Jan. 8, 1924.

1,480,484

J. A. WERTZ

SIGNAL

Filed Dec. 9. 1922

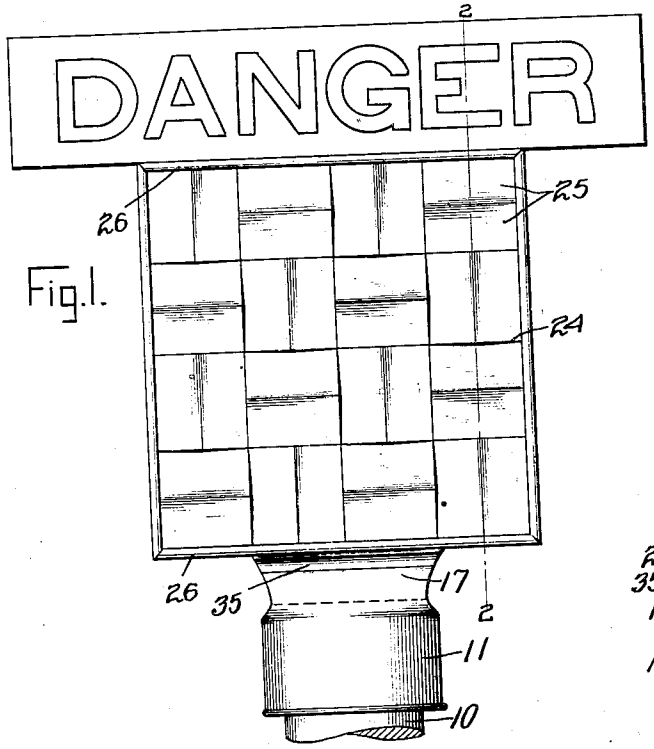


Fig. 1.

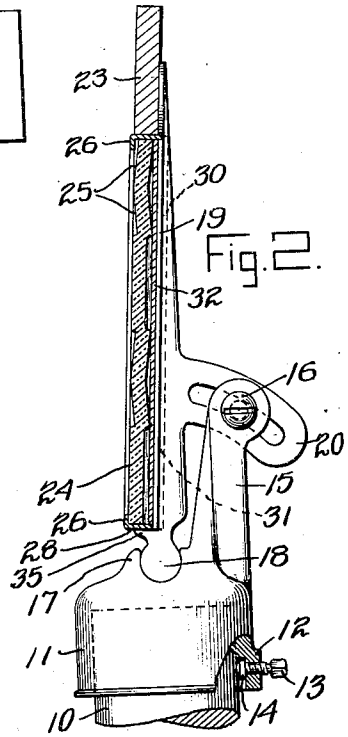


Fig. 2.

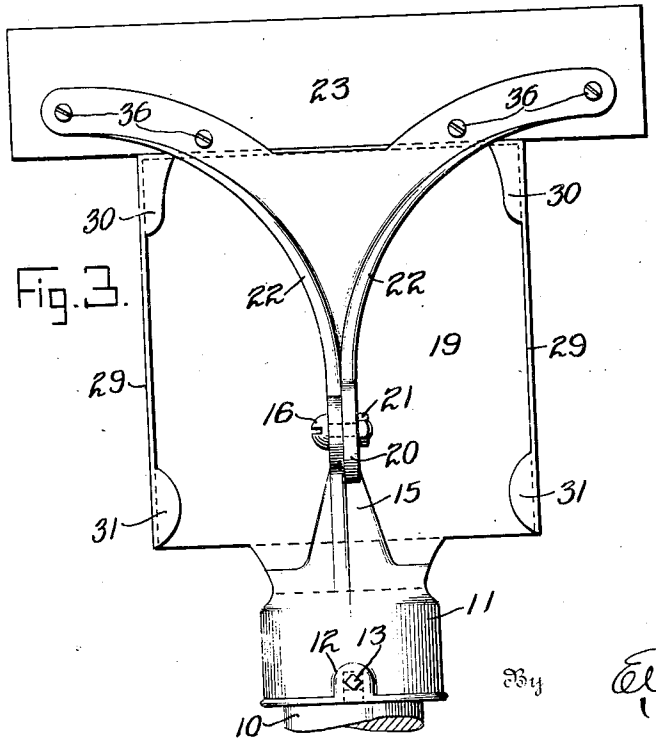


Fig. 3.

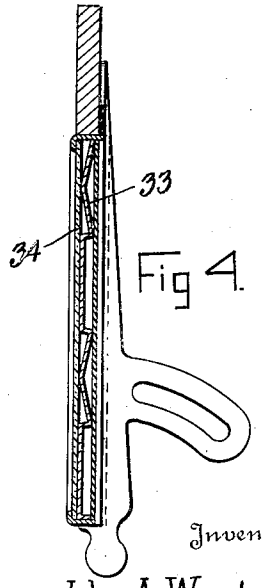


Fig 4.

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Patented Jan. 8, 1924. 1,480,484

UNITED STATES PATENT OFFICE.

JOHN A. WERTZ, OF CANTON, OHIO.

SIGNAL.

Application filed December 9, 1922. Serial No. 605,941.

To all whom it may concern:

Be it known that I, JOHN A. WERTZ, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Signals, of which the following is a specification.

My said invention relates to a signaling device intended primarily for use as a danger signal at crossings and other dangerous points on roads though it may be used as a danger signal in other relations. In the use of the device the light from a headlight of an automobile or electric car or steam locomotive will be flashed back to the approaching vehicle or to another approaching at an angle to give warning of approaching danger. The lens which is the principal feature of the invention may be used for other purposes where a brilliant reflected light is desirable. The principal object of my invention is to provide a signal with a reflector of small area which shall be capable of showing a very brilliant light. The reflected light will preferably be red to indicate danger and may appear as a flickering ball of fire, but various other colors or uncolored glass may be used if preferred.

A further object of the invention is to provide a novel support for the lens and for a sign plate used in combination therewith.

Referring to the accompanying drawings which are made a part hereof and on which similar reference characters indicate similar parts,

Figure 1 is a front view of my device,

Figure 2 a section on line 2—2 of Figure 1,

Figure 3 a rear elevation of the device shown in Figure 1, and

Figure 4 a section of a modified form.

In the drawings reference character 10 indicates a post on which my device is supported. A cap 11 fits on top of the post and has a bulged portion 12 with a cored-out opening for a set screw 13. A nut 14 for the set screw is located within said bulged portion of the cap, a rectangular depression being provided to hold the nut. This saves the work of drilling and tapping in the cap and also renders the cap less liable to break when the screw 13 is being tightened.

The cap 11 has an upward extension 15 with a transverse opening at its upper end to receive a bolt 16. The cap also has adjacent the extension 15 an upward projection 17 providing a horizontal slot with rounded sides. This slot acts in conjunction with a trunnion 18 on the back 19 to form a hinge or elbow joint between the cap and back. The back has a slotted rearward extension 20 integral therewith, the bolt 16 passing through the slot and being provided with a nut 21 for fastening the back in adjusted position relative to the extension 15. The bolt serves also to prevent disengagement of the trunnion 18 from the slot in the cap.

At its rear side the back has a pair of curved integral ribs 22 (see Fig. 3) which extend upwardly beyond the confines of the back to form supports for a sign-plate 23 carrying a legend as shown in Figure 1 which may indicate danger or direction or may carry advertising matter if desired.

At its front side the back is adapted to receive a frame holding a reflector which as here shown consists of a lens 24 of glass or other suitable material which may be plain but preferably is colored red and has its back silvered or otherwise treated to provide a mirror-like reflecting surface. The lens is divided into a number of squares each of which is made up of a pair of rectangular sections 25 which lie in angularly related planes so as to cast the beams of light reflected thereby in different directions. The rectangular faces next to the ends of each square are inclined toward the same, or otherwise stated, the rectangular faces at the end of a line of division or a joint between two of the angularly related faces 25 constituting a square are so located as to throw their light across the dark space which would otherwise be left opposite the joint between two of such angularly related faces. By this arrangement I achieve the desirable result that there are no dark places left in the beam of light projected by the combined faces making up the lens. Not only is this true but the rectangular face or faces which throw their light into the gap or hiatus between two angularly related faces and so prevent the formation of a dark space thereby are in every case larger than would be necessary to fill the hiatus and therefore the beams of light overlap in such a way that they afford to the eye of a person in an approaching vehicle the appearance of a very bright field of light with a number of small oscillating or revolving lights resembling pinwheels—beautiful but

adapted to command the attention of even a careless driver. As contrasted with a plain reflector my reflector has about four times as much power and the coloring adds to the arresting effect of the danger indication. It will be understood that any two faces 25 would naturally leave a relatively dark line between the faces and therefore a dark space of increasing width between the beams projected thereby in the absence of some such expedient as that described, my device providing for each such line either one or two reflecting faces to light up the space which would otherwise be relatively dark.

In the preferred form of my invention the lens rests against inturned front flanges 26 of a cast or stamped metal frame having an upper part 27, a lower part 28 and interposed sides 29 with ears 30 at the back joining parts 27 and 28, and lower ears 31. A backing 32 of wood or the like is provided to protect the coating on the rear surface of the mirror-like reflector, this backing being held between back 19 and lens 24. The bottom web 28 is short enough so that after the lens and backing have been placed in the frame it can be slid into place on the back with its ears 30 and 31 behind the back and the upper web 27 will act as a stop to impinge on the upper edge of back 19 and prevent access of water to the back of the lens. Such engagement may also be relied on for positioning the frame if desired.

In a modified form of my invention a reflector 33 of sheet metal properly formed and polished to produce effects similar to those of lens 24 may be mounted in a similar manner in a frame provided with a backing 32 to protect the metal from the weather. For some purposes as to give a signal at night along a road used by automobiles or along a railroad track I may provide a cover 34 of red or other colored glass or the coloring may be applied to the reflector itself, while for other purposes the cover may be of plain glass or may in some instances be omitted altogether.

The frame having been supplied either with the lens or the metallic reflector or an equivalent device and with a cover where this is necessary or preferred, it is now placed in position on the back by sliding it down with the side pieces 29 in the position of Figure 3 until it strikes the ledge 35 (Fig. 2), after which the sign plate 23 is fastened in place by screws 36. This plate acts as a lock for the frame since the frame cannot be removed without first removing the sign plate. At the same time if the lens is broken the frame can be removed for replacement of the lens without moving or destroying the remainder of the device, and without special tools or undue expenditure of time.

Various other modifications of my device will suggest themselves to those skilled in the art and therefore I do not limit myself to what is shown in the drawings and described in the specification but only as indicated in the appended claims.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent, is:

1. A signal comprising a plurality of rectangular reflecting surfaces arranged in pairs to cast sets of diverging beams, said pairs of surfaces being so arranged that the gap between each set of diverging beams is filled by beams from one or more adjacent reflecting surfaces, substantially as set forth.

2. In a signalling device, a unitary reflector comprising a plurality of rectangular planes arranged in pairs to cast diverging rays of light, said rectangular planes being horizontally and vertically disposed one pair to the other each pair being slightly raised at the line forming the joint between the members of the pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, substantially as set forth.

3. In a signalling device, a unitary reflector having rectangular reflecting surfaces arranged in pairs to cast sets of diverging rays of light, the rectangular surfaces forming each pair having their sides parallel and rearwardly inclined each to each, each of said pairs of reflecting surfaces having their sides at right angles to those of each adjoining pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, substantially as set forth.

4. A warning signal for vehicles comprising a reflecting plate of square outline subdivided by parallel lines running across the plate into a plurality of squares of equal size each square being again divided into two equal rectangles by a line parallel to one of its sides such lines being perpendicular to the similar dividing lines in the four adjacent squares, the two rectangular elements of each square each having a single plane reflecting surface the two being so inclined to each other that two diverging beams of light will be reflected from each square, substantially as set forth.

5. In a signalling device, a unitary reflector having rectangular reflecting surfaces arranged in pairs to cast sets of diverging rays of light, the rectangular surfaces forming each pair having their sides parallel and rearwardly inclined each to each, each of said pairs of reflecting surfaces having their sides at right angles to those of each adjoining pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, a frame for said reflector, and a support for said frame, substantially as set forth.

6. In a signalling device, a unitary reflector having rectangular reflecting surfaces arranged in pairs to cast sets of diverging rays of light, the rectangular surfaces forming each pair having their sides parallel and rearwardly inclined each to each, each of said pairs of reflecting surfaces having their sides at right angles to those of each adjoining pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, a frame for said reflector pivotally mounted on a supporting member, and means for adjusting the angle of said reflector, substantially as set forth.

7. In a signalling device, a unitary reflector having rectangular reflecting surfaces arranged in pairs to cast sets of diverging rays of light, the rectangular surfaces forming each pair having their sides parallel and rearwardly inclined each to each, each of said pairs of reflecting surfaces having their sides at right angles to those of each adjoining pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, a frame for said reflector having a trunnion provided adjacent one edge, a supporting member having a socket for the reception of said trunnion, said supporting member having an upstanding rear arm, and an element on said frame adapted for engagement with said upstanding rear arm for adjustably supporting said reflector, substantially as set forth.

8. In a signalling device, a unitary reflector having rectangular reflecting surfaces arranged in pairs to cast sets of diverging rays of light, the rectangular surfaces forming each pair having their sides parallel and rearwardly inclined each to each, each of said pairs of reflecting surfaces having their sides at right angles to those of each adjoining pair whereby the gap between each set of diverging rays is filled by rays from one or more adjacent reflecting surfaces, a frame for said reflector, supporting means for said frame comprising means adapted to allow tilting and rotation of said reflector, whereby the reflector may be utilized to reflect light from any given position, substantially as set forth.

In witness whereof, I have hereunto set my hand and seal at Canton, Ohio this 23rd day of November, A. D. nineteen hundred and twenty-two.

JOHN A. WERTZ. [L. S.]

Witnesses:
G. E. WINTERS,
C. C. CURTIS.