Feb. 16, 1954 W. J. W. COLLINS 2,669,705

PROTECTIVE SIGNAL DEVICE

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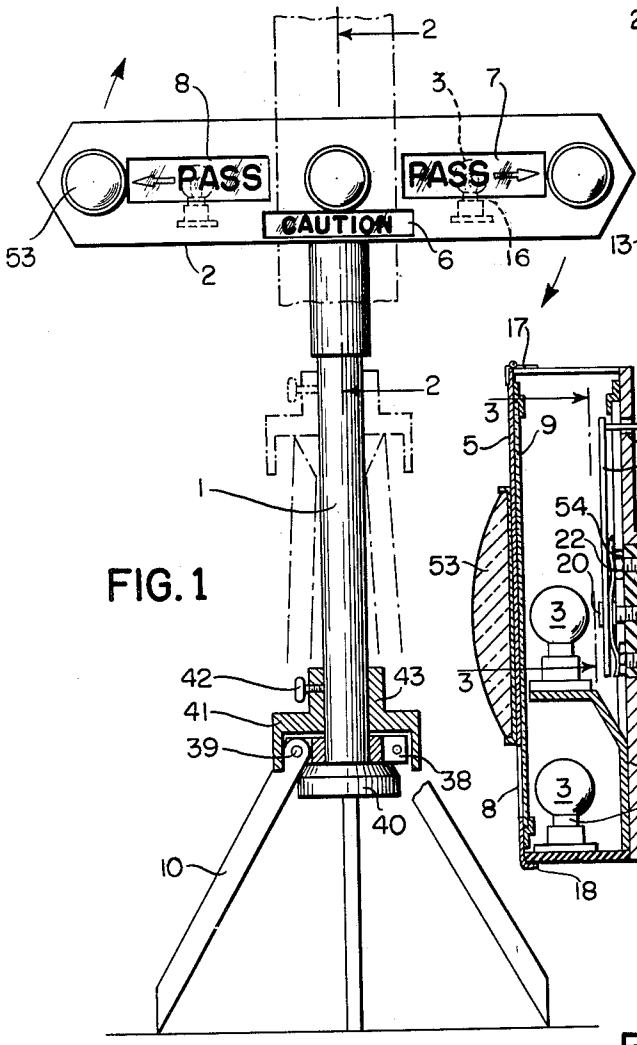

FIG. 1

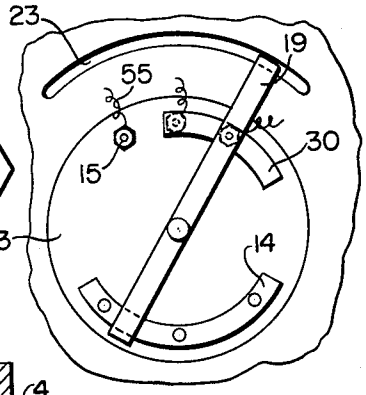

FIG. 3

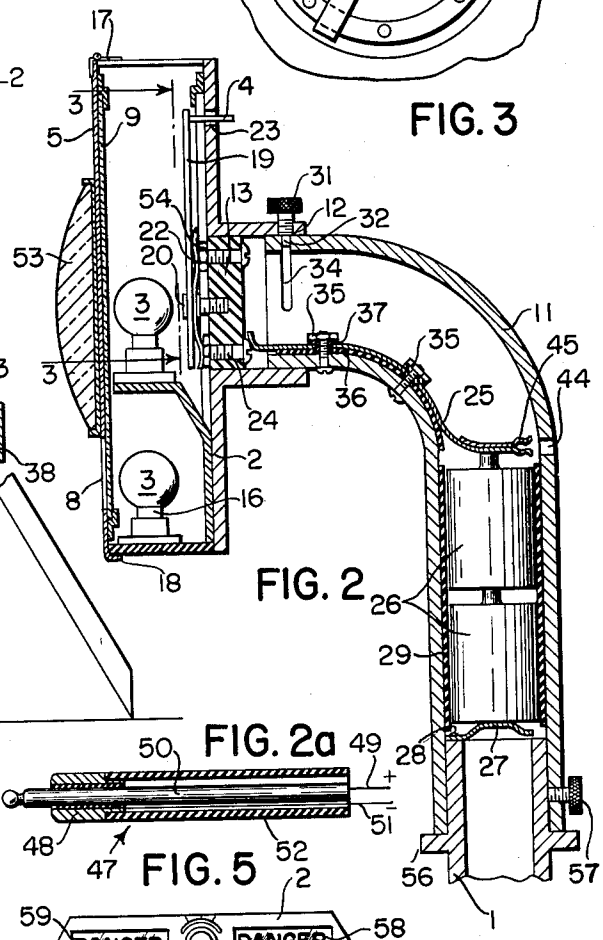

FIG. 2

FIG. 2a

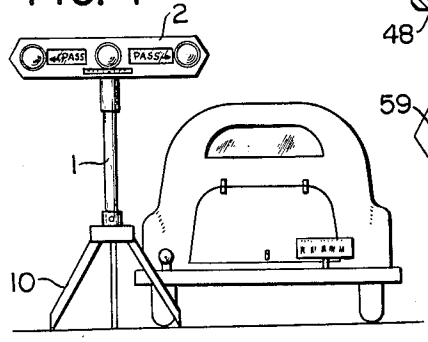

FIG. 4

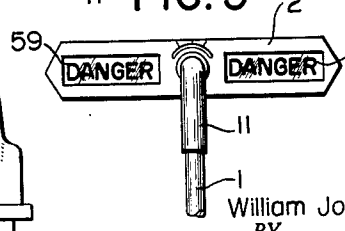

FIG. 5

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PROTECTIVE SIGNAL DEVICE

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4 Claims. (Cl. 340—114)

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My invention is an improved protective signal device; and particularly a portable unit for use by drivers of motor cars and others, on traffic thoroughfares, such as streets and highways, to give warning to approaching vehicles at points where care and caution are necessary to avoid damage to person and property.

An important object of this invention is to provide a portable device that can easily be stored within a motor vehicle in readiness for use; and is adapted to be set up behind the vehicle or at some other well chosen point, in case the vehicle is stopped and kept motionless for a time in a street or roadway, or to one side; while other cars continue passing. When engine trouble occurs, for instance, or a tire goes flat, the person at work attending to the engine or replacing the tire is in imminent danger of injury as cars go by him, especially if he has to stand at the left or near side of his vehicle. This improvement displays one or more conspicuous signals and thus causes the driver of an oncoming car to be watchful and move on in safety. Thus accidents are avoided.

The objects and advantages of the improvement are fully described hereinafter, and the characteristics are defined in the appended claims. In the drawings I illustrate a preferred embodiment of my invention, but changes in structural details may be adopted without deviation from the essential design that contains the invention.

On said drawings:

Figure 1 is a front view of the signal device as it appears in use;

Figure 2 is an enlarged vertical section on line 2—2 in Figure 1;

Figure 2a shows a detail on an enlarged scale;

Figure 3 is a detail in section on the line 3—3 in Figure 2;

Figure 4 shows the signal in use to protect a stationary vehicle; and

Figure 5 is a rear view of the device as shown on Figure 1.

The numeral 1 indicates a stanchion of suitable height, carrying at its upper end an elongated horizontal casing 2. The post or support 1 is preferably tubular, and may be in one piece, or comprise telescoping sections with fastening elements, so that the unit can be set up with the casing at a higher or lower level, as may be desired. Within the casing are lamp bulbs 3, one at each end and one in the middle of the casing. These lamps are supplied with electric current flowing through circuits to be presently described,

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and controlled by a switch operated by a knob or member 4 on the exterior of the casing 2. One side 5 of the casing has window openings 6, 7 and 8, that are covered on the inside of the casing by a pane of glass 9 or the like with appropriate warning indications thereon registering with said openings. For example, the pane may bear in the middle the words "Caution" or "Detour" or both exposed through the central openings, the pane at an end of the casing may bear the word "Pass" with the word "Left" or an arrow pointing outward to show at the opening 7, and the part of the pane at the opposite opening 8 may be similarly marked for passing on the right. One lamp bulb is of course mounted adjacent each opening 6, 7 and 8. In use the post and casing are placed to the rear or beside a motor vehicle which has been forced to stop temporarily to change a tire or for any other cause, on a street or highway or at one side thereof, as shown in Figure 4. The casing presents the light-transmitting windows to the rear of the vehicle and the drivers of oncoming cars will see the signal and give said vehicle a wide berth. The glass 9 can be held in place by retainers or in any other suitable manner. At the lower end the stanchion has three legs 10. The casing 2 can be of metal or plastic or any suitable material, and the aforesaid side 5 can have the openings formed therein as described, or the entire side 5 can be of glass or the like, with an opaque coating except on the portions adjacent the lamps 3 which bear the signals above described.

At the upper end of the post 1 is a gooseneck coupling 11, one end of which telescopes within a circular boss 12 on the opposite side of the casing 2. In line with the boss the casing has an opening filled by a plate of insulation 13, on the inner face of which is mounted an arc-shaped conductor terminal 14, above which are three stationary switch terminals 15, to which can be connected the terminal 14. Each of the terminal studs 15 is coupled by a conductor to the central insulated terminal in an ordinary lamp socket 16 in the casing for mounting one of the bulbs 3, the other terminal of said socket being a ground terminal connected to the body of the casing 2 if the latter is of metal, or to some other metal part to complete the return circuit. The side 5 of the casing bearing the signals can be hinged to the top of the casing 1, as indicated at 17, with gripping lugs 18 at its lower edge to hold the side 5 closed. Thus access to the interior is afforded; or another part of the casing can be detachably mounted for the same purpose.

On the inner face of the plate 13 is an insulator arm 19 on a pivot 20. This arm bears a conductor strip 30 held to said arm by screws 22 on the side facing the plate 13 to bridge the terminal strip 14 and the terminal studs 15. The upper end of the arm 19 is united to the member or knob 4, and the casing has a slot 23 to permit movement of the arm 19; and the member 4. The slot 23 is preferably in the side of the casing opposite the side 5, above the plate 13.

The arc-shaped terminal 14 is secured to a stud 24 that is mounted on the plate 13 and has a round projecting end exposed on the face thereof in the coupling 11. Within the coupling is a metal conductor strip 25 which engages the stud 24 at one end. The other end makes contact with the positive central pole of a dry cell 26, several of which are arranged in series and enclosed in the lower end of the coupling 11. The cells rest on a spring strip 27 at the upper end of the post 1, held in position by a binding screw or rivet 28. Each cell has the usual insulating sleeve 29 enveloping it, so that only the metal bottom of the cell and positive pole at the top are exposed. The circuit is thus established from the cells to the strip 25, the switch terminal 24 in the casing, the lamp bulbs 3, and by way of the sockets 16 of said bulbs to the metal of the post back to the cells 26.

The movable conductor 30 will connect all three fixed terminals 15 at once to the curved terminal 14 when the arm 19 is in mid-position; or with the arm 19 at the extreme end of its throw in either direction one fixed terminal 15 at either side can be in circuit alone. Also the arm 19 can be so manipulated to one side of its mid-position so that the middle stud or terminal 14 and the terminal 15 at either side of the middle can be connected in circuit. Thus, all three bulbs can be illuminated at once to display the "Caution" and both "Pass" signals simultaneously; or either "Pass" signal can be displayed by itself alone, or the "Pass" signal at either side in conjunction with the "Caution" signal in the center can be illuminated. All signals are advisable if the vehicle has to come to a stop in the middle of the roadway, while a "Pass" signal by itself or with the "Caution" may be employed as circumstances require.

Thus whenever the switch arm 19 closes the circuit to one or more of the bulbs 3, the signal is illuminated accordingly. The casing 2 is maintained in horizontal position on the post but can be rotated through a quarter turn to be in line with the post for convenient storing in the baggage compartment or other space within the vehicle. To this end the boss 12 carries a binding screw 31 to hold the boss 12 and casing rigid with the coupling 11, but the screw has a reduced inner end 32 that enters a transverse slot 34 having a length of 90 degrees in the coupling 11. The casing can thus be secured in transverse position or aligned position with respect to the post 1 as indicated by broken lines in Figure 1.

Further the stud 24 is not at the center or axis of the boss 12, but is below the center of the plate 13. Therefore when the casing 2 is swung into alinement with the post 1, the plate 13 rotates and the circuit to the lamp bulbs is opened, for all positions of the switch arm 19, because the stud 24 then breaks contact with the strip 25. Waste of current when the device is not needed is thus avoided. Also the spring terminal strip 25 is set so that its ends will always engage the pole of the uppermost battery 26 and the terminal stud 24. It can be mounted upon insulation 36 and affixed within the coupling 11 by screws 35 having insulator sleeves and washers indicated at 37 to prevent grounding of the strip 25, the screws being received in threaded openings in the coupling 11.

At the bottom of the stanchion 1 are lugs 38 to which the legs 10 are pivotally connected at their upper ends by pins 39. At the lower ends of the lugs the post carries a rigid flange 40, which serves as a stop for the legs when they are extended. The legs can be folded up against the standard 1, and their upper ends are then engaged by the rim of a cup-shaped sliding collar 41 on the post 1. This collar has a binding screw 42 in a boss 43. When the legs are lowered and extended, the collar is slipped down into contact with the tops of the legs adjacent the pivots 39 and secured by the screw 42. The legs are thus held in position to bear the weight of the post 1 and casing 2. When the device is not in use, the legs are lifted and laid along the post, and the rim of the collar encircles the outer ends of the legs to hold them in, as indicated by broken lines in Figure 1. The screw again keeps the collar in place.

To enable the device to be utilized without dry cells 26 or in case the dry cells are found to be exhausted, I adapt the signal device to be operated on current supplied by the battery on the vehicle. A suitable conductor cord will suffice to join the conductor strip terminal in the coupling 11 to the socket of the cigarette lighter plug in the vehicle, or some other outlet to which the storage battery is connected. Therefore the coupling 11 has a hole 44 in line with the terminal strip 25, and this strip has spring fingers 46 on its inner end in line with the opening 44. The conductor cord will be of any suitable make and need not be shown, but it will have at one end a jack 47 to enter the opening 44, the other end of the cord also having a suitable plug for connection with an outlet on the car as aforesaid. The jack carries an insulated metal ring 48 which fits the opening 44 snugly, and the stem of the jack projects far enough beyond the ring 48 to enable it to be fitted snugly between the fingers 46 on the strip 25. See Figure 2a showing the jack 47 and ring 48 enlarged. The positive conductor wire 49 of the cord is joined to the stem 50, and the negative wire 51 is joined to the ring 48, so that the return circuit to the framework of the vehicle can be completed. The body of the jack is a tubular piece of insulation 52 enveloping the ends of the conductors joined to the stem 50 and ring 48.

Hence if no dry cells are in the post 1, or if such cells are too weak, the cord is resorted to, and the circuit to the lamps can be established as before from the battery by way of the stem 50 of the jack, and the lamp or lamps to the coupling 11, the ring 48 and back to ground on the vehicle by way of the wire 51.

This signal device can be easily stowed away in any passenger automobile, and in case a tire has to be changed, or a stop must be made from another cause, the post will enable the driver to work in safety beside the car. The device can also be used in repair work on streets and roads or overhead wiring along thoroughfares to protect the workmen.

The side 5 of the casing 2, the windows 6, 7 and 8 also carry three red reflectors 53 secured in position by any suitable means. At night these reflectors will glow in the light of the head lamps

of an approaching car and give further insurance against accident.

The studs 15 in the insulation 13 have nuts 54 to hold fast the wires 55 leading to the lamps. The pivot 20 for the arm 19 is a screw mounted in the plate 13.

The post 1 and coupling 11 are preferably of metal and the post has a collar 56 to engage the lower end of the coupling 11. A binding screw 57 holds the coupling and post detachably together.

The side of the casing having the boss 12 has openings 58 at each side with panes 59 on the inner face over each opening. The panes 59 each bear the word "Danger." The panes can be red in color and the letters white, or other colors can be employed. When a vehicle is tied up under very hazardous conditions the device can be set up in a thoroughfare and both front and back can be employed.

The invention is therefore well adapted to afford security to a vehicle at a standstill, and its occupants. It can be stored conveniently, especially if the post consists of extensible sections, and called into service at once when needed. It can also be utilized by road repair gangs and operated on either batteries as described by connection through step-down transformers and other means to nearby power circuits.

Figure 4 shows the signal device enlarged. Ordinarily it will be four or five feet in height and should be stationed well to the rear of the vehicle to be safe-guarded.

Having described my invention, what I claim to be new is:

1. A signal device comprising a post, a casing on the upper end of said post, signal members carried by said casing, a curved coupling between said casing and said post, the casing having a boss receiving one end of said coupling, a binding screw on said boss, the coupling having a slot receiving said screw so that said casing may be maintained in transverse position or swung into alinement with said post, an insulator in said boss, an electric switch on said insulator, the switch comprising a fixed terminal, an electric lamp bulb at each end of said casing and in the middle thereof, light transmitting signal members carried by the one side of the casing adjacent each bulb, additional fixed terminals

mounted on said insulator, an electric conductor connecting each lamp bulb to one of said additional terminals, a movable arm on said insulator to connect the first-named terminal to one or more of the additional terminals, and means in the coupling for conducting current to said first-named terminal.

2. The signal device according to claim 1 wherein said means comprises a conductor strip insulated from the coupling and in contact at one end with said first-named terminal, and dry cells in said coupling connected to the opposite end of said strip.

3. The signal device according to claim 1, wherein said means comprises a conductor strip in said coupling and insulated therefrom, said strip having one end in contact with the first-named terminal, said strip having its opposite end divided and in line with an opening in said coupling to be engaged by a terminal at the end of an external conductor inserted in said opening.

4. A signal device comprising a post, a coupling on said post, the upper end of the post being enveloped by said coupling, a casing at the other end of the coupling, electric lamp bulbs and indicator members carried by the casing, battery cells in said coupling, an insulated conductor in the coupling in circuit with said cells, an insulated terminal in the casing in contact with said conductor, and switch means between said terminal and said bulbs.

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