functional qualities as well as the lit room in which they are arranged.

[0008] From such an examination of the prior art it seems desirable to obtain a semi-built-in lighting apparatus that overcomes all of the aforementioned technical limitations and drawbacks.

[0009] The purpose of the present invention is therefore that of making a semi-built-in lighting apparatus with concentrated beam that allows the whole series of problems and drawbacks outlined previously to be eliminated.

[0010] Another purpose is that of making a lighting apparatus of the aforementioned type that allows wide use for the most various lighting uses.

[0011] Yet another purpose of the present invention is therefore that of making a semi-built-in lighting apparatus that allows the user to avoid non-uniform lighting.

[0012] These purposes according to the present invention are accomplished by making a semi-built-in lighting apparatus with concentrated beam as outlined in claim 1.

[0013] The further claims defines the additional characteristics of the present invention.

[0014] The characteristics and advantages of a semi-built-in lighting apparatus with concentrated beam according to the present invention shall become clearer from the following description, given as an example and not for limiting purposes, referring to the attached schematic drawings, in which:

Figure 1 is a schematic front elevation section view of a semi-built-in lighting apparatus with concentrated beam according to the present invention.

Figure 2 is a schematic front elevation section view of a second example of a semi-built-in lighting apparatus with concentrated beam according to the present invention.

[0015] With reference to the figures, a semi-built-in lighting apparatus with concentrated beam according to the present invention is shown, wholly indicated with 10 in both of its examples.

[0016] The lighting apparatus 10 is, for example, associated with a plasterboard false ceiling 11 in which an opening 12 is made. The lighting apparatus 10 comprises a containment body or outer casing 13, which is housed in the opening 12, a bulb socket unit 14, comprising respective bulb sockets 15, and a filling ring 16 that projects from the false ceiling 11.

[0017] More specifically, the containment body or outer casing 13 is housed in the opening 12, for example circular, thanks to the provision of expansion brackets 17 for fastening to the false ceiling 11. Moreover, the containment body or outer casing 13, at its end facing outwards, has a raised peripheral part 18, for example along the circumference, which ensures a tight fit with the plasterboard false ceiling 11.

[0018] The filling ring 16 is arranged in a freely removable manner through supports with an elastic element 19, which engage in rustications or projections 20, formed inside the containment body or outer casing 13, two of which are shown, which fix the closing ring 16 in a permanent and secure manner. Moreover, there is a safety cable 21 that is fixed on one side to the containment body or outer casing 13 and on the other side to an L-shaped bracket 22 that extends integrally from a ring 23 that is locked through screws 24 to the perimeter of the filling ring 16 (just one of which is shown). The L-shaped bracket 22 also carries the supports with an elastic element 19.

[0019] This arrangement at the same time makes a freely removable connection such that the maintenance interventions can also be carried out without the help of tools.

[0020] The bulb socket unit 14 makes a lighting unit comprising a support bracket 25, fixedly connected inside the containment body or outer casing 13, on which the bulb socket 15 is arranged, for a bulb 26, connected to a control circuit (not shown). The bulb socket 15 is arranged in a respective suitably shaped reflector 27. The reflector 22 is made from polished anodised superpure aluminium.

[0021] In the lower part near to the opening 12, where,

as stated, the filling ring 16 is arranged, a cylindrical central element 28, 29 is arranged that extends both inside and outside the ring 16 and that makes a central hole 30 for the direct passage of light.

[0022] More specifically, it should be noted that the filling ring 16 foresees an inner annular step 31 that defines a housing for a glass insert 32, centrally equipped with a hole 33. It is indeed at this hole 33 that the two outer and inner parts 28, 29 of the cylindrical element couple and screw in, coaxial to each other and equipped with interfacing threaded surfaces, which lock together on the glass insert 32, for example of the opaline type.

[0023] A second glass insert 34, also of the opaline type, can also be foreseen, which is arranged towards the inside of the apparatus and is locked onto the ring 23 through screws (not shown). It also foresees a central hole 35 passing around the outer part 28 of the cylindrical element.

[0024] It should also be noted that in the first example of figure 1 at the inner end of the central cylindrical element 28, 29 a transparent piece of glass 36 is arranged in the hole 30 that allows direct light to pass. In the example of figure 2, for which the same reference numerals have been used for identical elements, in such a hole 30 a pair of transparent pieces of glass 36 and 37 is foreseen that allow the light passing through to be adjusted, even applying at least one piece of coloured or other type of glass to obtain a special desired effect.

[0025] It should also be noted that in order to optimise and improve the light distribution and to redistribute it the inner surface of the containment body or outer casing 13 is white coloured.

[0026] The presence of the two glass inserts facing outwards 32 and facing inwards 34, as stated for example of the opaline or coloured type, carries out an advantageous action. Indeed, the glass insert 34 facing inwards avoids blots by acting as a light diffuser and homogeniser for the first glass insert 32, facing outwards.

[0027] Moreover, it avoids that eventual little bugs can come into contact with the inner surface of the first glass insert 32 and give un unpleasant look being visible directly from the outside.

[0028] Further, in the example of figure 1 is indicated with outlines and dots the presence of an eventual sleeve 38, suitably provided and arranged in the area between the reflector 27 and the central cylindrical element 28,29 that allows to the light to be homogeneous, alternatively to the second glass insert 34, as being of opaline glass or coloured.

[0029] The semi-built-in lighting apparatus with concentrated beam according to the invention allows to have a controlled quantity of light.

[0030] Moreover, it allows to obtain an uniform light diffusion, even preventing the direct view of the reflector, thanks to the presence of the second glass insert 34 or of the sleeve 38, so that to increase the optical comfort.

[0031] The particular configuration of the optical system reflector/glasses creates an impression of virtual source, which does not allow to the user to see the inside of the apparatus.

[0032] It should also be noted that the dismountable parts for maintenance purposes must be fixed with a safety cable 21 to stop them falling, making the maximum degree of safety.

[0033] An apparatus according to the present invention is mounted in a quick and simple manner.

[0034] Indeed, the apparatus 10 is applied onto a plasterboard false ceiling 11 through the expansion brackets 17.

[0035] The reactor (not shown) is hung from the solid ceiling (also not shown).

[0036] The filling ring 16 is fixed through the supports with an elastic element 19, which engage in rustications or projections 20, formed inside the containment body or outer casing 13.

[0037] The glass insert 32 can be easily arranged in the ring 16 on the inner annular step 31, after the central cylindrical element 28, 29 with relative transparent piece of glass 36 has been fixed to it, in the hole 33. The apparatus is thus mounted in such a way that a single installer is able to take care of maintenance even without the help of tools.

[0038] A semi-built-in lighting apparatus thus conceived is susceptible to numerous modifications and variants, which are all covered by the present invention; moreover, all of the details can be replaced with technically equivalent elements. In practice, the materials used, as well as the sizes, can be whatever according to the technical requirements.

Claims

1. Semi-built-in lighting apparatus with concentrated beam (10) comprising a containment body or outer casing (13), which is housed in an opening (12) of a false ceiling (11), a bulb socket unit (14), with respective reflector (27), and an outer filling ring (16), in which apparatus the outer filling ring (16) foresees an inner seat (31) for housing at least one glass insert (32) and freely removable fastening means (19, 20) to the containment body or outer casing (13), a central cylindrical element (28, 29) with a limited diameter carrying at least one transparent piece of glass (36, 37) and being fixed in a central hole (33) of said at least one glass insert (32).

2. Lighting apparatus (10) according to claim 1, **characterised in that** a further insert element (34) is foreseen arranged towards the inside of the filling ring (16), associated with said at least one glass insert (32).

3. Lighting apparatus (10) according to claim 1 or 2, **characterised in that** said filling ring (16) is fixed

to a ring (23) that fixes, through L-shaped brackets (22), supports with an elastic element (19), which engage in rustications or projections (20) and which carry out said freely removable fastening to the containment body or outer casing (13).

4. Lighting apparatus (10) according to claim 1, **characterised in that** said central cylindrical element (28, 29) is foreseen in two parts, one outer (28) and one inner (29) that are coaxial to each other and able to be screwed into each other to lock said central hole (33) of said at least one glass insert (32) between them.

5. Lighting apparatus (10) according to claim 1, **characterised in that** said central cylindrical element (28, 29) foresees a second transparent piece of glass (37) in an end thereof facing inwards.

6. Lighting apparatus (10) according to claim 1, **characterised in that** between a reflector (27) of said bulb socket unit (14) and said central cylindrical element (28, 29) a transparent glass sleeve (38) is foreseen.

7. Lighting apparatus (10) according to claim 1 or 2, **characterised in that** said at least one glass insert (32) and said further insert element (34) are made from opaline glass or similar.

8. Lighting apparatus (10) according to claim 6, **characterised in that** said sleeve (38) is made from opaline glass or similar.

9. Lighting apparatus (10) according to claim 1, **characterised in that** said closing ring (16) is also fixed through a safety cable (21) that is attached to said containment body or outer casing (13).

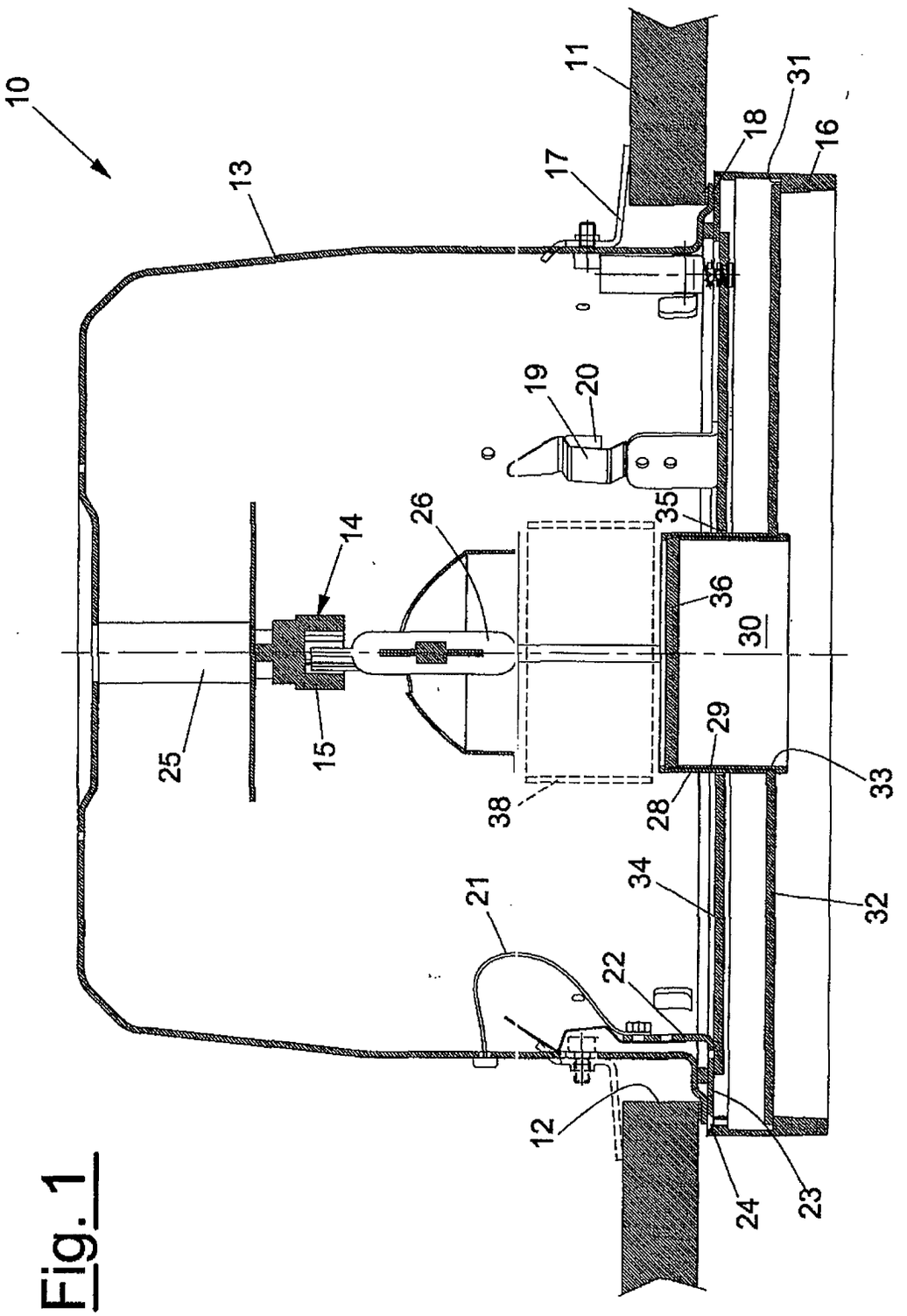
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Fig. 1

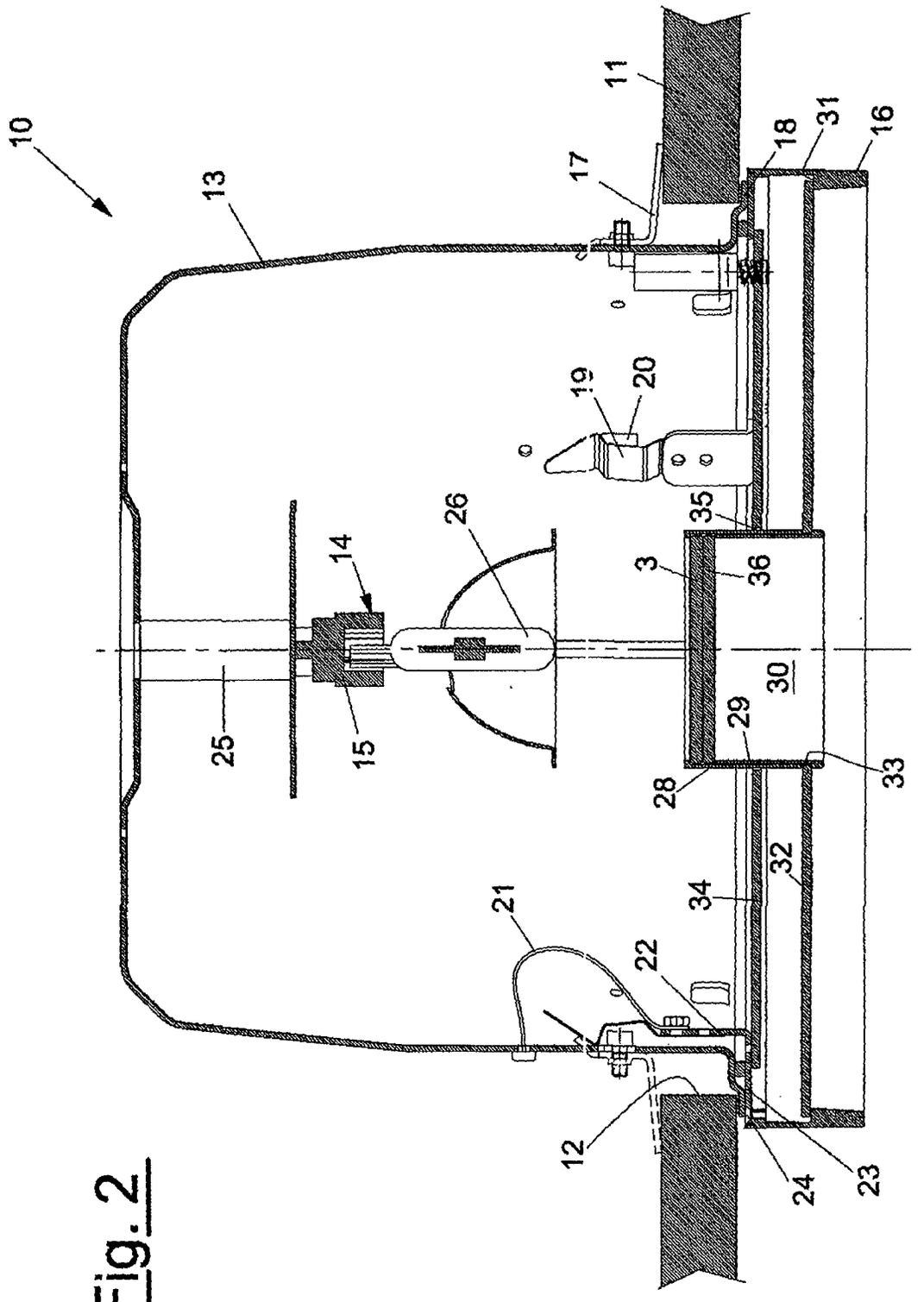
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Fig. 2