March 1, 1932. F. W. NOFFS 1,847,097

SWITCH

Filed April 5, 1928 3 Sheets-Sheet 1

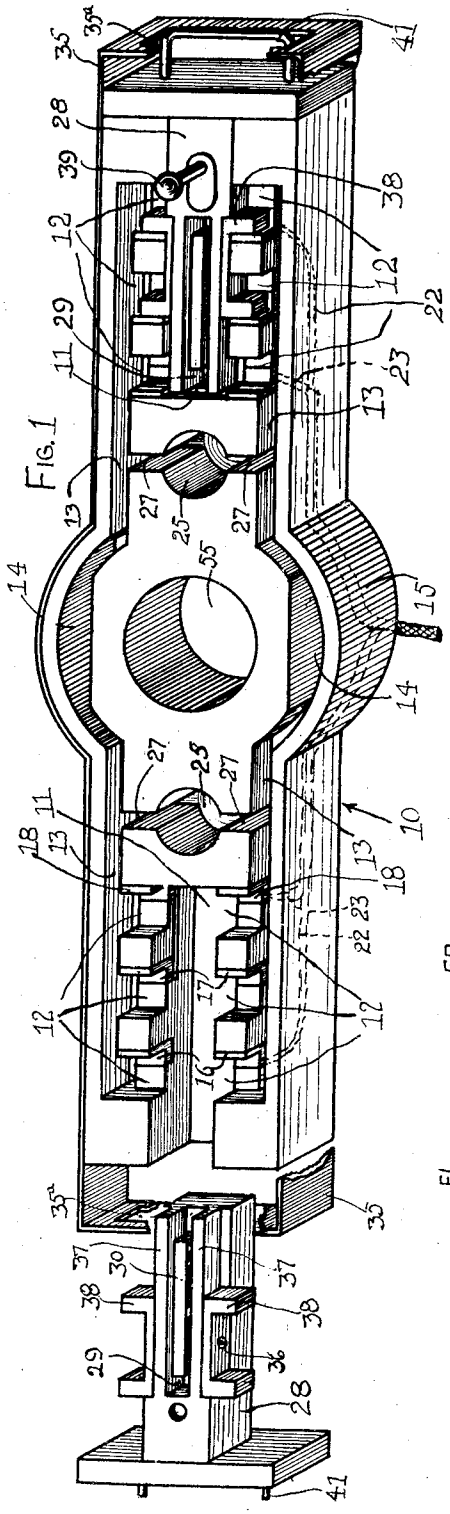


FIG. 1

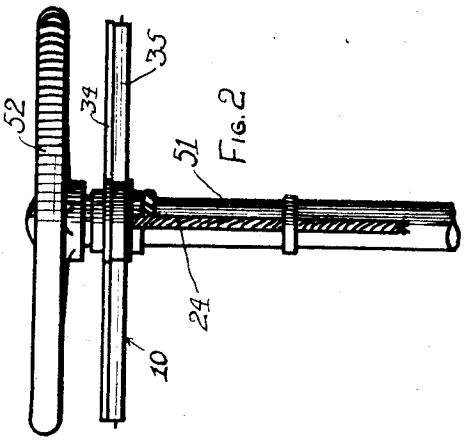


FIG. 2

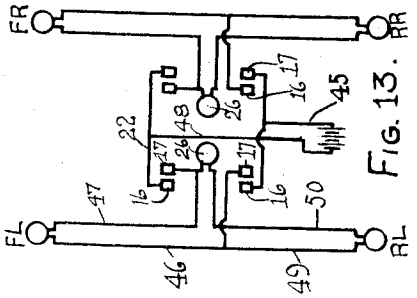


FIG. 13.

INVENTOR:
FRED W. NOFFS
By M. F. Cargill atty.

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SWITCH

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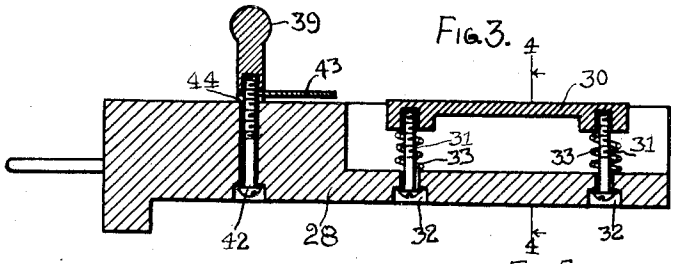


Fig. 3.

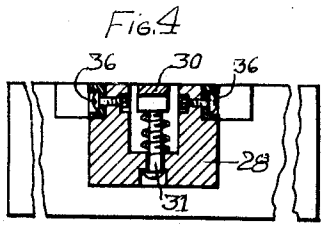


Fig. 4

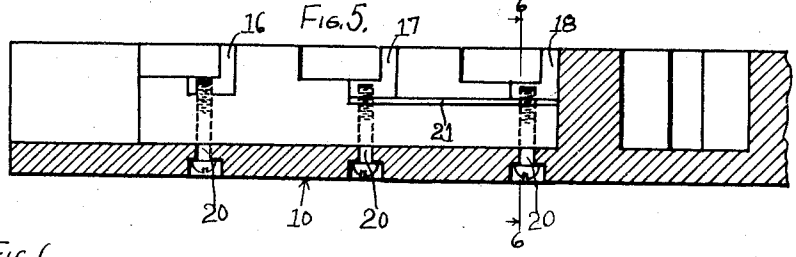


Fig. 5.

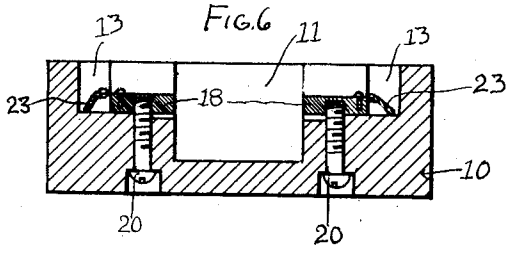


Fig. 6

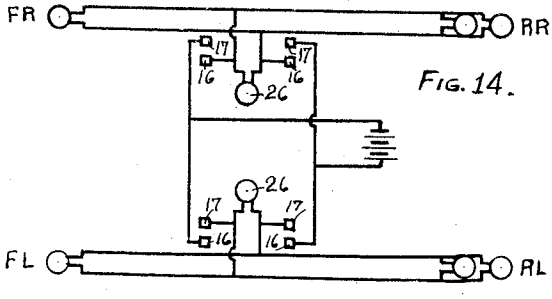


Fig. 14.

INVENTOR:
FRED W. NOFFS
By M. F. Cargill atty.

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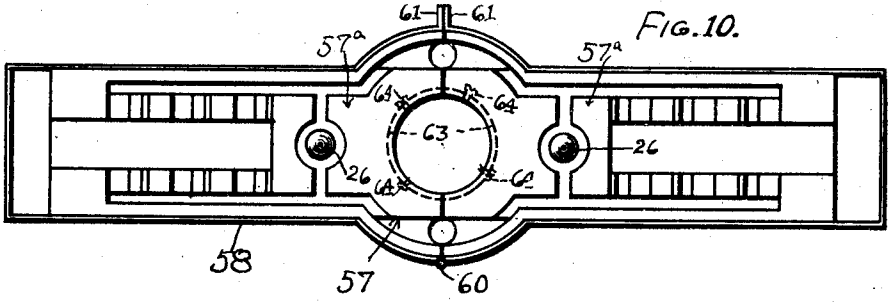


FIG. 10.

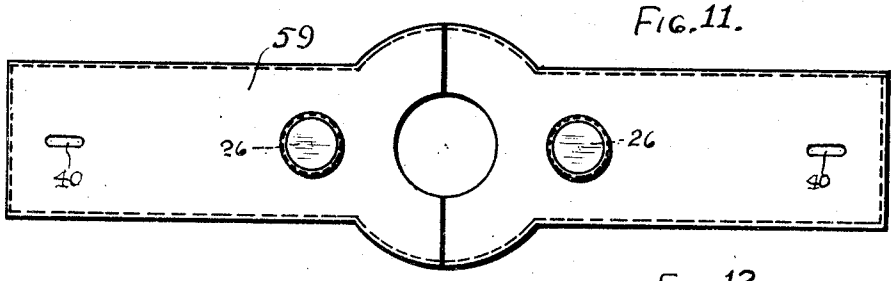


FIG. 11.

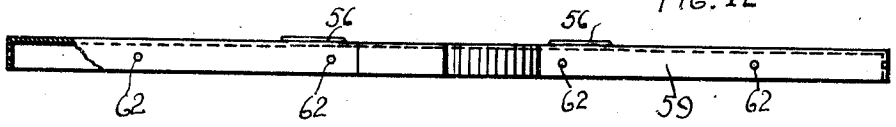


FIG. 12

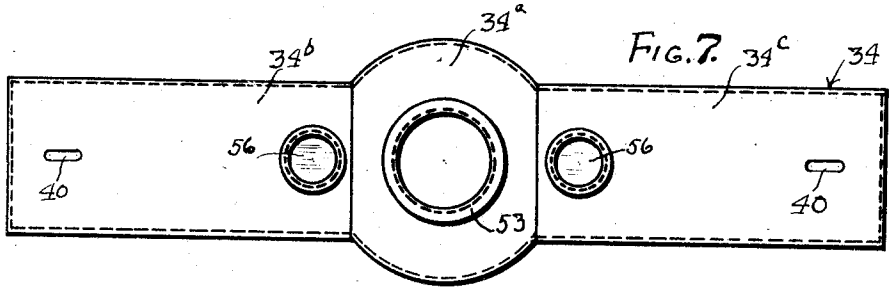


FIG. 7.

FIG. 9.

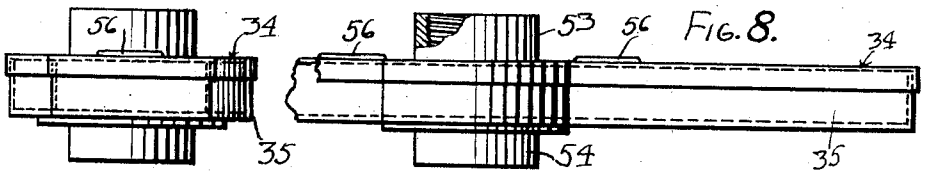


FIG. 8.

INVENTOR:
FRED W. NOFFS
By M. F. Cargill atty.

Patented Mar. 1, 1932 1,847,097

UNITED STATES PATENT OFFICE

FRED W. NOFFS, OF BELLWOOD, ILLINOIS

SWITCH

Application filed April 5, 1928. Serial No. 267,531.

This invention relates to improvements in vehicle signalling switches.

The principal object of the invention is to provide apparatus which can be manually operated by the driver of the vehicle to indicate to other drivers and pedestrians both at his front and rear, and to the sides, of his intention to make a right or left hand turn.

Another object of the invention is to provide an improved device which can be attached in a convenient position on the steering column where it will not interfere with the operation of the steering wheel.

A further object relates to the provision of improved signal lamps particularly adapted for use with the apparatus.

Other objects relate to various features of construction and arrangement of parts which will be apparent from a consideration of the following specification and accompanying drawings wherein:

Figure 1 is a perspective view of a contact carrying body member and casing, parts being broken away and detached for the purpose of clearness.

Figure 2 is a broken view of a steering column showing the improved device thereon.

Figure 3 is a longitudinal sectional view of a slide member, taken on line 3—3 of Figure 1.

Figure 4 is a transverse section of the slide taken on line 4—4 of Figure 3.

Figure 5 is a broken central vertical longitudinal section of the body member.

Figure 6 is a transverse section of the body member taken on line 6—6 of Figure 5.

Figure 7 is a plan view of a casing cover.

Figure 8 is broken side elevation of the casing and cover.

Figure 9 is an end elevation thereof.

Figure 10 is a plan view of a modified form of body member in the casing with the cover removed.

Figure 11 is a top plan view of a modified cover.

Figure 12 is a side elevation of the cover.

Figure 13 is a diagram of the electric circuit.

Figure 14 is a diagram of a slightly different circuit.

In the drawings 10 indicates generally the body of the signalling device and is molded preferably of insulating material, such as bakelite. The body 10 has central longitudinal slide channels 11, extending transversely from which are channels 12, which are arranged in series of three on each side of each of the channels 11. The channels 12 communicate with the narrower, longitudinal channels 13 which in turn communicate, at their inner ends, with the slots or passages 14 which extend downwardly through the enlarged central portion 15 of the body 10.

Angular or L-shaped contacts 16, 17 and 18 are provided in each series of channels 12, the contacts at their bases being housed flush in the base of the channels and being secured therein by screws 20 as shown in Figure 5. The contacts 17, 18 of each series are electrically connected by a strip 21 inserted flush in the side wall of the channel 11.

To each of the contacts 16 and 18 conductors 22 and 23 pass through channels 13 into and through the passages 14 to the conduit 24 (see Figure 2) and form parts of the electric circuit hereinafter described. The contact 18 of each series can be omitted and the conductor 23 may in that case be connected directly to contact 17 instead of through the conducting strip 21 but at present the first arrangement is preferred.

An opening 25 is provided in each half of the body 10 for receiving a small electric light bulb 26, the conductors for which pass through the slots 27 into channels 13 and thence through the passages 14 through the conduit 24.

Each conductor 22 of the left hand side of the device connects with one of the two left hand signal lamps FL or RL the former being mounted at appropriate places at the front and rear portions of the vehicle, such as on the fenders. The other conductors 23 at the left hand portion of the body make connection with the battery of the vehicle, other leads from the lamps being provided to complete the circuit to the lamps when the contacts 16, 17 are bridged. The front

right and rear right lamps, indicated as FR and RR in the diagram shown in Figure 14, are similarly lighted when the right hand contacts 16, 17 are bridged. In other words, by bridging the two series of contacts of either the right or left hand side of the device, the corresponding front and rear signal lamps will be lighted to indicate that the driver intends to make a corresponding turn.

The means for closing the circuits of the signalling lamps comprise slide members 28, each of which is arranged to slide in one of the channels 11. The members 28 are of insulating material and have longitudinal channels 29 in their upper surfaces, in which are positioned frictional retaining shoes 30. As shown in Figure 3 each shoe 30 has threaded openings which receive screws 31, the heads of which are disposed in recesses 32 formed in the bottom face of the slide. Springs 33 exert pressure upwardly on the shoes 30 which contact with the inside of the cover 34 of the casing 35. This constructure holds the slide in circuit opening or closing position against accidental displacement.

Secured by screws 36 to the ribs 37 of the slide 28 are contacts 38 substantially of U shape. The left hand slide of Figure 1 is shown in detached relation for the purpose of clearness while the right hand slide is shown in position in which the contacts 38 bridge the contacts 16, 17 of both right hand series. In this position of the right hand slide 28, the right front and right rear lamps will be lighted. The slide however is slidable in the channel 11 by means of the handle 39 which projects through a slot 40 in the cover of the casing or by the end handle 41 which projects through an opening 35^a in the end of the casing 35. The handle 39 is secured by means of a screw 42 which passes through the slide 28. A dust guard 43 is secured between the handle 39 and a spacing washer 44 carried by the screw 42. The guard 43 is spaced to slide along the top of the casing cover and closes the slot 40 to exclude dust and other foreign matter as will be clear.

The contacts 38, as will be seen, rest on the horizontal portions of the contacts 16, 17 and also abut against the vertical portions thereof and thus insure good electrical connections when the slide is in circuit closing position. The shoes 30, in addition to holding the slides against displacement, also tend to increase the closeness of the contact between the members 38 and the angular faces of the contacts 16 and 17 as will be seen. The screws 31 provide means for varying the frictional contact of the shoes 30 with the casing cover 34.

In Figure 14 is shown a diagram of the wiring circuit. When the two pairs of contacts 16 and 17 on either the right or left hand side of the device are bridged, current will flow from the battery to the corresponding lamps. Assuming that the left hand contacts are bridged, current will flow thru the wires 45, 22, lower contacts 16, 17, wire 23, thence through wire 46 to the front left light and returns through wire 47, wire 23, upper contacts 16, 17, wire 22, and wire 48 to the battery. Current also flows from wire 23 through wire 49 to the rear left light and through wire 50 to the tell tale light 26, thence to wire 23, contacts 16, 17 wire 22 and wire 48 to the battery. The opposite or right hand circuits are similar. It will be noticed that the rear lights and corresponding tell tale lights are in series and hence the condition of the rear lights will be indicated by the tell tale lights. The front signal lights are visible to the driver from his position in the seat.

The casing 35 for the body 10 may be secured to the steering column 51 beneath the steering wheel 52 by any approved means. For instance it may be clamped in position by means of threaded flanged members 53, 54, the column 51 being correspondingly threaded. The body 10 has a central opening 55 whereby it can be positioned on the column when the steering wheel and associated portions are removed. The casing and cover are similarly apertured. In this form of the invention the cover is preferably made in three sections 34a, 34b and 34c as shown in Figures 7 and 8. The sections 34b, 34c are removable for convenience of installation, repair or inspection and are provided with windows 56 beneath which are positioned the tell tale lights 26. The cover sections 34b, 34c may be flanged, as indicated in Figure 8, through which flanges set screws may pass for securing the sections in position.

In Figures 10 to 12 inclusive is illustrated a modified form of the improvements in which the body member 57 is shown divided transversely through the center to form two similar sections 57a. The casing 58, and cover 59 are also each formed in two sections, the casing sections being hinged at 60 and having flanges 61, 61 by means of which they can be clamped in position in the column without removing the steering wheel. The body sections 58, 58 can then be inserted and the cover sections then positioned on the casing and secured by screws 62. The casing sections 58 may be provided with semi-cylindrical flanges 64 whereby by means of set screws 64′, the casing can be secured to the steering column.

From the above description it will be seen that the driver of a vehicle equipped with the present improvements, can indicate a contemplated right or left turn by pushing in the appropriate slide 28. This operation can be effected by merely pushing on one of the handles 41 and when the turn has been com-

pleted the device can be returned to neutral or off position, by moving the slide in the opposite direction which can best be accomplished by using the vertical handle 39.

The device has few parts to get out of order and is positive in operation and gives a signal to persons at both sides of the vehicle due to the triple lens lamp.

In Figure 14 another diagram of the signalling circuits is shown in which the front and rear signal lamps of each side of the vehicle and the corresponding pilot lamp are arranged in parallel whereby when the respective slide or switch members are moved to closed position all said lamps will be lighted as in the circuit shown in Figure 13. However, the pilot lamp will be lighted independently of the other lamps and serves merely to indicate to the driver that the switch is closed. Where this circuit is used the sockets of the signalling lamps, especially the rear ones, will be of the multiple type to carry two or more parallel lamps as a precaution against failure of the signals should one of the light bulbs burn out.

Although I have shown certain features of my improvements for the purpose of illustration it will be apparent that various changes may be made therein without departing from the spirit of the invention as defined in the appended claims.

What I claim is:

1. A circuit controlling device comprising a body member of insulating material, said body having transverse channels therein and longitudinal channels extending inwardly from the ends thereof, a slide in each horizontal channel, a U-shaped circuit closing member on each side of each slide member having its ends extending into certain of said transverse channels, contacts within said transverse channels adapted to be bridged by said closing members when said slides are moved to one extreme position in the channels, a covered casing enclosing the body member and slides, and hand operable means extending through said casing for operating said slides.

2. A signal device comprising a body member formed of molded insulating material, the body having a central opening for receiving the steering column of a vehicle, said body having centrally disposed longitudinal channels in the upper face thereof, contact members adjacent the channels, a slide member in each of said channels provided with circuit closing devices adapted to engage the respective contacts for controlling suitable signalling circuits, the body having additional conductor channels in said face substantially parallel with said first channels and providing access to said contacts on the side of the latter removed from said first channels, said conductor channels terminating in downward passages adjacent said central opening for the passage of the conductors from said body, a cover for said body, and friction means carried by said members and coacting with the inner surface of said cover for retaining said slide members against accidental displacement.

In witness whereof I have subscribed my name.

FRED. W. NOFFS.