

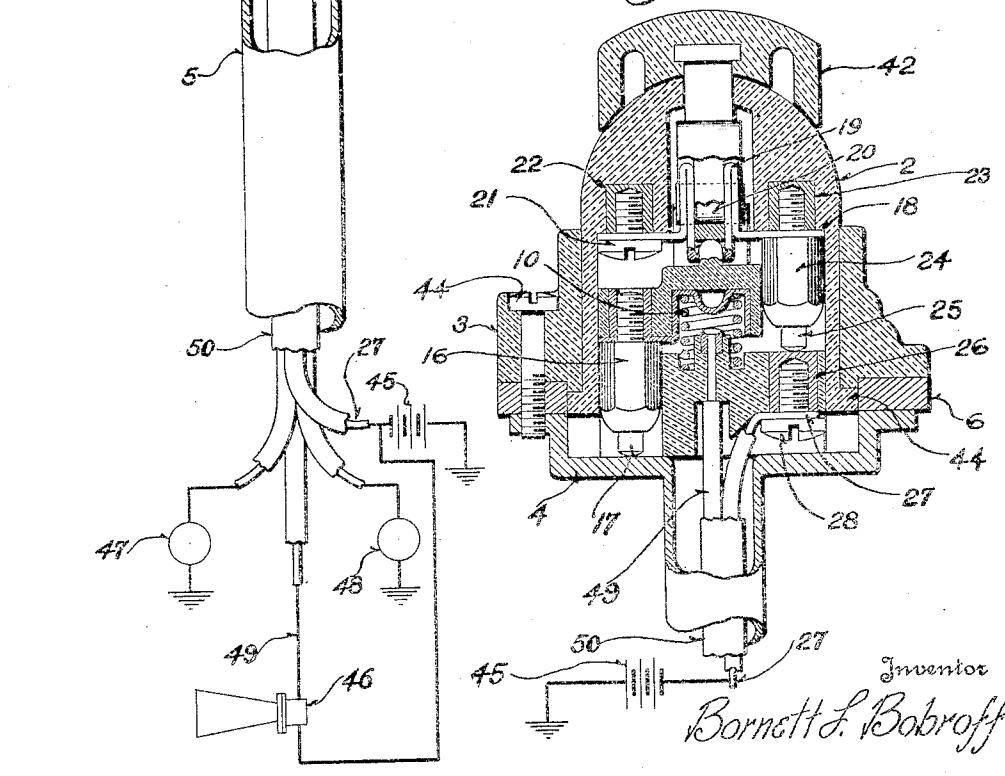
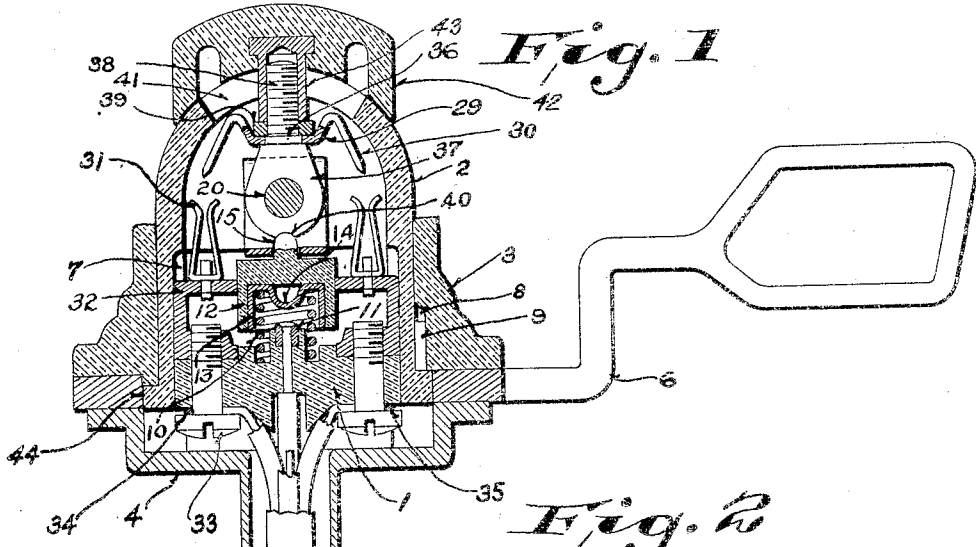
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SWITCH FOR SIGNALING SYSTEMS FOR VEHICLES

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# UNITED STATES PATENT OFFICE

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SWITCH FOR SIGNALING SYSTEMS FOR VEHICLES

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This invention relates to switches for signaling systems, and is particularly directed to switches for signaling systems for vehicles, such as automotive vehicles.

5 Objects of this invention are to provide a novel form of switch which may be readily mounted upon a suitable part of the vehicle such as the steering column and is preferably carried by the light switch control rod, the spark control rod, or the gas control rod, which controls signal lamps, and which is so made that a portion of the switch is bodily depressible to close the horn circuit, so that in effect a combined signal switch and horn button is provided.

15 In greater detail, objects of this invention are to provide a signal switch for automotive vehicles which is so made that a plurality of stationary contacts are provided and a movable contact member having fingers or blades adapted to selectively engage the stationary contacts is mounted adjacent the stationary contacts and is operated by a button or similar member to selectively engage the desired stationary contact by merely bodily rocking the button laterally towards the contemplated direction of turn thereby causing the appropriate signal to be given, and in which a horn contact is adapted to be engaged by bodily depressing the button and associated parts, the movable contact member remaining free of engagement with the stationary contacts although the movable contact member approaches the stationary contacts.

25 Further objects are to provide a signal switch which has a bodily depressible shell, preferably formed of insulating material such as bakelite, which is provided with an upper button bodily depressible with the shell to sound the horn and bodily laterally shiftable towards the intended direction of turn to cause the operation or lighting of the appropriate signal, and to so construct the shell that it serves as a housing for the switch parts.

35 Further objects are to provide a signal switch which has a stationary body portion having connecting means to which the conductors may be readily attached and which

is held in place without the use of fastening means, and which has a depressible shell or casing provided with yielding plungers to provide a ground connection with the metal parts of the steering column and a connection with the conductor from the battery to furnish electrical energy to an appropriate portion of the switch, such as the movable contact member.

Further objects are to provide a construction which is very compact, which is easy to assemble and install, and which is of attractive appearance and harmonizes with the steering wheel.

An embodiment of the invention is shown in the accompanying drawing, in which:

Fig. 1 is a sectional view through the signal switch such view showing a portion of the control rod broken away.

Fig. 2 is sectional view through the switch such view being taken at right angles to Fig. 1.

Referring to drawing it will be seen that the switch comprises a body portion 1, a slidable and depressible shell 2, surrounding the body portion and having its major part located above said body portion, and a ring 3, surrounding the shell. These members are formed of insulating material, preferably bakelite, and are all carried or supported by the upper portion 4, of a control rod 5, of the steering column, such for example as the light switch control rod, the spark control rod or the gas control rod, the usual lever 6, being attached to such control rod for operating such rod in the usual manner. The other portions of the steering column including the steering wheel have been omitted from the drawing for the sake of clearness.

The shell 2, is provided with keyways within which projecting portions of the body portion 1 seat and thus prevent relative rotation of the parts although permitting the shell to slide or to be depressed with respect to the body portion. Similarly the ring 3 is provided with a keyway 8 which slidably receives the key 9, formed integrally with the shell 2.

The body portion is held downwardly in contact with the upper end of the control rod

by means of a spring 10, which bears at its lower end within a cup recess of the body portion. Such body portion being provided with a centrally located contact 11, for a purpose hereinafter to appear and such contact  
5 being preferably carried within an upwardly projecting part of the body portion.

An insulating cup shaped member 12, is positioned above the body portion and is provided with a cup shaped metal lining 13,  
10 having a depressed central portion 14, adapted to contact with the contact 11, of the body portion when the shell 2 is depressed. The upper end of the spring 10, fits within this cup shaped member and urges the cup shaped  
15 member upwardly. The upper end of the cup shaped member is provided with a tongue or projection 15, which is guided in a manner hereinafter to appear. The spring lining 13, of the cup shaped member contacts laterally  
20 and electrically with the casing 16, of a yielding or spring pressed contact plunger 17, see Fig. 2, such spring pressed plunger being of any suitable type. The upper end of the casing 16 is threaded into a metallic bushing  
25 set within the cup shaped member 12, as shown in Fig. 2.

The shell 2, as may be seen partly from Fig. 2, carries a metal strip 18, which is provided with spaced folded portions 19, which  
30 carry a pivot pin 20. This metal strip 18, is held in place at one end by means of a screw 21, threaded into a metal bushing 22 molded in place within the shell 2. Similarly a metal bushing 23, is molded in place within the  
35 shell 2 and receives the upper threaded end of the casing 24 of a yielding or spring pressed plunger 25. The lower end of the plunger 25, contacts with a metal sleeve 26, molded in place within the body portion 1.  
40 This sleeve 26 constitutes a terminal member adapted to have a conductor or wire 27 clamped thereto by means of the screw 28.

The switch comprises a contact member  
45 29, provided with a pair of contact plates or fingers 30, adapted to selectively engage either one of the stationary contacts 31, see Fig. 1. The stationary contacts 31, are carried rigidly by angularly shaped metal members 32, clamped in place upon the body portion  
50 by means of screws 33. These screws 33, form terminal members for the stationary contacts 31 and clamp conductors 34 and 35 in place against the body portion and electrically connect such conductors to the stationary contacts 31.  
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The movable contact member is provided with a centrally located rectangular recess which receives the rectangular shouldered  
60 portion 36, and rests against a shoulder formed on a rocking metal member 37, see Fig. 1. The metal member 37 is provided with a threaded upwardly projecting shank 38, and a locking nut 39 is screwed upon such  
65 shank to lock the contact member 29 rigidly

in place. The contact member 37 is pivotally carried by the pin 20 previously described. It is to be noted also from Figs. 1 and 2 that the projecting tongue 15 of the cup shaped insulating member extends through  
70 an aperture formed in the strip 18 and is adapted to yieldingly fit within a depression 40 formed in the metal member 37.

The upper end of the shell 2 is provided with a laterally extending slot 41 through  
75 which the threaded stem 38 of the locking metal member 37 freely projects.

An operating button or member 42, is provided with an internally threaded metal sleeve 43 which is screwed upon the threaded shank  
80 38, and thus operatively connects the button 42 with the movable contact member 29.

This button is preferably formed of bakelite with the metal ferrule 43, preferably  
85 molded in place. It is also preferable to form the upper end of the shell 2, spherically although the body portion of the shell is cylindrical. The lower face of the button 42 is spherically concaved to approximately fit  
90 the spherical upper end of the shell 2, so that the button may be freely rocked back and forth to the right or left with respect to the shell 2.

The entire structure is held in place upon the control rod 5, by means of screws 44, see  
95 Fig. 2 which pass through the ring 3, control lever 6, and are screwed into the cup shaped portion 4 of the control rod.

From the description thus far given it is apparent that the button 42 may be depressed  
100 and will depress the body portion 2 and cause the contact 14 to engage the contact 11, while the movable contacts 30 do not engage or remain out of contact with the stationary contacts 31.  
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Further it is apparent that the button 42 may be rocked to the right or left and may thus cause the movable contact member to selectively engage the stationary contacts 31.  
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It is also clear from the description previously given that the shell may be freely depressed as desired for a purpose hereinafter to appear. The shell is prevented from passing  
115 upwardly from the apparatus by means of a lower flange 44 which fits under the ring 3.

The wiring diagram has been indicated in Figs. 1 and 2 and it will be seen that a source of electrical energy has been provided which  
120 may be the main battery 45 of the automotive vehicle. One side of this battery may be grounded and the other side connected to the conductor 27 and from thence to the movable contact member 29. The yielding plunger 25 maintains this electrical connection at all  
125 times, irrespective of the depression of the shell 2, see Fig. 2. Further the battery is connected to one side of the horn 46, see Fig. 1. The conductor 34 is connected to the left signal lamp 47, see Fig. 1 and the conductor 35  
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is connected to the right signal lamp 48. It is to be understood, of course, that any number of signal lamps may be arranged in groups corresponding to the right and left signal lamp and may be located on opposite sides and at the rear of the automotive vehicle. It is apparent from the description that when the shell and button are depressed that the horn is sounded as the horn is connected to the central contact 11 of the body portion by means of the conductor 49, see Fig. 1. The contact 4 is grounded by means of the yielding plunger 17 which contacts with the metal portion 4 of the metal control rod 5 as shown most clearly in Fig. 2. It is also clear that when the button 42 is moved to the left that the left signal lamp 47 is lighted. Similarly a movement to the right causes the right signal lamp to be lighted.

It is apparent also that the entire device may be readily mounted upon a steering column and provides a combined horn button and signal switch which is very compact and which harmonizes perfectly with the steering wheel and associated parts. Further it is clear that the wiring or connecting up of the apparatus may be very simply accomplished as the conductors leading upwardly through the steering column are preferably formed as a cable 50 and may thus be freely slipped into place.

It will be seen further, that the yieldingly pressed projection 15 tends to hold the button 42 in neutral position, although it permits the button to be rocked to the right or left according to the direction of turn contemplated by the driver.

The connections between the wires and the switch may be most readily made, as all of the terminal members are carried by the body portion, and as the various parts of the device may be lifted off, or replaced, as separate and self contained units.

I claim:

1. A signal switch comprising a body portion, a plurality of stationary contacts carried by said body portion, a shell surrounding said body portion, a rocking contact carried by said shell, and means connected to said rocking contact and located exteriorly of said shell for operating said rocking contact, said rocking contact being supported independently of the exteriorly located operating means.

2. A signal switch comprising a body portion, a plurality of stationary contacts carried by said body portion, a shell slidably mounted with respect to said body portion, a rocking contact carried by said shell, means for operating said rocking contact to selectively engage said stationary contacts and cooperating contacts carried by said shell and said body portion adapted to contact with each other when said shell is depressed.

3. A signal switch comprising a body por-

tion, a cylindrical shell surrounding said body portion and projecting upwardly therefrom and slidable and depressible with respect to said body portion and provided with a spherical upper end, a button having a spherical concave lower portion approximately fitting the upper end of said shell, a rocking contact member pivotally carried by said shell and located within said shell, means operatively connecting said button and said contact member, a contact, spring-urged outwardly from said body portion and depressible with said shell, and a plurality of contacts certain of which are adapted to be selectively engaged by said rocking contact member and one of which is adapted to be engaged by the spring urged contact member when said shell is depressed.

4. A switch comprising a body portion having a terminal member, a movable member slidable with reference to said body portion, switch mechanism carried jointly by said movable member and said body portion and including a contact member carried by said movable member, a yielding contact plug carried by said movable member and yieldingly engaging said terminal member, said plug being electrically connected to said contact member, and cooperating contacts adapted to engage when said movable member is depressed.

5. A signal switch comprising a body portion, stationary contacts provided with means for rigidly receiving conductors, a member mounted adjacent said body portion, a laterally movable contact adapted to selectively engage said stationary contacts, yielding contact means electrically connected to said movable contact and carried by said member, and a terminal carried by said body portion, said contact means yieldingly engaging said terminal.

6. The combination of a control rod of an automotive vehicle, and a switch carried by said control rod and comprising a body portion resting upon said control rod, a member located above said body portion and provided with a movable contact, stationary contacts carried by said body portion for selective engagement by said movable contact, and a spring located between said member and said body portion and holding said body portion in engagement with said control rod.

7. A signal switch comprising a body portion, a shell slidable with respect to said body portion, means for preventing relative rotation of said body portion and shell, switch mechanism carried jointly by said body portion and shell, and terminals carried by said body portion and adapted to receive conducting wires.

8. The combination of a control rod of an automotive vehicle, and a signal switch comprising a body portion stationary with

respect to said control rod, a movable member located above said body portion, switch mechanism carried jointly by said body portion and said movable member, terminals carried by said body portion, and a ring surrounding said movable member and secured to said control rod.

9. The combination of a control rod of an automotive vehicle and a signal switch comprising a body portion, a movable member located above said body portion, switch mechanism carried jointly by said movable member and said body portion, a ring surrounding said movable member and secured to said control rod, and means for preventing relative rotation between said ring, movable member and said body portion.

10. The combination of a control rod of an automotive vehicle, and a signal switch comprising a body portion supported from said control rod, a movable member located above said body portion, switch mechanism carried jointly by said body portion and said movable member, a spring interposed between said body portion and said movable member and urging said body portion towards said control rod, a ring surrounding said movable member and secured to said control rod, and means for preventing said body portion from turning with respect to said ring.

In testimony whereof, the signature of the inventor is affixed hereto.

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