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1,590,358

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SIGNAL REFLECTOR

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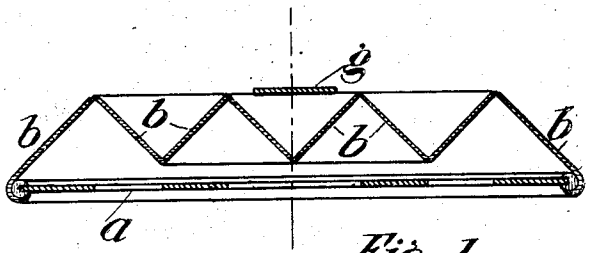


Fig. 1

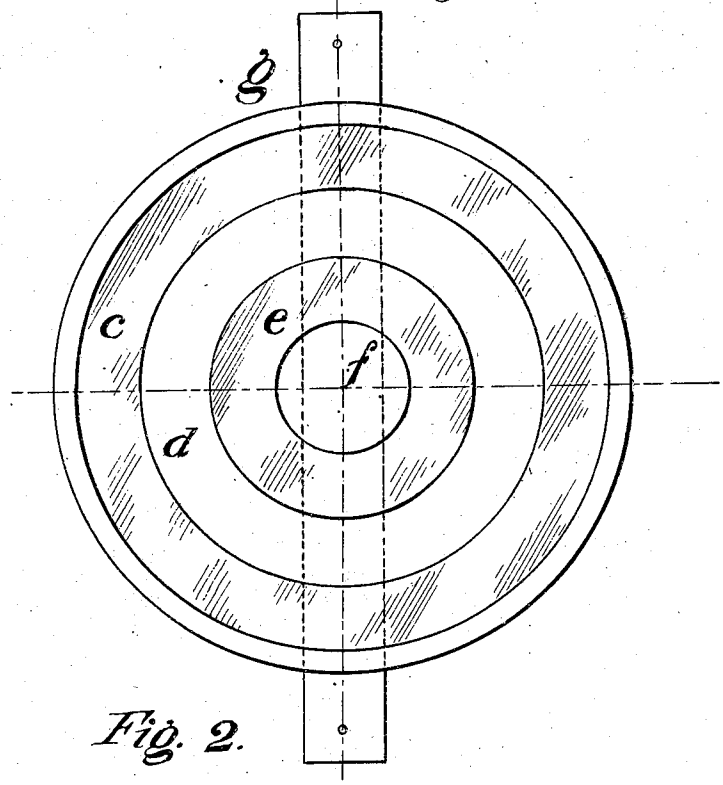


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SIGNAL REFLECTOR.

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My invention relates to reflectors used in connection with automatic signaling devices, in which beams of light rays are automatically intercepted and reflected back towards their source; such devices can be effectively used at an abrupt turn or other danger point on a highway, road, street, wharf, quay, shoreline, or the like. They may act as marine signals or may be equally useful secured to the rear of vehicles, when so placed as to receive the light rays from a following vehicle.

This invention has for its object the more efficient interception of light rays from the head lights or spotlights of automotive vehicles, or the projectors carried by marine craft, so that the light produces effective luminosity in an otherwise unilluminated reflector by passing through coloured screens and may operate as a warning signal at any desired point.

I am able to obtain this result by the use of a special reflector having a plurality of reflecting surfaces so disposed to each other and to the incident rays of light that the said rays are reflected to a maximum extent in parallelism and also that the said rays are so filtered by passing through coloured medium that the colouring of the signaled rays is also a maximum, so as to obtain a luminous signal which as a disc is as completely coloured as possible and is so visible over the widest practicable angle both of incidence and reflection.

The construction of my reflector can be very readily seen from the drawings; Fig. 1, is a cross section through the center and Fig. 2, is a plan view. *a* is a circular glass face plate entirely covering the reflecting surfaces *b*, in this particular embodiment of the invention it will be observed that the face plate is divided into annular concentric spaces *c*, *d*, *e*, with a circular center portion *f*, the spaces *c*, *d*, *e*, and *f*, are coincident with and exactly over one of the reflecting surfaces *b;* these latter are of course finished so as to retain a reflecting surface of high value, and it is important to note the relation of these surfaces *b*, to each other—which must be an angle of 90° to obtain the best results. The spaces *c*, and *e*, in the glass face are preferably coloured; *g*, is a substantial metal strip secured to the reflector for fastening the device to a post or other support. The reflecting surfaces in the drawing Fig. 1 are formed geometrically by truncating a single right-angular cone three times, and fitting the portions together concentrically so that the apices are alternately in opposite directions.

It is obvious that simple modifications in the constructional features of my invention may readily be devised, in which a plurality of reflecting surfaces disposed to each other at angles of 90° with corresponding alternate bands of clear and coloured glass or other transparent medium may be used with more or less satisfactory results both as regards operation and manufacture; but I prefer the construction indicated in the drawings herewith.

The performance of the device under operative conditions is readily explained by the aid of the drawings: Light rays projected from say the headlights of an automotive vehicle strike the face plate *a*, of the reflector, and the annular zones of clear or coloured glass, practically all the rays pass through the transparent spaces *d*, and *f*, thence falling upon the inclined surfaces *b*, at an angle of 45°, are reflected from these surfaces at the same angle and so strike the opposite surface of the reflectors and thence the inner surface of the face plate *a*, at right angles but on the coloured portion *c*, or *e;* these reflected white rays are therefore returned toward their source of origin as coloured rays, somewhat similarly but in reverse order, the white rays striking the face plate on the coloured zones *c*, and *e*, are filtered by this medium; the rays passing through being coloured accordingly; only the blue and green rays of the spectrum being reflected back but these not being visible as white rays are negligible in effect; the coloured rays take a similar path to and from the reflecting surfaces to that of the white rays described above, and emerge through the face plate in the clear zones *d*, and *f*, but as coloured rays; hence all the rays emerging are coloured and the signal presents a full disc of illumination to any beam of light reaching it; moreover, owing to the subdivision of the effective reflecting surfaces, the effect of stray beams of light reaching the device from more obtuse angles such as would be the case from points outside of a highway—is greatly minimized; moreover by making a narrow outer coloured zone and adjoining the periphery of

the face, it is found that these extraneous light rays are considerably or entirely eliminated.

It should be noted that by colouring the annular zone of the face plate in the order shown in my drawing, a maximum in reflective efficiency is obtained: the reason for this is that the receptive area on the face plate for the coloured rays is larger than that for the transmitted rays after reflection, or to put it in another way, the rays passing through the coloured zones being necessarily more attenuated than the white rays passing through the clear zones, are concentrated on a smaller area, thus their density is increased and the maximum effect is thereby reached: of course the reflector would operate with the converse arrangement of the alternate annular zones, but at a reduced efficiency.

I claim:

1. In a signal reflector the combination of a transparent face plate covering the base of a truncated conical reflector, two concentric truncated conical reflectors, placed with their apices in opposite directions a central conical reflector placed with its apex towards said face plate, all reflecting surfaces at any radial section being so placed that adjoining surfaces form a right angle with each other.

a transparent face plate covering the base of a truncated conical reflector, two concentric truncated conical reflectors, placed with their apices in opposite directions, a central conical reflector placed with its apex towards said face plate, all reflecting surfaces being so placed that adjoining surfaces at any radial section form a right angle with each other, said face plate having an outer zone or annular space of a warning colour and parallel to and adjoining the periphery of said plate, a similar annular zone separated from but parallel to the outer one.

3. In a signal reflector the combination of a truncated conical reflector having four conical reflecting surfaces and a glass face plate covering the base of said truncated conical reflector.

4. In a signal reflector the combination of a glass face plate entirely covering the face of a reflector, said plate having alternate circular concentric zones of clear and coloured glass, said reflector having reflecting surfaces coincident with said zones, said surfaces being so placed that adjacent surfaces at any radial section form a right angle between them, each reflecting surface being also at an angle of 45 degrees to said face plate.