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(54) Lamp holder supporting structure for floodlights.

(57) Lamp holder supporting structure for flood floodlights, in dust-proof and humidity-proof execution, comprising a supporting element equipped with a sealing gasket, a support equipped with perimetrical teeth, which are suited to engage in some restraints shaped around the hole of the optic chamber case, and some guides in which the lamp holder/lamp group is positioned and fixed.

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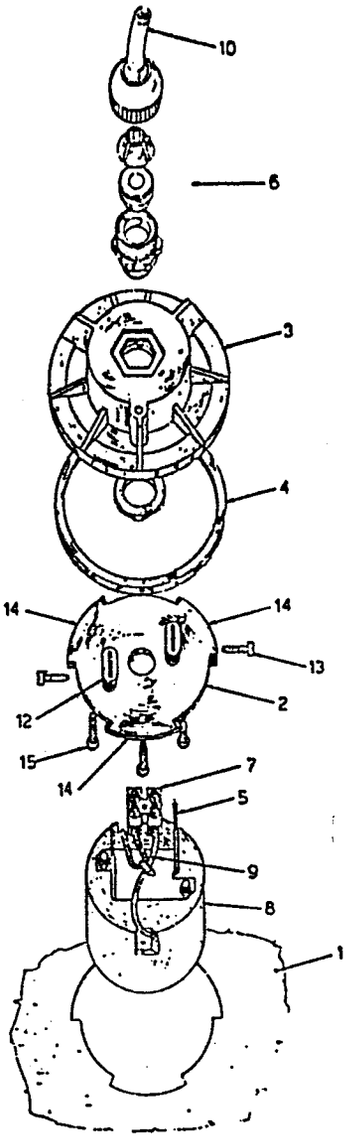

FIG 3

The present invention relates to a sectionable lamp holder supporting structure for floodlights.

In particular, the present invention relates to a lamp holder supporting structure for floodlights for the lighting of open environments, in dust-proof and humidity-proof execution and utilizable for any type of lamp.

As it is known, floodlights for the lighting of open environments are subjected to particularly severe environmental conditions and, therefore, the lamp holder supporting structure has to guarantee tightness to dusts and humidity as well as the physical resistance even under the most disadvantageous conditions.

The most usual cases of use for the floodlights in open environments are:

- lighting of areas intended for sport activities, where floodlights are subjected to atmospherical agents, namely to rain, snow, frost,and they undergo the thermal shock from summer-season to winter-season;
- lighting of road tunnels where the floodlights are subjected to the action of environmental humidity, to dripping water as well as to the action of the corrosive agents produced by the exhaust gas of motor vehicles in combination with the environmental humidity;

- lighting of industrial factories, where the floodlights, besides being exposed to the action of the atmospherical agents as described hereinbefore, are subjected to the action of corrosive substances discharged to the atmosphere by the plants of said factories;
- lighting of streets and monuments, where the floodlights, arranged also in proximity of the ground, besides being exposed to the atmospherical agents, are also subjected to water and mud sprays and to the action of mechanical impacts.

A lamp holder supporting structure, by consequence, must withstand the physical-chemical stresses above mentioned and prevent the penetration of dust, moisture, corrosive vapours and gases into the apparatus, which would irreparably lead to an (even considerable) efficiency loss of the optical apparatus along with a decrease in amount and intensity of the light emitted by the floodlight.

In addition to the foregoing, a lamp holder supporting structure must also withstand the inner heat generated by the lamp and keep in spite of the action of the external agents and of the inner heating, the electric insulation characteristics and a sufficient mechanical resistance.

The lamp holder supporting structure has also to permit an easy removal (without the use of tools) of the lamp holder/lamp group even after a few-year operation, in order to keep low the ordinary maintenance costs.

The Applicant has now found that all the above-mentioned requirements and functions are fully met by a dust-proof and humidity-proof lamp holder supporting structure for floodlights, which consists of a drilled support, of a lamp holder, of an optical chamber case and of means for fastening said components to one another, characterized in that :

a) the supporting element is equipped, on the side turned to the optic chamber case, with a peripherical groove for receiving a toroidal sealing gasket;

b) the fastening means comprise a U-shaped square fixed to the lamp holder and a support for the square fixed to said supporting element and equipped with perimetrical teeth and with guides, perpendicular to its plane, in which the two flanges of the square are located and fixed, and

c) the optic chamber case exhibits a shaped hole with restraints suited to engage in the teeth of the lamp holder support.

The drilled supporting element is provided, in its upper part, with ribs to facilitate the manual gripping.

The lamp holder supporting structure forming the object of the present invention is simple, rugged, reliable, it utilizes a hollow seal gasket, permits to adjust the lamp position and can be installed on any floodlight and with any type of lamp.

Furthermore, it is easy to produce and requires a very low maintenance; it can be manufactured from easily available and moderately expensive materials and guarantees a Class II isolation according to CEI standards.

For a better understanding of the lamp holder supporting structure of the present invention, a detailed description is given hereinafter making reference to the figures of the attached drawing, in which :

- fig. 1 is a partially sectional view in side elevation of the lamp holder supporting structure of the present invention, before being connected with the optic chamber case;
- fig. 2 is a partially sectional view in side elevation of the lamp holder supporting structure of figure 1, after the connection with the optic chamber case and showing the tight seal generated by the special pneumatic gasket housed in the "lamp supporting body" with the optic chamber case;
- fig. 3 is an exploded perspective view of the lamp holder supporting structure with lamp holder and connections according to the invention.

With reference to the figures, the lamp holder supporting structure according to the invention includes a lamp holder U-shaped square element (5) suited to support a lamp holder (8), and to which there are electrically connected the two wires (9) which provide the electric connection between the lamp holder (8) and the terminal (7) to which a cable (10), that electrically feeds a lamp (11) is electrically connected.

The lamp holder square element (5) is supported, guided and positioned by a support (2).

Said support is equipped with two vertical guides (12), in which square element (5) slides.

Fastening means (13) permit a positioning of lamp holder square element (5) at different levels depending on the size of the lamp (11), in order to center the lamp on the optical axis of the reflector contained in the optical chamber (1).

The support (2) besides supporting and positioning the lamp holder square element (5), is equipped with three teeth (14), which engage in corresponding teeth of the optical chamber case (1), thus fixing and retaining on said case the whole lamp holder supporting structure complex by exerting a pressure to cause gasket (4) to properly adhere to the outer surface of the optical chamber case (1).

Supporting element (3) is fixed to the lamp holder square support (2) by means of three self-tapping screws (15), which engage in three holes impressed on support (2) by a mold.

Supporting element (3) exhibits a circumferential groove suited to receive the tight gasket (4) and in the upper portion it exhibits a hole suited to house an element acting as a packing gland and cable fastener (6), which is fixed by a lock nut.

Supporting element (3) exhibits three ribs of force, which are utilized by the operator for operating the lamp holder supporting structure complex.

The operation of the lamp holder supporting structure complex can be clearly understood from the preceding description; making reference to figures 1, 2 and 3 it is apparent that said complex, resulting from the combination of parts 2, 3, 6, 5, 4, is engaged by the teeth of part (2) to case (1) and locked to it by a proper rotation.

Through this last operation, gasket (4) is suitably pressed against the surface of case (1), thereby providing the desired tightness to the penetration of dust and moisture.

CLAIMS

1. A dust-proof and humidity-proof lamp holder supporting structure for floodlights, consisting of a drilled supporting element, by a lamp holder, by an optic chamber case and means for fastening said components to one another, characterized in that :

a) the supporting element is equipped,on the edge turned to the optic chamber case, with a circumferential groove for receiving a toroidal sealing gasket;

b) the fastening means comprise an U-shaped square element fixed to the lamp holder and a square element support

fixed to said supporting element and equipped with perimetrical teeth and with guides, perpendicular to its plane, in which the two flanges of the square element are positioned and fixed, and

c) the optic chamber case is provided with a shaped hole with teeth suited to engage in the corresponding teeth of the square element support.

2. The lamp holder supporting structure according to claim 1, in which the drilled supporting element exhibits, in its upper part, a hole suited to receive a packing gland/cable fastener element.

3. The lamp holder supporting structure according to claim 1 or 2, characterized in that the drilled supporting element exhibits, in its upper portion, ribs to facilitate the manual gripping.

4. The lamp holder supporting structure according to any of the preceding claims, in which the sealing gasket is hollow.

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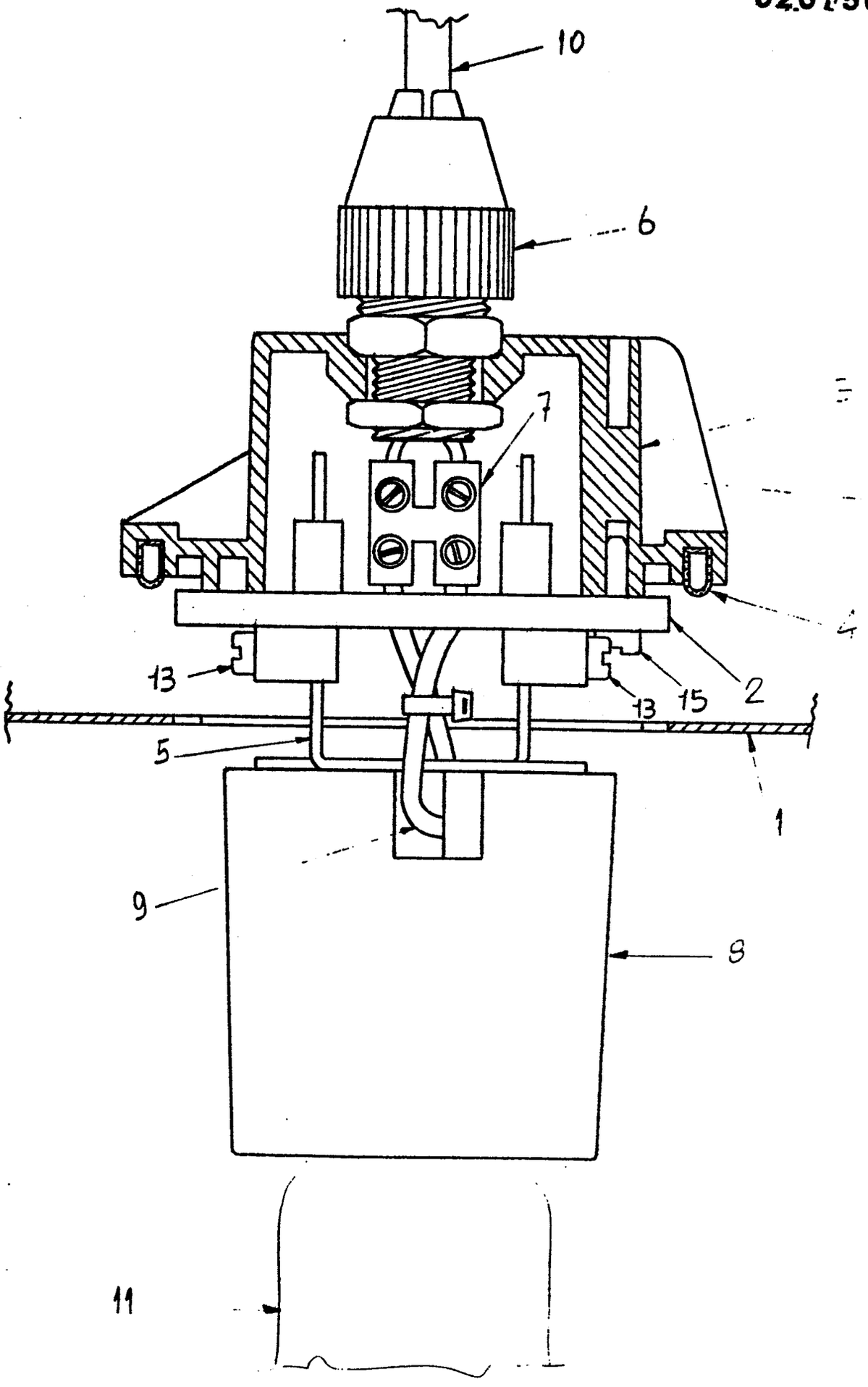

Fig. 1

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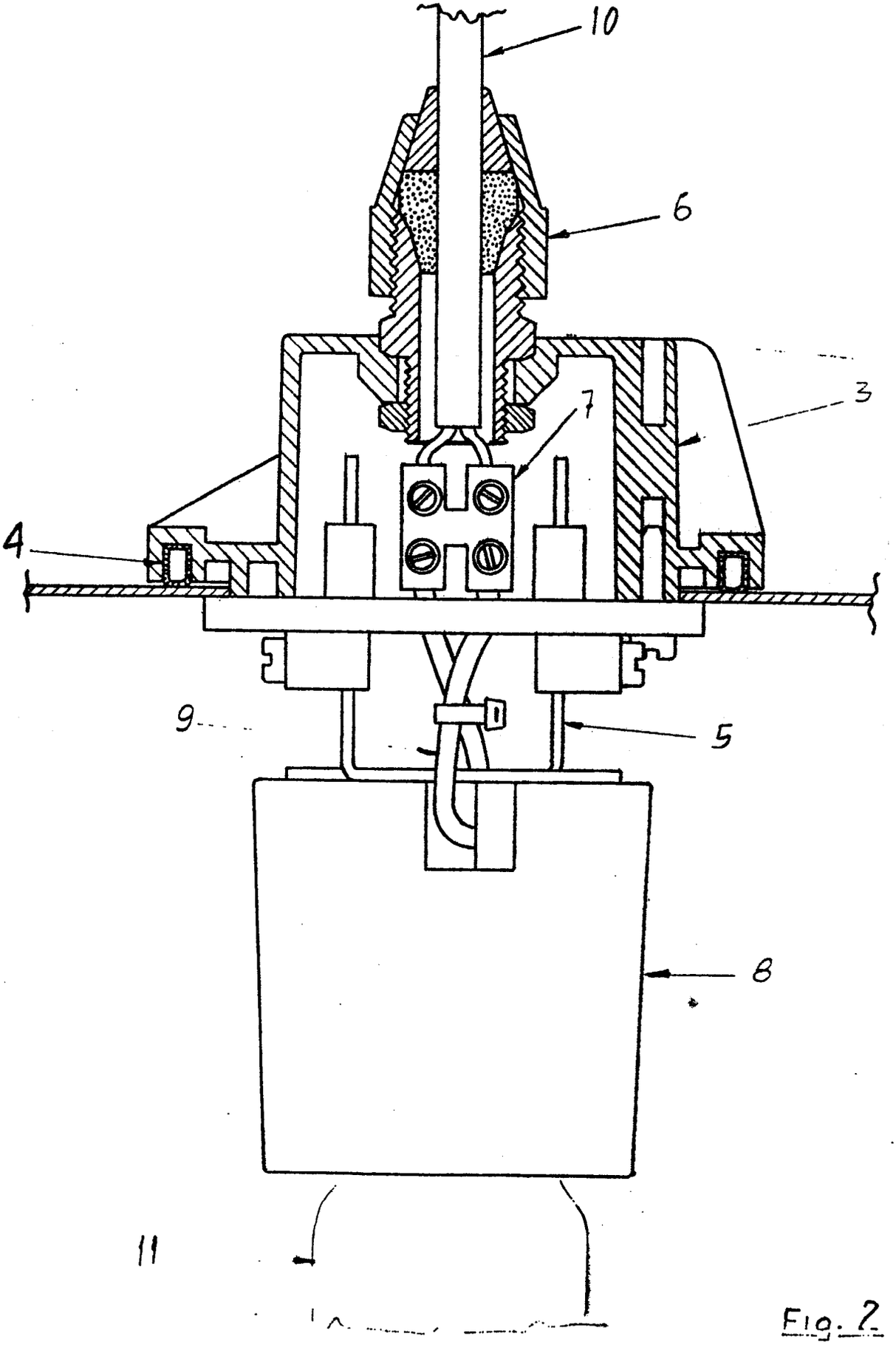

Fig. 2

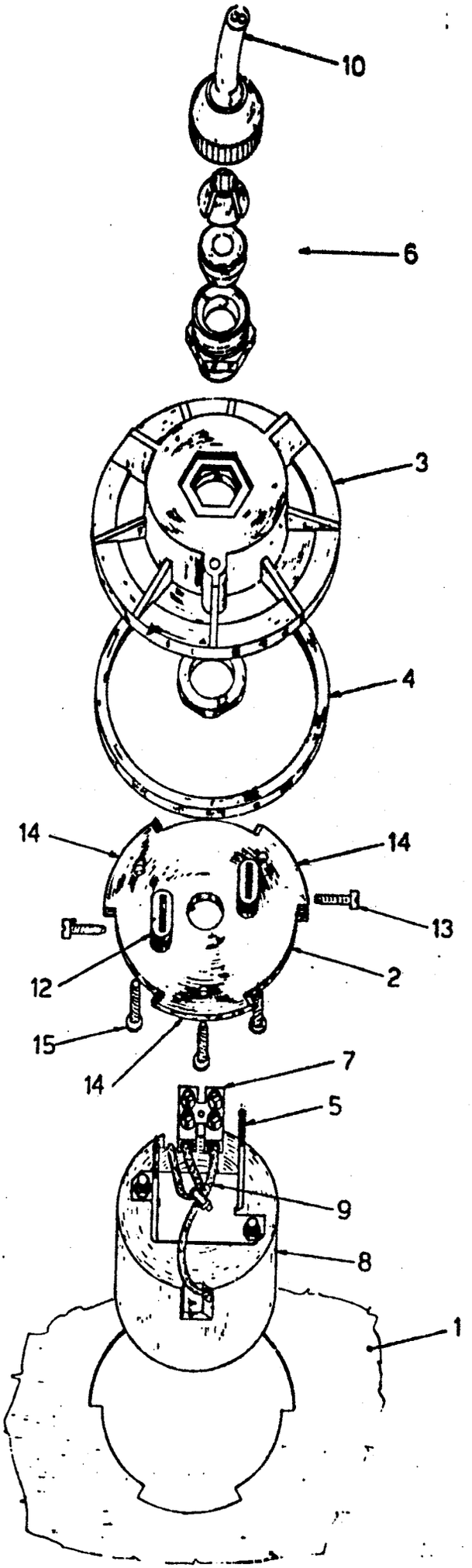

FIG. 3