

Sept. 19, 1933.

M. H. PEACOCK

1,927,322

SIGNAL

Filed July 6, 1926

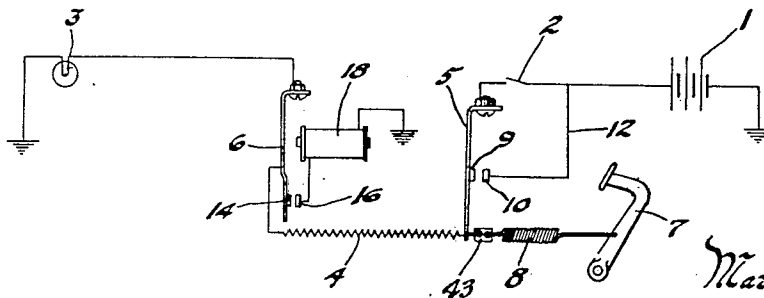
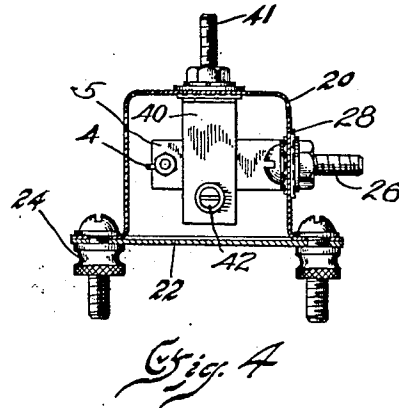
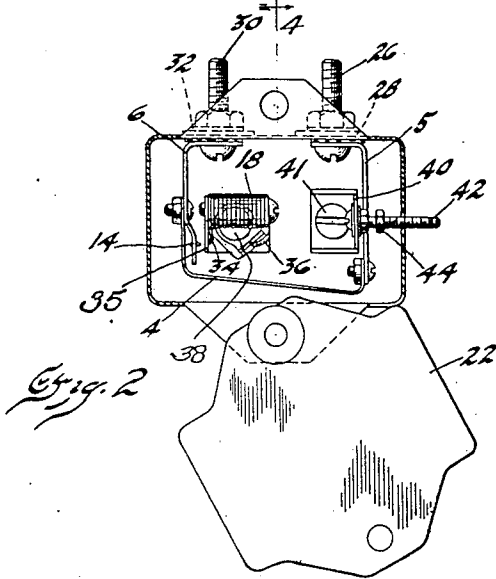
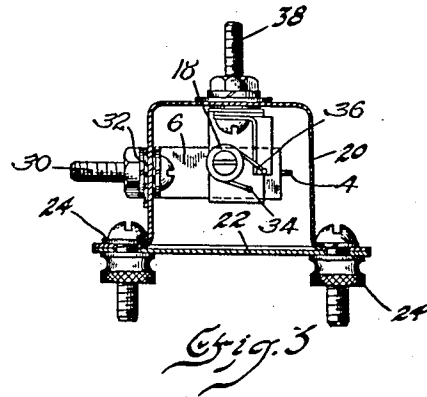
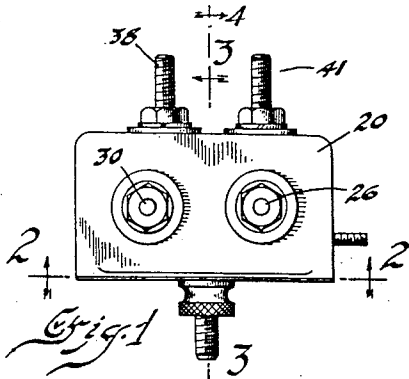


Fig. 5

Inventor
Marshall H. Peacock

By *Blackmore, Spencer & Hall*

Attorney

UNITED STATES PATENT OFFICE

1,927,322

SIGNAL

Marshall H. Peacock, Detroit, Mich.

Application July 6, 1926. Serial No. 120,702

3 Claims. (Cl. 177-339)

This is an improvement on my Patent No. 1,651,408, granted December 6, 1927.

This invention relates to signals of the flashing type and particularly to the type of signal commonly used as a stop light upon automobiles. The present device follows the general lines set out in my prior application in that flashing is produced by intermittently opening and closing a circuit arranged in parallel with the signal device thus alternately strengthening and weakening the current supplied to the signal and consequently causing variations in brightness of the signal lamp. In the preferred form I employ a thermally controlled means to cause making and breaking of the shunt circuit. The construction of my device is also such that adjustment of the flashing rate can be effected in a very simple manner.

My present design is also characterized by the fact that a current limiting device in the form of a resistance is placed in series with the parallel circuits so as to insure that there will be no heavy flow of current when the parallel or shunting circuit is closed.

The device is marked by simplicity and cheapness of construction adapting it for use upon automobiles.

In the drawing:

Figure 1 is a plan view of the container within which the circuit making and breaking means is housed showing certain of the connections.

Figure 2 is a view looking in the direction of line 2-2 of Figure 1 with the cover of the receptacle removed.

Figure 3 is a view taken on line 3-3 of Figure 1.

Figure 4 is a view on line 4-4 of Figure 1.

Figure 5 is a schematic view of the signalling system.

Referring first to Figure 5, 1 indicates the usual automobile battery, 2 the rear light switch usually mounted on the dashboard, and 3 the conventional rear light. Reference character 4 indicates the combined current limiting device and thermally controlled element, while reference characters 5 and 6 indicate resilient shiftable elements connected by said thermally controlled elements and the functioning of which will be later described.

In ordinary operation, when the rear light 3 is being used as in night driving, current flows from battery 1 through switch 2, shiftable element 5, thermally controlled element 4, and shiftable element 6 to rear light 3 and ground. It will be noted that brake pedal 7 is connected by spring 8 to element 5 which carries contact 9 for en-

gagement with contact 10, electrically connected to conductor 12, bridging the switch 2. Shiftable element 6 carries contact 14 for engagement with contact 16 in conductive relation with electromagnet 18, the other end of which is connected to ground. Contact 16, electromagnet 18, and the connecting leads, constitute a circuit in parallel with the tail light.

Upon depression of the brake pedal 7, contact 9, carried by element 5, engages contact 10 permitting flow of current to the rear light even though switch 2 may be open. Further movement of the brake pedal causes contact 14 to engage contact 16 and the current, now supplied by the battery either through switch 2 or bridging circuit 12-10-9, upon reaching element 6 divides, part flowing through the rear light 3 and the remainder through electromagnet 18 to ground. The parallel circuit 16-18 will remain closed until the current passing through thermally controlled element 4 causes it to expand permitting the member 6 to move back to normal position by virtue of its resilience or under the action of a suitable spring. The break at 14-16 will not take place, however, until the potential energy stored in the member 6 has increased to such an extent by virtue of the expansion of the element 4 as to overcome the holding action of the magnet 18. This insures breaking of the circuit by snap-action reducing sparking to a minimum. With the breaking of the circuit at 14-16 the flow of current to rear lamp 3 will be increased so that it will burn brightly. The element 4 will now cool, contract, and cause the contact 14 to again engage with contact 16 so that a portion of the current supplied from the battery will pass through the parallel circuit 16-18 resulting in dimming the rear light. The next action is an expansion of element 4 as a result of the increased current flow and a repetition of the cycle. This continues as long as the brake pedal is depressed and the tail light thus serves as a flashing stop signal.

Attention is called to the fact that the element 4 serves not only to cause making and breaking of the shunt circuit but also serves as a current limiting device. While it is true that the closing of contacts 14-16 will produce an increased flow of current through the element 4 because the total resistance of the circuit is decreased, nevertheless this element will serve to keep the total current flowing from the battery within safe limits thus preventing the battery from being injured by short circuiting.

The make and break device shown in Figure 5 may take different forms for convenience in production. The embodiment shown in Figures 1 to 4 has the advantages of cheapness, ease of assembly and accessibility. In these figures, reference character 20 indicates a housing having a removable cover 22 secured in position by suitable fastening devices shown at 24. The element 5 is shown as a strip of resilient material secured to a wall of the casing by means of a terminal member 26 and insulated from the casing by a washer 28 of insulating material. Element 6 is similarly secured to the same wall of the casing by terminal member 30 and is insulated therefrom by washer 32. Member 5 is connected to member 6 by thermally controlled element 4 which may be a short length of nichrome wire clamped at its ends to the members. At its free end member 6 carries contact 14 which may be of silver or other material which will offer resistance to the arcing which occurs when the contact is broken. An electromagnet 18 is mounted on a bracket 35 secured to one of the walls of the housing 20 and is insulated therefrom. One end 34 of the winding of the electromagnet is in conductive relation with the bracket on which the magnet is mounted, while the other end 36 is secured to a terminal of any suitable form having a part 38 extending outwardly of the casing. Contact 10 is constituted by a strip 40 secured to and insulated from one of the walls of the casing by means of terminal 41, this strip overlying a portion of the element 5 which comprises the contact indicated at 9 on Figure 5. The free end of the strip 40 carries a screw bolt 42 which is insulated from the strip and projects through an opening provided in one of the walls of the housing. Bolt 42 is adapted for connection by means of spring 8, or other part, with the brake pedal, an insulator 43 of any desired type being interposed between the spring and bolt to prevent short-circuiting of the battery. Upon the bolt 42 is mounted nut 44 which serves as a stop to limit the outward movement of the member 42 and consequently limits the tension under which the nichrome wire 4 may be placed. By adjusting the nut 44 along the bolt 42 the movement of the parts may be increased or reduced, and it will be found that the period of flashing may in this way be varied. It will be apparent that terminal 26 is connected with the battery through the dash switch 2, that terminal 30 is connected with the tail light, that terminal 41 is connected with conductor 12 shunting the switch 2, and that terminal 38 is connected to ground, all of which is plainly indicated on the diagrammatic view shown in Figure 5. Attention is called to the fact that the construction of Figures 1 to 4 differs from the construction of Figure 5 in that in the former figures the brake pedal is connected to strip 40 to move it into engagement with stationary strip 5 while in the latter the brake pedal is shown directly connected to strip 5 to move it into engagement with stationary contact 10. This change was made in order to render Figure 5 more easily understood.

While I have described my device applied to a conventional tail light it is to be understood it is equally adaptable for use with any of the lights found about an automobile, such as the headlights. Thus when used with headlights it is possible to draw the attention of a pedestrian to the approach of a car without the use of a horn. If desired the flashing mechanism may be used with both headlights and tail lights, and with whatever light it is used it is to be understood that such light comes within the definition of the term "signal" or "signal light" used in the claims.

I claim:

1. A signalling system including a thermally operated switch including a stationary contact and a movable contact and thermo-responsive means for moving the latter contact away from the former on the passage of a predetermined amount of current, a source of current, a signal and a circuit connecting the source, the signal and the thermo-responsive means in series, the resistance of the circuit being such as to permit a flow of current sufficient to cause the signal to give an indication and not operate the thermo-responsive means, and a circuit, shunting the signal, in series with the thermo-responsive means and having one end connected to the stationary switch contact, the resistance of the latter circuit being such as to increase the current in the thermo-responsive means sufficiently to cause the latter to operate and the signal to change its indication.

2. The combination of a supporting means, a contact, thermally operated means for moving said contact including a member adapted to be deformed by the passage of current through it and resilient means mounting said member on said supporting means, a stationary contact on said supporting means for cooperation with said movable contact and so located that the contacts may be moved to separate on deformation of said thermal member, operator controlled means, including a movable member and said thermal member and said mounting means for moving said movable contact to engage said stationary contact, said movable member acting on the thermal member at a point permitting the movement of the movable contact away from the stationary contact under the influence of the thermal member after their engagement by the operator controlled means, a signal, a source of current, a series circuit including the signal, the contacts, the thermal member and said source, in series, and a shunt circuit around the signal having one end connected to said stationary contact and of such resistance as to cause the signal to change its indication and permit the flow of current sufficient to deform the thermal element on the closure of the circuit at the contacts.

3. In the combination as defined in claim 2, means for varying the amount of movement of said movable contact by said operator controlled means to vary the period of make and break.

MARSHALL H. PEACOCK.