E. W. NEWELL.

SIGNAL DEVICE FOR MOTOR VEHICLES.

APPLICATION FILED MAY 17, 1918.

Patented Oct. 14, 1919.

1,318,792.

Fig.1.

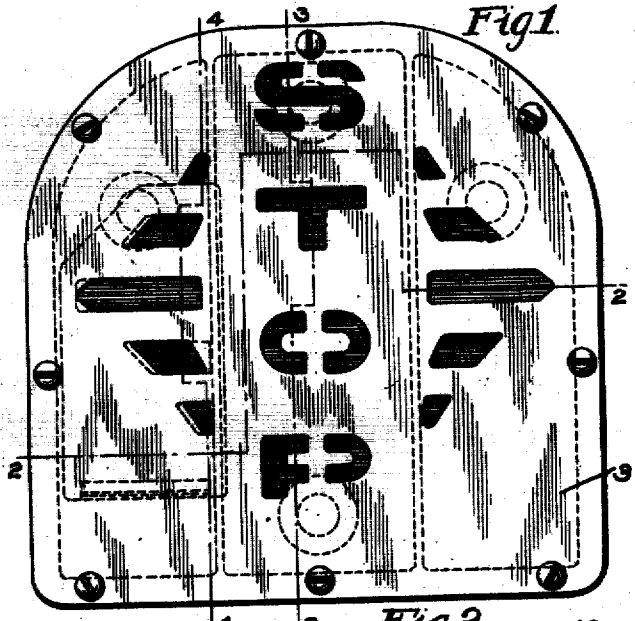


Fig.6. Fig.5.

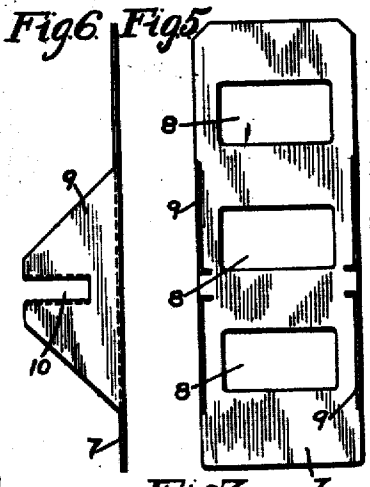


Fig.7.

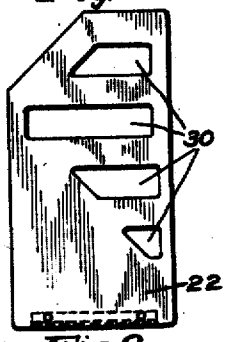


Fig.2.

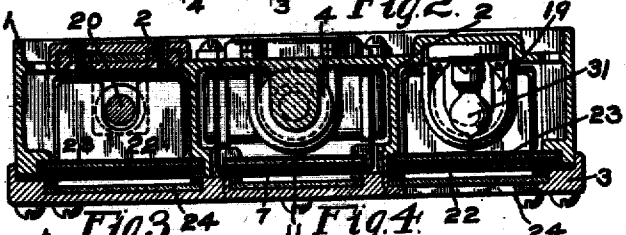


Fig.8.



Fig.3.

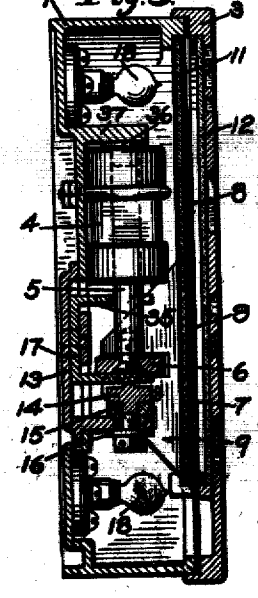


Fig.4.

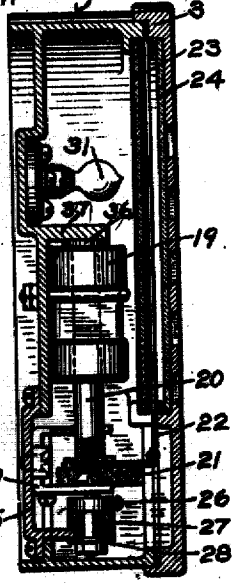
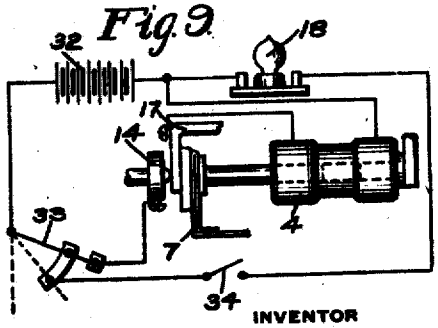


Fig.9.



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UNITED STATES PATENT OFFICE.

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SIGNAL DEVICE FOR MOTOR-VEHICLES.

1,318,792. Specification of Letters Patent. Patented Oct. 14, 1919.

Application filed May 17, 1918. Serial No. 235,156.

To all whom it may concern:

Be it known that I, EDWARD W. NEWELL, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Signal Devices for Motor-Vehicles, of which the following is a specification.

This invention relates to a signal device adapted for use on motor vehicles to indicate when the vehicle is about to stop, slow down, or turn to the right or left.

The principal object of my invention is to provide an improved device of the above character.

In the accompanying drawing; Figure 1 is a face view of a signal device embodying my invention; Fig. 2 a horizontal section on the line 2—2 of Fig. 1; Fig. 3 a vertical section on the line 3—3 of Fig. 1; Fig. 4 a vertical section on the line 4—4 of Fig. 1; Fig. 5 a rear view of the intermediate slide; Fig. 6 a side elevation thereof; Fig. 7 a rear view of one of the side slides; Fig. 8 a plan view thereof; and Fig. 9 a wiring diagram of the circuits for one of the indicating devices.

As shown in the drawing, the construction may comprise a casing 1 having vertical walls 2 dividing the interior of the casing into three compartments. Secured to the face of the casing is a cover plate 3, having stencil openings in vertical alinement with the intermediate compartments and adapted to form the word "Stop", and stencil openings in vertical alinement with each of the side compartments and adapted to form an arrow head, one pointing to the right and the other to the left.

Within the central or intermediate compartment there is mounted an electric solenoid 4 having an armature 5 and secured to the outer end of the armature is a block 6 of insulating material.

A slide 7 having openings 8 is adapted to be operated by the solenoid 4, for which purpose, the slide is provided with ears 9 having slots 10 into which the block 6 extends. The slide 7 is adapted to move vertically so that the openings 8 therein can be shifted into and out of registry with the letters of the word "Stop", as formed in the cover plate 3.

A glass window 11 is secured to the casing 1 and adjacent to and rearwardly of the slide 7, while a colorless glass window 12 is fastened to the cover plate in front of slide 7. Secured to the casing 1 and extending into an opening at the rear of the casing is a member 13, on which is mounted a fixed contact 14, adapted to be insulated from said member by means of a soft rubber sleeve 15 and a fiber washer 16. A contact 17 is mounted to slide between the member 13 and a portion of the casing 1 and is adapted to engage the contact 14.

Electric lamps 18 are mounted within the intermediate compartment of the casing above and below the solenoid 4.

In each of the side compartments of casing there is mounted a solenoid 19 having an armature 20, carrying at its outer end a block 21 of non-conducting material, and secured to the armature, above the block 21 is a slide 22 adapted to move vertically between a red glass window 23, mounted in the casing 1, and a colorless glass window 24, mounted in the cover plate 3.

A member 25 is secured to the casing 1 and extends into an opening at the rear of the casing for supporting a fixed contact 26, which is insulated from said member by a soft rubber sleeve 27 and a fiber washer 28. A contact 29, adapted to engage the contact 26, is mounted to slide vertically between the member 25 and a portion of the casing 1. In the slide 22 are openings 30 adapted to register with corresponding openings in the cover plate 3. An electric lamp 31 is mounted in each of the side compartments, above the solenoid 19.

In Fig. 9 a wiring diagram is shown of the circuits for the mechanism in the intermediate compartment, and it will be understood that the circuits for the mechanisms in the side compartments are arranged in a similar manner.

As shown in Fig. 9, the electric lamps 18 are connected in a circuit including a source of current 32. Another circuit including the solenoid 4 and the source of current 32 is controlled by the contacts 14 and 17. A switch 33 is provided which may have three positions, one in which the lamp and the solenoid circuits are energized, another in

which only the lamp circuit is energized, and a third in which both circuits are deënergized.

For signaling in the day time, the outer faces of the slides 7 and 22 are painted white and in operation, during the day time, if it is desired to stop or slow down, a switch 34 in the lamp circuit being opened, so as to cut out the lamps, the switch 33 is moved to the position for energizing the solenoid circuit as shown in Fig. 9.

Gravity normally operates to hold the slide 7 in its lower position, in which the openings 8 register with the word "Stop" in the cover plate, but with the solenoid circuit closed at the switch 33, the contacts 14 and 17 being now in engagement, the solenoid 4 is energized, so as to pull the armature upwardly, causing the movement of slide 7 to bring the white face of the slide into registry with the openings in the cover plate, thus rendering the word "Stop" visible to individuals in the vicinity of the vehicle. As the armature 5 approaches the end of its upward stroke, the block 6 engages an arm 35 of the contact member 17 and thus moves the contact out of engagement with the fixed contact 14.

The circuit of the solenoid 4 is therefore opened and gravity then acts to cause the downward movement of the armature 5 and the slide 7, so that the openings 8 register with the openings in the cover plate, rendering the word "Stop" practically invisible at a distance. Near the end of its downward stroke, the armature block 6 engages the contact 17 and moves same so as to engage contact 14 and thus close the solenoid circuit. The energization of solenoid 4 then causes the upward movement of the slide 7, as before described.

The word "Stop" thus intermittently flashes in white, so as to attract the attention of persons to be warned, that the vehicle is about to stop.

For night signaling, the switch 34 is closed, so that upon moving the switch 33 to its position for closing the solenoid circuit, the lamp circuit is also closed.

It will now be seen that the solenoid will operate as described in connection with daylight signaling to effect the up and down movement of slide 7, but in this case, the light from the electric bulbs 18 shines through the red glass window 11 and when the openings in the slide register with the openings in the cover plate 3, the word "Stop" will be intermittently flashed in red light to strongly attract attention.

If the vehicle is left standing, it may be desired to permit the word "Stop" to remain visible as a warning that the vehicle is stopped, and for this purpose, the switch 33 may be turned to its second position, in which the solenoid circuit is opened, but in which the light circuit remains energized, so that since slide is maintained in its lower position with the openings 8 registering with the openings in the cover plate, the word "Stop" will show in red light continuously.

In a similar manner, the circuits for the signal devices for indicatng the direction in which the vehicle is about to turn are controlled by the movement of a switch, the arrow-head at the left being rendered visible either by showing white in the day time, or red at night, if the vehicle is about to turn to the left, and similarly with the arrow-head at the right, when the vehicle is about to turn to the right.

By employing slides having alternately arranged openings, the movement of parts necessary to effect the signaling is reduced, being equal to the width of an aperture in the cover plate. The device can thus be made very compact and of comparatively small size.

Furthermore, the same openings being used both for day and for night signaling, also effects a considerable reduction in the size of the device.

If desired, the gravity down stroke of each solenoid armature may be made uniform by providing a dash pot adapted to operate only on the down stroke for yieldingly resisting the movement.

A soft rubber cushion 36 may be interposed between the upper end of each solenoid and the stop lug 37 for cushioning the upward stroke, the downward stroke being cushioned by the soft rubber sleeves 15 and 27.

It will also be evident that the flashing light effect may be produced without the use of the slide by controlling the light circuit by the switch which controls the solenoid circuit.

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

1. In a motor vehicle signal device, the combination with a casing provided with signal forming apertures, of a slide having openings adapted to register with the casing apertures for night signaling and surfaces visible in the daytime and adapted to register with the casing apertures for daytime signaling.

2. In a motor vehicle signal device, the combination with a casing having a plurality of vertically disposed signal forming apertures, of a slide having corresponding openings adapted to register with said apertures in one position of the slide and having surfaces visible in daytime and adapted to register with said apertures in another position of the slide.

3. In a motor vehicle signal device, the combination with a casing provided with a signal forming aperture, of a slide having

an opening adapted to register with said aperture in one position of the slide and having a face visible in the daytime and adapted to register with said aperture in another position of the slide and a signal lamp in the casing for lighting the registering aperture and opening at night.

4. In a motor vehicle signal device, the combination with a casing having a signal forming aperture, of a slide for opening and closing said aperture, an electric solenoid having an armature for operating said slide, a fixed contact, and a movable contact cooperating with the fixed contact and operated by said solenoid for alternately making and breaking the circuit through the solenoid upon a predetermined movement of the solenoid.

In testimony whereof I have hereunto set my hand.

EDWARD W. NEWELL.