Jan. 7, 1964 M. MORSE 3,116,885

SILICON RUBBER LIGHT FILTER FOR INCANDESCENT LAMPS

Filed Oct. 31, 1961

Fig. 1

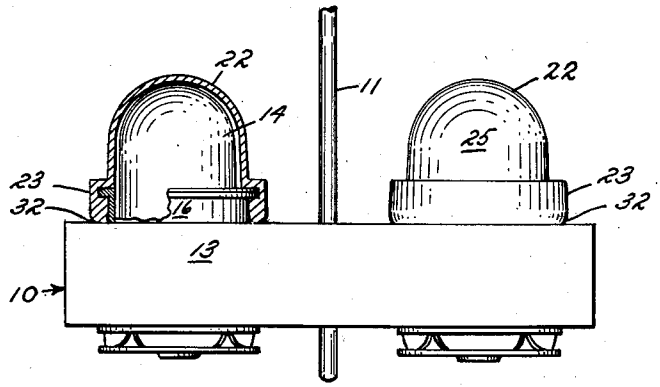


Fig. 2

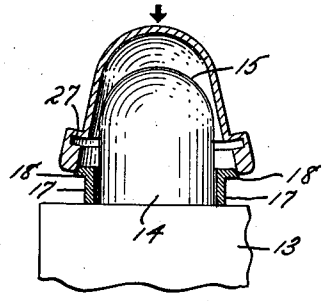
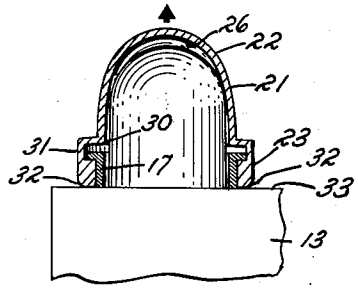


Fig. 3



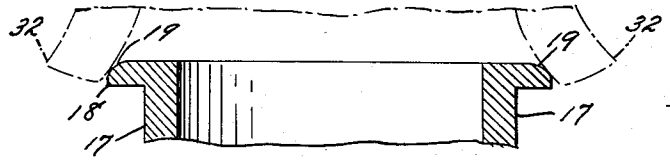


Fig. 4

United States Patent Office

3,116,885
Patented Jan. 7, 1964

3,116,885

SILICON RUBBER LIGHT FILTER FOR INCANDESCENT LAMPS

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Filed Oct. 31, 1961, Ser. No. 148,929
1 Claim. (Cl. 240—92)

This invention relates generally to the field of lighting by incandescent means, and more particularly to an improved light filter especially suited for use in conjunction with instrument panel lighting means.

It is known in the art to provide for colored instrument panel lighting by coating the incandescent bulb with a colored synthetic resin, this technique being widely used where encapsulation is desired. This method, while suitable in some locations, has many disadvantages, including the inability to change the color of a coated bulb, the difficulty in achieving uniform coloration over the surface of the bulb, and the tendency of the filter to fade with prolonged use.

It is among the principal objects of the present invention to provide a colored light filter of flexible synthetic resinous material which may be easily slipped over and engaged with an incandescent light bulb and its adjacent mounting means, which will afford uniform colored light distribution, facilitate intentional removal, and which will have a relatively long useful life.

Another object of the invention lies in the provision of an improved interconnection between the light filter and the incandescent bulb mounting means whereby accidental removal under inertial forces is strongly resisted, while not diminishing the ease with which intentional installation and removal is accomplished.

A further object of the invention lies in the provision of improved light filters of the class described in which the cost of fabrication may be of a reasonably low order, with consequent wide sale, distribution and use.

A feature of the invention lies in the very low bulk and weight of individual light filters, not appreciably altering the bulk or weight of the instrumentation with which it is associated.

These objects and features, as well as other incidental ends and advantages, will more fully appear in the progress of the following disclosure, and be pointed out in the appended claim.

In the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a fragmentary view in elevation, partly in section, of an embodiment of the invention.

FIGURE 2 is a fragmentary sectional view, partly in elevation, showing the installation of a light filter upon a lamp supporting means.

FIGURE 3 is a similar fragmentary sectional view partly in elevation, showing the locking effect obtained during the presence of longitudinal inertial forces encountered during use.

FIGURE 4 is an enlarged fragmentary sectional view corresponding to the central portion of FIGURE 2.

In accordance with the invention, the device, generally indicated by reference character 10, comprises: lamp-supporting means 11, an insulating element 12, a lamp-

supporting sleeve 13, and a plurality of generally tubular incandescent lamps 14 each having a substantially hemispherical outer surface 15. Devices of this general type are known in the art, and have wide application in military instrument panel lighting and similar uses, and are normally interconnected with other means (not shown) for the purpose of actuating microswitches and similar miniaturized controls.

The insulating element 12 may be of any suitable configuration, and includes a plurality of bores in which one or more sleeves 13 may be disposed. Each sleeve includes a cylindrical outer surface 16, there being an annular groove 17 disposed at one end thereof forming a projecting lip 18 having a chamfered surface 19 thereon.

Engaged upon the lip 18 and surrounding the surface 15 of the lamps 14 are silicon rubber light filters, generally indicated by reference character 21, each filter being integrally molded to include a generally hemispherically-shaped dome element 22 and an arcuately-shaped engaging element 23.

The dome element 22 includes an outer surface 25 and an inner surface 26 leading to an annular lower planar surface 27. The engaging element 23 forms a continuation of the surface 27, including a connecting bend portion 30, a recess-forming portion 31, and a bead-forming portion 32 adapted when the filter 21 is in installed condition to contact the outer surface 33 of the insulating element 12.

During installation of the device, the chamfered surface 19 serves to spread the engaging element 23, whereby the same may be readily slipped over the lip 18 to become seated in the recess-forming portion 31. Manual removal is readily accomplished by disengaging the lip 18 over a small area thereof, and rocking the same from the remaining engagement. The natural forces tending to remove the filter, however, are resisted by the presence of the lip 18 and its reaction against the side of the recess-forming portion 30. This action is provided by the normal constricting resilience of the engaging element 23, and the fact that inertial forces exerted axially with respect to the filter tend to provide a radially inwardly contracting force which enhances this action.

It may thus be seen that I have invented novel and highly useful improvements in flexible translucent light filters, which may be injection molded in large quantities at low cost. Owing to the provision of novel interlocking means, the devices may be intentionally removed without difficulty, but accidental removal is strongly resisted. By the use of simple injection molding techniques, the cost of forming the filters is kept at a very low order, and thus the replacement of damaged filters may be accomplished simply and at low cost.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

I claim:

In combination, an incandescent lamp, a lamp-supporting sleeve and a synthetic resinous light-transmitting filter; said lamp being of generally cylindrical configuration, said sleeve being of cylindrical configuration and having an axially disposed bore, said lamp being frictionally retained within said bore, and having a generally hemispherically-shaped end portion extending outwardly thereof,

said sleeve also having a circular end having a chamfered edge thereon and an annular recess element, said edge forming a lip; said filter being formed of silicon rubber having a hemispherical portion corresponding to the end of said lamp and an arcuately-shaped engaging element connected to said hemispherical portion, said engaging element having a bead-forming portion engaged with said annular recess in said sleeve.

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