March 7, 1933. E. E. SCOTT 1,900,202

REFLECTOR

Filed March 14, 1931

Fig. 1.

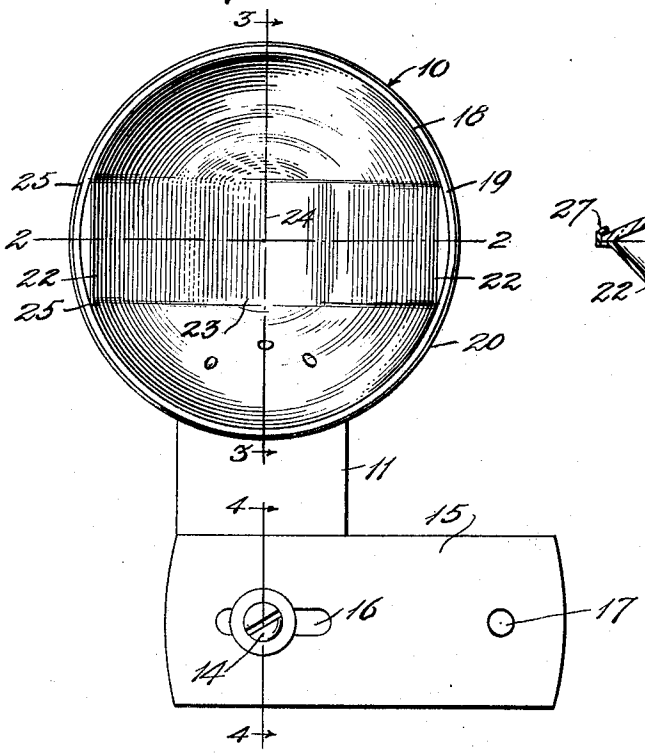


Fig. 2.

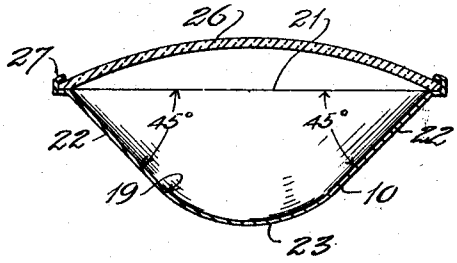


Fig. 3.

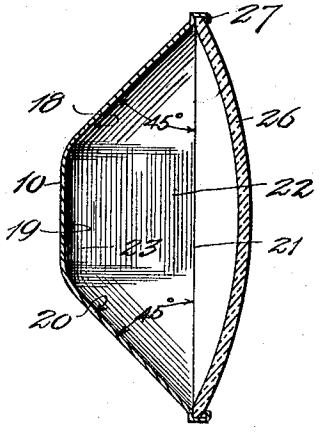
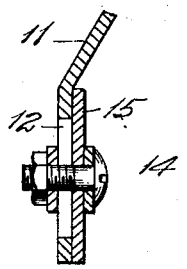


Fig. 4.



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UNITED STATES PATENT OFFICE

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REFLECTOR

Application filed March 14, 1931. Serial No. 522,611.

The object of the invention is to provide a reflector for activation by the lights of approaching vehicles and adapted for use as a warning or danger signal for mounting on vehicles, or for location on streets or highways to indicate approach to a point where caution must be observed; to provide a reflector which will present a point normal to approaching rays within certain limits, irrespective of the horizontal angle of approach with respect to the principal axis of the reflector; and to provide a device of this character which is of simple form and therefore susceptible of cheap manufacture.

With this object in view, the invention consists in a construction and combination of parts of which a preferred embodiment is illustrated in the accompanying drawing, wherein:

Figure 1 is a front elevational view of the invention with the lens removed.

Figure 2 is a sectional view on the plane indicated by the line 2—2 of Figure 1.

Figure 3 is a sectional view on the plane indicated by the line 3—3 of Figure 1.

Figure 4 is a sectional view on the plane indicated by the line 4—4 of Figure 1.

The reflector comprising the invention is the interior highly polished surface of a casing 10 stamped preferably from thin sheet metal and of the general form of the frustum of a cone. To provide for its being conveniently mounted on a vehicle, or any other means for support, it is equipped with a pendent bracket plate 11 slotted adjacent the lower end, as indicated at 12, so that it may be bolted to a support; or, if mounted on a vehicle, connected by means of the bolt 14 with a supplemental bracket plate 15, slotted as at 16, adjacent one end, and provided with a mounting hole 17 adjacent the other end. The bolt 14, passing through the slots 12 and 16 in the two bracket plates, provides for the most convenient positioning of the device.

The interior reflecting surface of the casing is divided into three zones as indicated at 18, 19 and 20. The upper zone 18 and lower zone 20 are sectors of a conical frustum having its larger base lying in the plane of the front of the casing 10, as defined by the line 21, and its smaller base lying in a parallel plane tangent to the back of the casing and of a diameter equal to the height of the zone 19, the height of the zone 19 being approximately one-third of the diameter of the casing at the forward bounding edge.

The slanting sides of the zones 18 and 20 form angles of approximately 45° to the plane of the line 21.

The zone 19 has its reflecting surface in a vertical plane and at opposite sides of the casing is defined by converging walls, as indicated at 22, these walls being at angles of approximately 45° to the plane indicated by the line 21 and extending for a distance of approximately one-third of the depth of the casing where they merge with a curved surface, as indicated at 23, which is in the form of an open curve with the most pronounced curvature at the extreme back of the casing. The reflecting surface of the zone 19, however, is vertical throughout its extent and any point therein lies in a vertical plane tangent to the surface at that point.

By reason of the shape of the zone 19 transversely of the casing, there is always presented to a beam of light directed at the reflector from any angle from 45° to 50° horizontally on either side of the principal axis 24 a point normal to that beam and, since the light to be reflected is to be carried by vehicles of some sort, it will always be directed back to the operator of such vehicle, so that he may know of the approach to some point where caution must be observed. The surface of the zone 19 being flat vertically, the rays constituting the divergent pencil reflected from the zones 18 and 20, cause an impingement of the rays on a horizontal line through the principal axis of the zone 19, thereby intensifying the reflected light in this zone.

Since the three reflecting zones are formed on the inner face of the casing, the casing wall is shaped to effect their juncture on graceful curves lying in vertical planes and of comparatively short radii. This construction provides sinuous lines of juncture between the zones 18 and 19 and 20 and 19, as indicated at 25 in Figure 1 and these also have

the effect of concentrating the light in the zone 19.

The reflector is shielded with a colored lens 26 and, if the device be used on the rear of vehicles or on streets or highways as a danger indicator, the lens will follow the conventional coloring of red for this purpose; but if the device is to be used on the front of a vehicle, the lens will preferably be green. The lens 26 is concavo-convex and is preferably secured in the casing 10 by the spun over peripheral edge 27 of the latter.

The lens 26 being colored and presenting its convex side to the approaching rays, the latter are refracted in passing through it and it tends to localize them in the zone 19.

The invention having been described, what is claimed as new and useful is:

1. A reflector having a concave reflecting surface formed on an open curve in which any point lies in a vertical plane tangent to the surface at that point, said reflecting surface at its ends merging with flat reflecting surfaces lying in divergent vertical planes whose relative angularity is approximately 90°.

2. A reflector having a concave reflecting surface divided into three superposed zones of which the central zone is formed on an open curve in which any point lies in a vertical plane tangent to the surface of said zone at that point, the top and bottom zones merging with the central zone and constituting sectors of the frustum of a cone.

3. A reflector having a concave reflecting surface divided into three superposed zones of which the central zone is formed on an open curve in which any point lies in a vertical plane tangent to the surface of said zone at that point, the top and bottom zones merging with the central zone and constituting sectors of the frustum of a cone whose angle of slant is approximately 45°.

4. A reflector having a concave reflecting surface divided into three superposed zones of which the central zone is formed on an open curve in which any point lies in a vertical plane tangent to the surface of said zone at that point, the top and bottom zones constituting sectors of the frustum of a cone and merging with the central zone in graceful curves lying in vertical planes and of comparatively short radii.

In testimony whereof he affixes his signature.

ERNEST E. SCOTT.