

[54] FLASHING WARNING LIGHT

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[51] Int. Cl. F21I 15/04

[58] Field of Search. 240/10.1, 23, 24, 240/44.1, 49, 61.7, 46.59; 340/84, 87

[56]

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[57]

ABSTRACT

A flashing warning light for road traffic is formed of a fixed light bulb, a reflector rotatably driven about the bulb by a motor, and a colored radiating dome covering the light bulb and the reflector. The reflector and radiating dome are interconnected so that the dome rotates with the reflector. The dome is formed of two differently colored half domes. The reflector can be made to rotate in either direction by the motor and, due to the connection between the reflector and the dome, in each direction of rotation a different colored half of the dome is positioned in front of the reflector.

7 Claims, 4 Drawing Figures

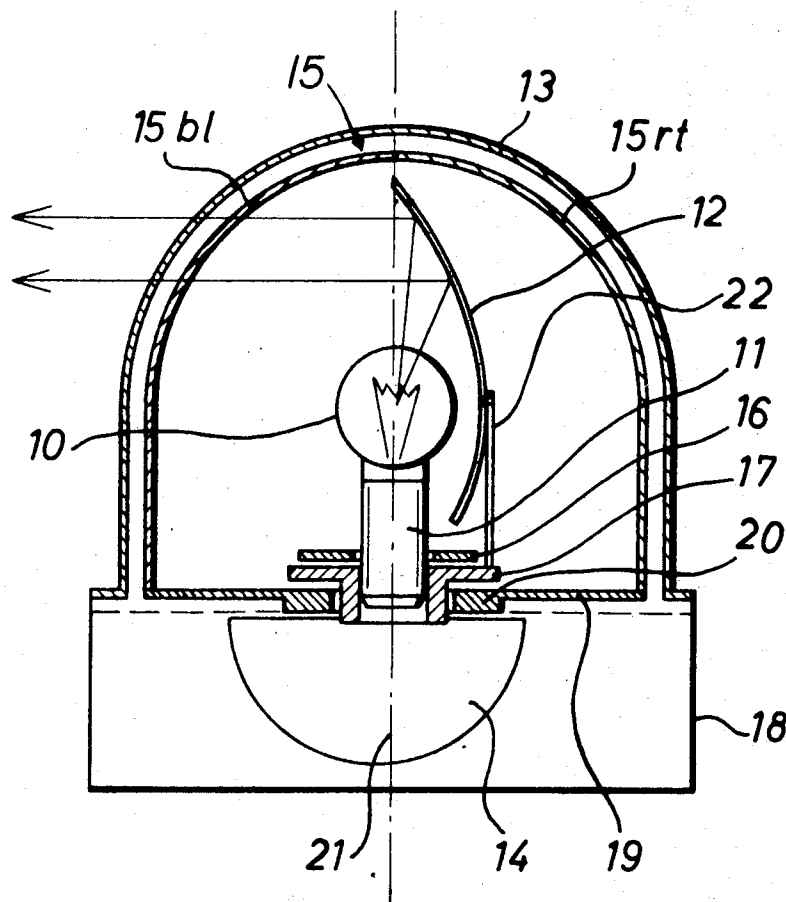


Fig. 1

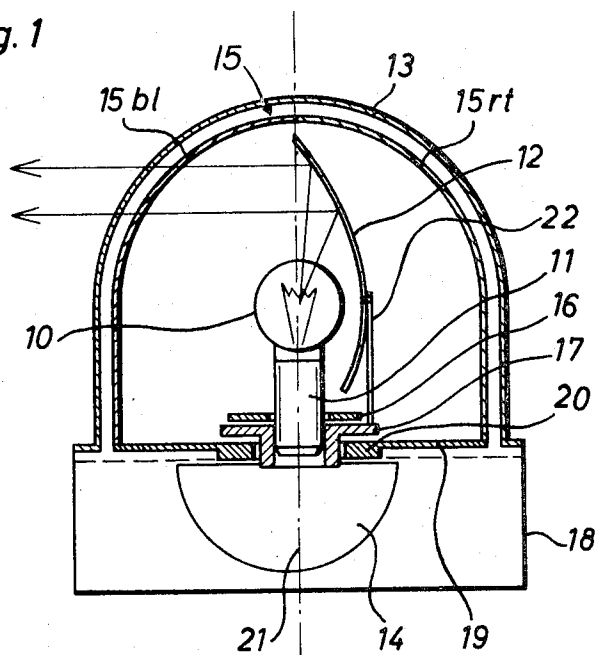


Fig. 2

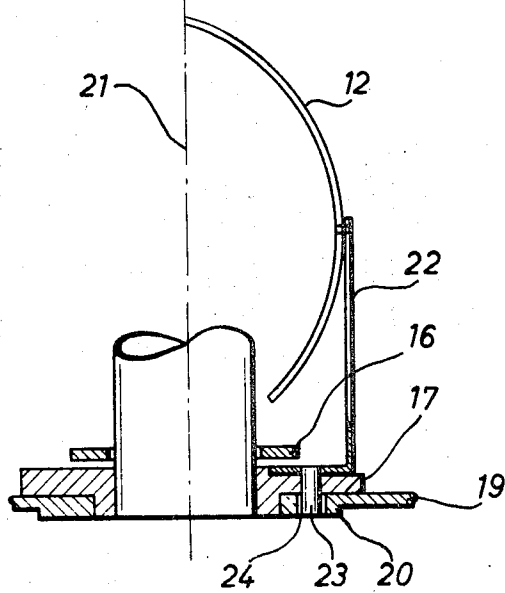


Fig. 3

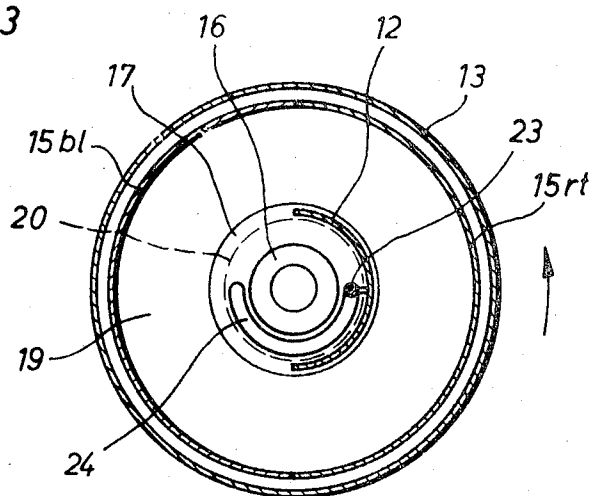
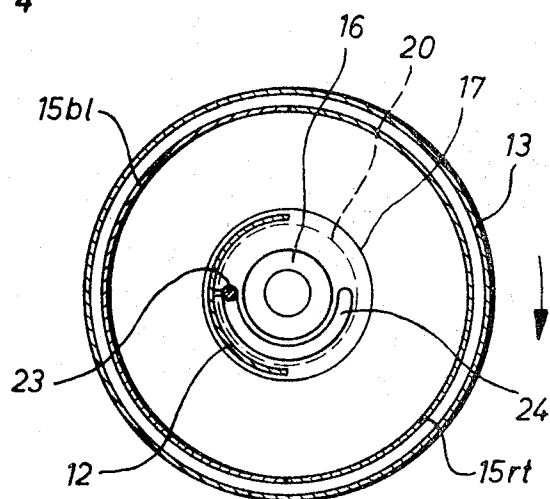


Fig. 4



FLASHING WARNING LIGHT

The present invention concerns a flashing warning light for road traffic and comprises a fixed light bulb, a reflector rotatable about the light bulb by means of a motor, and a coloured radiating dome covering these parts. Such flashing warning lights, also termed rotating flashing lights, are often fitted on accident vehicles, e.g. police vehicles, ambulances and fire engines. The radiating dome may include a blue filter so that the radiated flashing signals are given as flashing blue light signals. These flashing warning lights of accident vehicles are switched on during a journey to the place of use.

At the scene of an accident the flashing blue light signal is switched off and replaced by portable warning lights giving flashing red light signals. Separate flashing warning lights on the accident vehicle are switched on, and these may also be rotating flashing lights.

It is the object of the present invention to provide a flashing warning light for road traffic, said light being used for the production of flashing light signals of different colours. Thus a flashing warning light on an accident vehicle is designed to produce a blue light or a red light flashing signal, the expenditure on control means and parts not being appreciably increased compared with the normal flashing warning light having a one-colour flashing signal.

According to the present invention there is provided a flashing warning light for road traffic, comprising a stationary light bulb, a reflector rotatable about the light bulb by means of a motor, and a coloured radiating dome covering the said parts, wherein a motor, capable of being operated in either direction of rotation is used, and the radiating dome is composed of two differently coloured half domes and is rotatable with the reflector, the radiating dome being adjustable through 180° relatively to the reflector, together with means to ensure that the radiating dome assumes one of two positions displaced through 180° relatively to the reflector according to the direction of rotation of the motor.

With this flashing warning light, the colour of the flashing signals sent out may be determined merely by the direction of rotation of the motor. Due to the relative and limited adjustment of the two-colour radiating dome with respect to the reflector, one of the two positions between the radiating dome and the reflector is selected in dependence on the direction of rotation of the motor, and thus the colour of the radiated flashing signal is determined.

The coupling between the reflector and the radiating dome, and the motor is such that the reflector is rigidly coupled to the driving shaft of the motor, but the radiating dome is mounted to rotate freely on the driving shaft or the reflector, the relative movement of rotation between the reflector and the radiating dome being limited by a pin-and-slot guide or a similar guiding device. When the direction of rotation of the motor is reversed, the relative positions of the reflector and the radiating dome are changed by 180°. The two end positions of the pin-and-slot guide determine the working positions of the radiating dome relatively to the reflector in both directions of rotation of the motor. The reflector may be provided with a guide pin arranged in a semi-circular guide slot of a support plate on which the radiating dome is secured.

In order that the two-colour radiating dome can clearly determine the colour of the radiated flashing signals, the parts of the light are so designed that the

plane of the reflector and the separating plane between the two half domes of the radiating dome intersect at the axis of rotation of the motor, the separating plane of the two half domes of the radiating dome coinciding with the plane of the reflector in the two end positions of the pin-and-slot guide.

Since the radiating dome of the new flashing warning light turns with the reflector, a feature of the present invention is that a translucent or transparent stationary protective dome is provided over the coloured dome.

The reversal of the direction of rotation of the motor is achieved by using a direct current motor, the direction of rotation of which is achieved by reversing the direction of the armature or field current.

The present invention will be described in greater detail with reference to an embodiment illustrated in the accompanying drawings, in which:

FIG. 1 is a longitudinal section through a flashing warning light according to the present invention,

FIG. 2 is an enlarged vertical section showing the coupling between the reflector and the radiating dome,

FIG. 3 is a horizontal section showing the guiding and driving engagement between the reflector and the radiating dome, with the dome and the reflector assuming in one end position relatively to each other, and

FIG. 4 is a horizontal section corresponding to FIG. 3, with the radiating dome and the reflector in the other end position relatively to each other.

In the warning light described, a housing 18 accommodates a motor 14, the drive shaft of which is rigidly connected to a support plate 17. This support plate 17 is rotatable about the axis of rotation 21 and carries a reflector 12 by means of a support 22. A light bulb holder 11 with a light bulb 10 is mounted non-rotatably in the bore of the support plate 17, the disc 16 forming a guide for the support plate 17.

The support plate 17 with the reflector 12 can be turned about the light bulb 10 by means of the motor 14. Some of the light rays produced by the light bulb 10 are radiated as a beam by means of the rotating reflector 12, the direction of the beam changing continually. Thus, despite the continuously switched-on light bulb 10, a flashing signal is obtained, independently of the direction in which an observer is located relatively to the flashing warning light.

A support plate 20 comprising a securing edge 19 is mounted to rotate freely on the support plate 17. A radiating dome 15, which is composed of the two differently coloured half-domes 15_{rt} and 15_{bl}, is secured to the support plate 20. This radiating dome 15 is adjustable to a limited extent on the support plate 17. As shown in FIG. 2, the support plate 17 carries a guide pin 23 extending into a guide slot 24 of the support plate 20. This pin-and-slot guide 23, 24, is designed so that the radiating dome 15 is rotatable through 180° relatively to the reflector 12. The guide slot 24 in the support plate 20 forms stops for the guide pin 23 of the support plate 17, so that, according to the direction of rotation of the motor 14, the radiating dome 15 can assume either one of two different positions, spaced apart by 180°, relatively to the reflector 12.

As shown in FIG. 3, the reflector 12 is turned in the direction of the arrow upon rotation of the motor 14. The guide pin 23 is in contact with the right end of the guide slot 24 of the support plate 20. The radiating dome 15 is driven to turn in the position in which the

blue part 15bl of the radiating dome 15 is disposed in front of the reflector 12.

As shown in FIG. 4, upon rotation of the motor 14 in the opposite direction, the reflector 12 is also turned in the opposite direction. The guide pin 23 is now in contact with the left end of the guide slot 24 of the support plate 20. The radiating dome 15 is driven to turn in the position of the reflector 12 in which the red part 15rt of the radiating dome 15 is disposed in front of the reflector 12.

To ensure that only one-colour flashing signals are given at any one time, the plane of the reflector 12 and the plane of separation between the two half-domes 15rt and 15bl of the radiating dome 15 intersect at the axis of rotation 21. As FIGS. 3 and 4 also show, the extent of relative rotation between the reflector 12 and the radiating dome 15 is such that the plane of separation between the two half-domes 15rt and 15bl of the radiating dome 15 is always coincident with the plane of the reflector 12 in both end positions of the pin and slot guide 23, 24. This ensures that the light rays radiated by the reflector 12 always pass through only one half dome and that hence a clear blue light or red light flashing signal is given. The colour of the flashing signal given depends only on the position of the radiating dome 15 relatively to the reflector 12. Since this position changes through 180° dependently on the direction of rotation of the motor 14, the colour of the flashing signal given is predetermined by the direction of rotation of the motor 14. For this reason, a direct current motor is used, the direction of rotation of which is changeable by reversing the direction of the current in the field or armature. The flashing warning light can be controlled by means of a changeover switch having one switch-off position and two switch-on positions, so that it gives a flashing blue light or red light signal, as selected.

The guiding and driving engagement between the rotating reflector and the radiating dome may also be obtained by means of other similar devices. Thus the radiating dome may be rigidly coupled with the driving motor and the reflector moved to either one of two positions in dependence on the direction of rotation of the motor. It is always essential that the light rays should pass through one or other half-dome of the radiating dome according to the direction of rotation of the motor. Since, in the flashing warning light described, the radiating dome 15 rotates with the reflector 12, the arrangement is preferably covered by a translucent, transparent and stationary protective dome 13.

What I claim is:

1. A flashing warning light for road traffic comprising

a stationary light bulb, a motor having a drive shaft, a reflector operatively connected to said drive shaft so that it is rotatable about said light bulb, a colored radiating dome covering said light bulb and reflector, said motor being a reversible type motor for rotating said reflector in opposite directions about said light bulb, said radiating dome being formed of two differently colored half domes and being operatively connected to said drive shaft to rotate with said reflector, and means interconnecting said reflector and said dome for rotatably displacing said dome through 180° relative to said reflector in the direction of the rotation of said drive shaft of said motor.

2. A flashing warning light, as set forth in claim 1, wherein a support plate is attached to said drive shaft, said reflector is connected to said support plate and said radiating dome is journaled to rotate freely on said drive shaft, and said means interconnecting said reflector and said dome comprises a pin-and-slot guide arrangement with said pin being attached to one of said reflector and said dome and said slot guide being formed in the other one of said reflector and said dome so that said pin is movably displaceable in said slot guide for providing the relative movement between said reflector and said radiating dome.

3. A flashing warning light, as set forth in claim 1, wherein said dome includes a support plate, and said means interconnecting said reflector and said dome comprises a semi-circular guide slot in said support plate and a guide pin secured to said reflector and extending into said guide slot for movement along the semi-circular path of said guide slot.

4. A flashing warning light, as set forth in claim 2, wherein said drive shaft has an axis of rotation which extends through said stationary light bulb, said two half-domes forming said radiating dome meet in a plane containing said axis of rotation, and said reflector extends about said light bulb to a point on the axis of rotation.

5. A flashing warning light, as set forth in claim 4, wherein a translucent protective dome is fixed about and covers said radiating dome.

6. A flashing warning light, as set forth in claim 1, wherein said motor is a direct current motor and its drive shaft is variable in its direction of rotation by reversal of the direction of the armature therein.

7. A flashing warning light, as set forth in claim 1, wherein said motor is a direct current motor and its drive shaft is variable in its direction of rotation by reversal of the field current therein.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,764,799 Dated October 9, 1973

Inventor(s) Dietrich Schulz

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading of the patent, insert:

--[30] Foreign Application Priority Data

June 25, 1971 Germany.....No. P 21 31 512.8--

Signed and sealed this 29th day of January 1974.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents