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NON-GLARE LIGHTING FIXTURE

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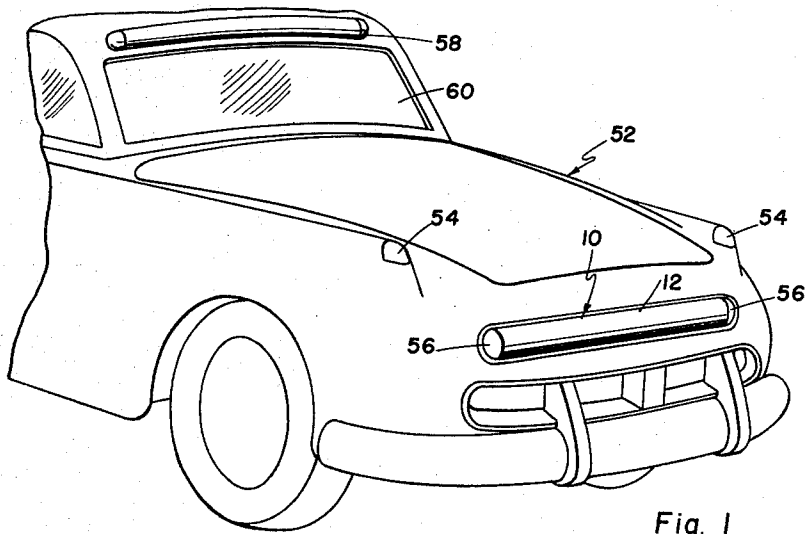


Fig. 1

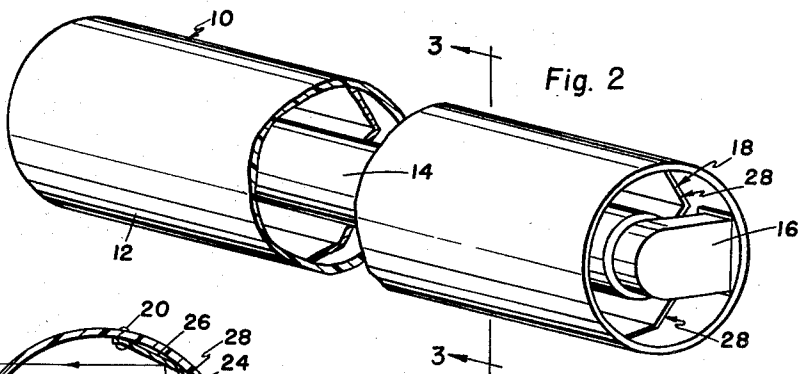


Fig. 2

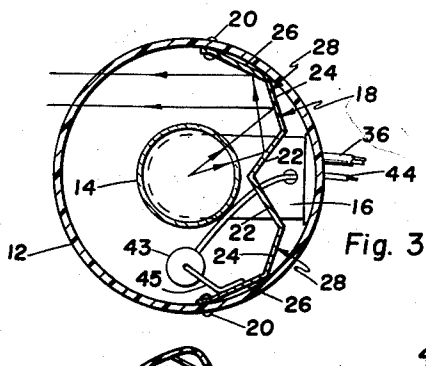


Fig. 3

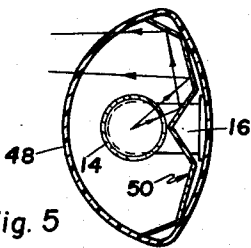


Fig. 5

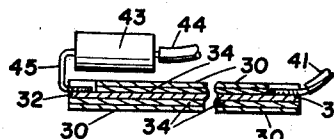


Fig. 4

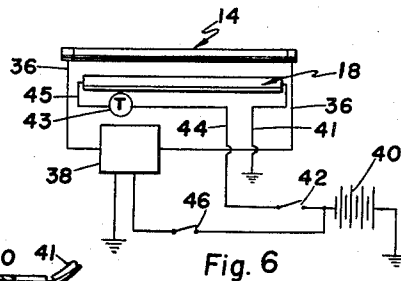


Fig. 6

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NON-GLARE LIGHTING FIXTURE

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2 Claims. (Cl. 240—11.4)

The present invention relates generally to lighting equipment and more particularly to a non-glare lighting fixture.

The primary object of this invention is to provide a lighting fixture comprising a tubular, discharge type lamp enclosed in a translucent or transparent outer casing, and a built-in reflector shaped to provide a controlled light beam.

Another object of this invention is to provide a lighting fixture in which the reflector is electrically resistant and has a secondary function as a heater element to maintain an efficient operating temperature around the lamp.

Another object of this invention is to provide a lighting fixture which is suitable for use as an automobile headlight or the like.

Another object of this invention is to provide a lamp which is equally suitable for use as a floodlight.

Another object of this invention is to provide a non-glare lighting fixture which is adapted for fabrication from many different materials, so that the choice of material can be according to the dictates of availability and price considerations, the exact sizes and proportions being matters easily determined to suit particular conditions and needs.

Another object of this invention is to provide a non-glare lighting fixture which is inexpensive and practicable to manufacture.

Finally, it is an object to provide a non-glare lighting fixture of the aforementioned character which is simple, safe and convenient to operate, and which will give generally efficient and durable service.

With these and other objects definitely in view, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claims, and illustrated in the drawing which forms a material part of this disclosure and wherein similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawing, and in which:

Fig. 1 is a perspective view of an automobile fitted with the non-glare lamps as upper and forward headlights.

Fig. 2 is a perspective view, partially cut away, of the lamp.

Fig. 3 is a transverse sectional view of the lamp taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged fragmentary sectional view showing the structure of the reflector element.

Fig. 5 is a transverse sectional view similar to Fig. 3, of a lamp having a casing of a slightly different shape.

Fig. 6 is a diagrammatic view of the electrical wiring used in the automobile headlight installation.

Referring now to the drawing, the lighting fixture 10 comprises a tubular casing 12 of translucent or transparent material in which is fitted a fluorescent lamp 14 or another discharge type lamp. The lamp is mounted between sockets 16 which are secured at each end of the

casing 12 and are of conventional design such as those used in existing fluorescent lighting fixtures.

Behind the lamp 14 is a reflector 18 which is fastened to the casing 12 by means of rivets 20 or similar suitable means. This reflector 18 comprises a plurality of longitudinal flat portions 22, 24 and 26 which are arranged substantially symmetrically above and below the lamp 14 to provide a pair of generally concave reflector channels 28. The flat portions 22, 24 and 26 are angularly disposed so that light issuing from the lamp 14 is directed forwardly in a beam, the width of the beam being governed by the exact shape or arrangement of the reflector channels 28.

The reflector 18 is specially constructed to be used as a heating element, an example of the structure being shown in Fig. 4. The combined reflector and heating element will be seen to be shaped to direct radiant heat toward said lamp. The reflector comprises two outer layers 30 of metallic foil or the like, one of which is polished to provide the necessary reflecting surface, and a layer type heater element 32 of the electrically resistant type which is separated from the outer layers by means of insulative sheets 34. This particular structure is similar to that of a comparable laminated material in present use in heating devices and sold under the trademark "Uskon."

The fixture is particularly suitable for use as an automobile headlight, the absence of glare being an important safety feature during night driving. The wide beam of light produced provides excellent coverage of the road ahead in a horizontal direction, while the vertical disposition of the beam may be controlled by the shape of the reflector 18 and the alignment of the complete fixture in the automobile. The light beam may be dimmed or lowered if desired by slight rotation of the fixture, a variety of mechanisms being adaptable for this purpose.

The electrical wiring associated with the fixture is illustrated in Fig. 6 in which the lamp 14 is connected by means of conductors 36 to a power supply 38 which is energized by the conventional automobile battery 40. The power supply 38 includes a suitable alternator and transformer having an output voltage sufficient to operate the lamp and also the ballast normally used with fluorescent lamps. One end of the heater element 32 is connected by means of a conductor 41 to one side of the battery 40. The other end of the heater element is connected, through a switch 42 and a thermostat 43, to the other side of the battery 40 by means of a conductor 44. The thermostat 43 is electrically connected to the heater element 32 and also supported on the reflector by a substantially rigid connecting wire 45. The outer layer 30 is partially removed at the connections of the wire 45 and conductor 41 to prevent accidental contact. The lamp 14 is, of course, operated by a suitable switch 46 placed in a convenient position on the instrument panel together with the heater switch.

An alternative form of the lighting fixture is shown in Fig. 5 in which the casing 48 is substantially ovoid in cross section, a feature which may be desirable in certain installations where the shape may be more adaptable than a right cylindrical casing. The reflector 50 is constructed in a manner similar to the reflector 18 but is modified slightly in shape to conform to the casing 48. The arrangement of the lamp 14, the sockets 16 and the functions of the device are similar to that described above.

As illustrated in Fig. 1, the fixture is installed in an automobile 52, horizontally across the front thereof, the automobile being equipped with suitable clearance lights 54 to conform to driving requirements. The ends of the casing 12 are enclosed by end caps or fairings 56 which are constructed to suit the particular installation and the design of the automobile, the exact

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details not being essential to this disclosure. The position of the headlight subjects the fixture to extreme exposure especially severe during cold weather. It is well known that fluorescent type lamps start and operate more efficiently within certain temperature ranges which are usually rather limited. It is certain that the exposure to cold air would lower the temperature within the casing 12 below the efficient operating temperature of the lamp 14 and it is here that the utility of the heated reflector becomes evident by maintaining the temperature within the fixture at a sufficiently high level to obtain the utmost efficiency from the lamp. The thermostat 43, being adjacent the lamp 14, is affected by the temperature of the surrounding atmosphere and is adjusted to energize the heater element 32 as soon as the temperature falls below a predetermined efficient level, turning the heater off to conserve the battery as soon as the required temperature is regained. The use of the fixture for headlights may, of course, be extended to all types of automotive vehicles or the like, the high lumen output and comparatively low power consumption of fluorescent lamps, together with the absence of glare being ideal for such a purpose.

An alternative position for the forwardly disposed headlight fixture is illustrated at 58 in Fig. 1, the fixture being installed as an upper headlight above the windshield 60 of the automobile, in which position the device has certain advantages. The elevated position of the light is not detrimental to road safety due to the non-glare properties of the lamp. In this position the lamp illuminates the area immediately in front of the windshield and thus reduces the brightness contrast between this area and lighted area in front of the vehicle, also affected by the lights of approaching vehicles, thus increasing eye comfort of the occupants of the first mentioned vehicle. The installation structure of the fixture may be similar to that previously described and must be arranged to suit the particular vehicle. It is conceived that lamps may be installed in both the stated positions on the same automobile, the lamps indicated at 56 and 58 being operated either alternatively or contemporaneously.

The fixture is not necessarily limited to use as a headlight, but may be used with equal success as a floodlight or general purpose light in positions where a controlled pattern of fluorescent light is desirable. A particular example of such a use is in the lighting of service stations, drive-ins or other outdoor establishments where the lighting fixtures are exposed to the elements. The protection offered by the outer casing around the lamp and the heated reflector to maintain the temperature, combine to ensure that the lamps may be operated at peak efficiency in adverse conditions. Further, the light output pattern may be controlled as desired by the shape of the reflector. It is conceived that the cross-sectional shape of the reflector is not limited to the angularly disposed flat por-

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tions shown in the drawings. True concave reflectors or other developed shapes may be used to produce light patterns for a wide variety of applications.

The operation of this invention will be clearly comprehended from a consideration of the foregoing description of the mechanical details thereof, taken in connection with the drawing and the above recited objects. It will be obvious that all said objects are amply achieved by this invention.

Further description would appear to be unnecessary.

It is understood that minor variation from the form of the invention disclosed herein may be made without departure from the spirit and scope of the invention, and that the specification and drawing are to be considered as merely illustrative rather than limiting.

I claim:

1. In a lighting fixture, a translucent hollow casing, a pair of sockets within said casing adjacent the ends thereof, a fluorescent lamp operatively mounted in said sockets, a reflector mounted on the inner surface of said casing and having elongated substantially concave portions above and below said lamp to project the light therefrom substantially horizontally, a heater element integrally contained in said reflector and adapted to heat said lamp, said heater element and said lamp having means for connection through said sockets to a source of power.

2. In a lighting fixture, a translucent hollow casing, a pair of sockets within said casing adjacent the ends thereof, a fluorescent lamp operatively mounted in said sockets, a reflector mounted on the inner surface of said casing and having elongated substantially concave portions above and below said lamp to project the light therefrom substantially horizontally, said reflector having a heater element integrally combined therewith, said heater element and said lamp having means for connection through said sockets to a source of power, said heater element constituting means to heat said lamp, and a thermostat operatively connected with said heater element to energize and de-energize the heater element at predetermined temperatures.

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