Jan. 24, 1967 T. H. MARTLAND 3,300,637

LIGHT BULB PROTECTOR

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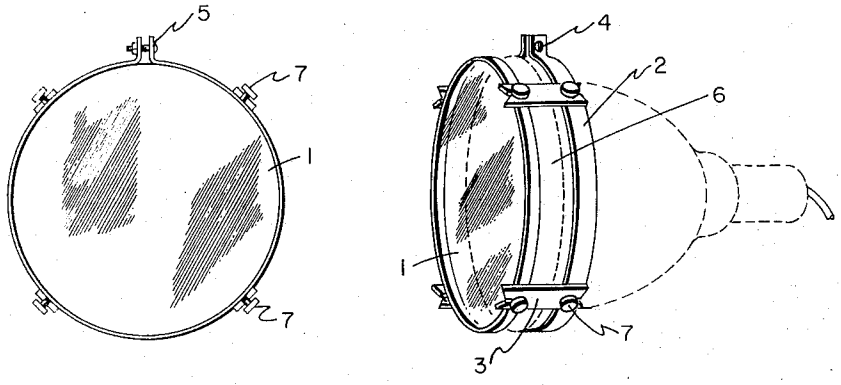


FIG. 1

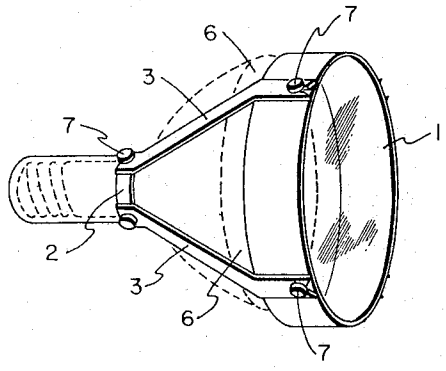


FIG. 2

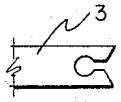


FIG. 3

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LIGHT BULB PROTECTOR

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The present invention relates to new and useful improvements in guards or protectors for certain types of electric light bulbs, namely, light bulbs which are known to the public as flood lights and spot lights.

Flood lights and spot lights, generally, are available in two distinct types, that is, the "recessed" one in which the flat or arcuated reflective surface of the bulb is substantially hidden in and protected by a surrounding metallic fixture, and the "protruding" one in which the above-mentioned surface of the bulb is practically completely exposed and the metallic fixture covers little more than the threaded portion of the bulb's neck.

The use of flood lights and spot lights is becoming more and more widespread and popular, especially in connection with the artistic illumination of public edifices and school grounds, as well as with the safety of factory yards and warehouses, and, more recently, with the fashionable illumination of individual private dwellings. Flood lights and spot lights are now available also in color, which, obviously, adds to the already significant cost of these means of illumination.

It is, therefore, the main object of the present invention to provide for means of safeguarding the life of flood lights and spot lights against damages caused not only intentionally but also accidentally through the impact of foreign objects propelled by highspeed rotating machines, such as, for example, lawn mowers, edge trimmers, and the like.

A further object of this invention is to provide an economical means of simple yet very practical construction, of neat and attractive appearance, inexpensively manufacturable, capable of transducing substantially all of the absorbed shocks not to the light bulb proper, but to the metallic fixture to which the bulb is connected, the bulb remaining, therefore, free from shocks.

Other objects and advantages of the present invention will be readily apparent from the following detailed description of an embodiment thereof and from the accompanying drawings, in which:

FIGURE 1 shows a typical protective device of the invention as applicable to the above-defined "recessed" type of spot light or flood light;

FIGURE 2 represents an equally typical protective device of the invention, in a slightly modified form, as applicable to the above-mentioned "protruding" type of spot light or flood light; and

FIGURE 3 shows in detail a terminal portion of one of the component parts of the device of the invention.

Protective shields for electrical light bulbs are long known in the art. For example, United States Patent No. 2,417,364 discloses a protector adaptable to conventional electric light bulbs and capable of providing yieldable means for frictionally gripping the bulb with resilient fingers so as to prevent the bulb from being damaged by foreign objects. Many other protectors have been devised to safeguard the life of automobile headlights or to provide dimmers and the like therefor.

However, never heretofore, was there available a protective device for certain specific types of illuminating devices, namely, flood lights and spot lights. In accordance with the present invention, the protector offers a complete, uniform, and solid safeguarding surface capable of transferring the unabsorbed shock received from a foreign object, such as a stone or the like, to the fixture directly, rather than to the bulb itself. The device of the invention

is very readily applied to any standard illuminating device of the varieties hereinabove disclosed, its main component needs to be merely translucent and not necessarily transparent (although transparency is quite acceptable) and may be constructed of either clear or colored shock-resistant material.

With reference now to the accompanying drawings, the protective device of the invention comprises three main component parts, namely, a shield **1**, a collar **2** and a plurality of interconnecting straps **3**. The shield, as mentioned hereinabove, is preferably made of translucent material which at the same time is rigid enough to withstand impact without buckling or touching the surface of the light bulb. Any suitable material may be employed in its construction. However, it has been found that certain materials such as fiber glass or "plexiglass" and certain plastics, especially translucent plastics such as melamine are best suited. The shield is shaped, conventionally, substantially like the surface which it is meant to protect, namely arcuated, but a flat shield may be often utilized both with flat glass surfaces or with very slightly arcuated ones. Obviously, if the surface of the bulb is excessively arced, an equally arced shield should be preferred. It is also important that the shield have a peripherical edge of satisfactory width, so as to protect the bulb from objects striking it from all angles of trajectory.

The collar **2** is constructed of material which, although flexible, is rigid enough to be tightly secured to the metallic fixture of the electrical appliance. Suitable materials of construction are, therefore, plastics, aluminum, and the like. As shown at **4**, (FIGURE 1), the collar should preferably be shaped in such a manner as to permit the tightening thereof around the metallic fixture. One convenient method of securing the collar to the fixture is shown at **5** in FIGURE 1, where a conventional bolt and nut is employed. However, other methods are equally good, such as wing-nut arrangements or snap connectors. A further method consists of preforming, such as by premolding, the collar to the shape of the fixture. The collar may vary in circumference, however, depending on whether the light bulb is of the "recessed" or of the "protruding" variety. This is shown clearly in FIGURES 1 and 2. The geometrical configuration of the collar need not differ, however, in the two instances mentioned hereabove. Since the distance between the shield **1** and the surface of the bulb **6** is such that sufficient natural air cooling is attained, without impairing the safety of the glass surface, the length of the connecting straps **3** may vary. This intervening distance preferably ranges from 0.125 to 1.0 inch or more depending on the wattage of the light bulb.

It is shown in FIGURE 1 of the drawings, that when a "recessed" type bulb is used, the length of the straps **3** (distance between the shield **1** and the collar **2**) is relatively short, while, conversely, if the "protruding" variety of light bulb is used, the length of the straps **3** must of necessity be longer, because the distance between the shield **1** and the collar **2** is increased.

A plurality of straps may be employed. However, it is preferable that a certain symmetry and balance be maintained in order to augment the stability and ruggedness of the protective device of the invention. The straps should not be constructed of too rigid a material, because there is a necessity for a certain degree of resiliency in softening the impact absorbed by the shield. Yet the straps should not be so resilient as to cause the surface of the shield under impact to come in violent and abrupt contact with the surface **6** of the glass bulb. The rigidity of the straps should be, therefore, at best equal and, preferably, somewhat inferior to that of the shield.

Both shield **1** and collar **2** are preferably molded or cast each in one single operation. They are therefore

provided, as shown in the figures, with embossed, co-molded studs or knobs 7, to which the straps 3 may be secured. As shown in FIGURE 3 the terminals of each strap are so constructed that they may receive and retain with the minimum effort the studs or knobs of the collar and of the shield. As it can be readily visualized by observing FIGURE 3, the opening of the terminals of the straps substantially matches the cross-sectional area of the neck of the studs. Furthermore, said studs or knobs are prevented from freely disengaging themselves from the straps, as it can be clearly deduced from FIGURE 3. The assembly of the three components of the device is readily effected in situ and the relative ease with which the straps are detached from the shield, allows the interchanging of shields of different color, as desired. There are, however, other methods by which the straps are secured to the shield and to the collar. One such method consists of snap-rings applied to both mating terminals by mechanical means.

The present invention does not limit itself to the above-described, premolded, preferred method, but envisages the possibility herein not illustrated, of premolding all three components of the device in one single operation, in which case the straps are not removably fixed to collar and shield, but premolded fixedly thereto and the diameter of the collar and length of the straps are predeterminedly established.

What is claimed is:

1. Protective device for flood light bulbs and spot light bulbs which comprises in combination:

(a) a substantially rigid, light transmissive, and impact-resistant shield,

(b) a flexible collar capable of being removed from and fixedly secured to the metallic fixture conventionally employed with said bulb; and

(c) a plurality of elements, connecting said shield to said collar, said elements possessing a degree of rigidity not greater than that of said shield.

2. The protective device in accordance with claim 1, wherein the outer surfaces of said shield and of said collar have each embossed thereon an equal plurality of studs, said plurality corresponding to the number of connecting elements.

3. The protective device according to claim 1, wherein said shield is made of a material selected from the group consisting of fiber glass, plexiglass and melamine.

4. The protective device according to claim 1, wherein said shield is partly translucent and partly transparent.

5. The protective device acording to claim 1, wherein said plurality of elements is premoldedly connected to said collar and said shield.

6. Protective device for flood light bulbs and spot light bulbs which comprises in combination:

(a) a substantially rigid, impact-resistant and translucent shield,

(b) a flexible, removable collar capable of being fixedly connected to the metallic fixture of said bulb; and

(c) a plurality of elements, removably connected to said shield and to said collar, said elements possessing a degree of rigidity inferior to that of said shield.

7. Protective device for flood light bulbs and spot light bulbs which comprises in combination:

(a) a substantially rigid, impact-resistant and translucent shield, said shield having a geometrical configuration substantially corresponding to the configuration of the reflective surface of said bulb, and being spacially detached from said reflective surface;

(b) a flexible, removable collar capable of being fixedly connected to the metallic fixture of said bulb; and

(c) a plurality of straps removably connected to said shield and to said collar, said straps possessing a degree of rigidity inferior to that of said shield.

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