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SWITCH FOR SIGNALING SYSTEMS

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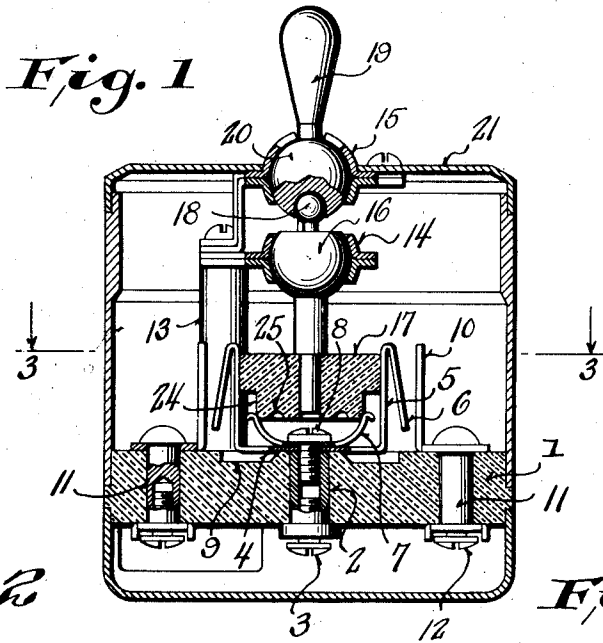


Fig. 2

Fig. 3

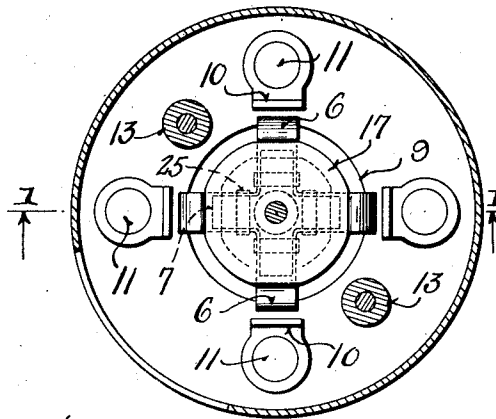
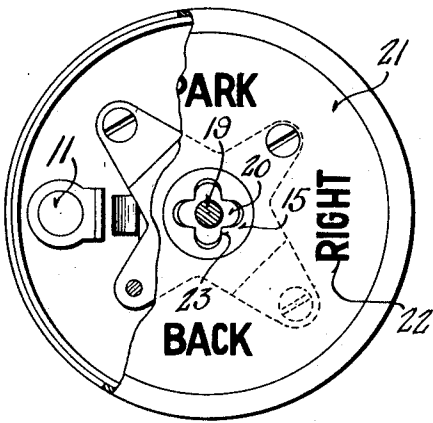
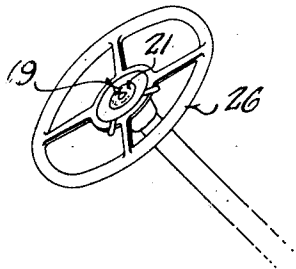


Fig. 4



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SWITCH FOR SIGNALING SYSTEMS

Application filed July 18, 1929. Serial No. 379,144.

This invention relates to switches and is particularly directed to switches for signaling systems, such, for instance, as shown in my copending application for signaling systems for automotive vehicles, Serial Number 377,821, filed July 12, 1929.

In driving automobiles, aeroplanes or other automotive vehicles, if the driver has to select one of a plurality of buttons or switches in order to give the desired indication, his attention is needlessly distracted and he has to temporarily look away from the line of travel to select the proper push button or switch.

This invention is designed to overcome the defects noted above and objects of this invention are to provide a signaling switch in which a single universally mounted member is provided which may be moved in any direction desired corresponding to the intended direction of travel of the vehicle, which is adapted to selectively control any one of a plurality of different signaling circuits, which does not require any thought on the part of the operator as he is merely required to move the lever or handle in the direction which the vehicle is intended to go.

Further objects are to provide a signaling switch of extreme simplicity, which is easy to construct and assemble, which may be made by ordinary machine shop processes, and which may be made at a very low cost.

Further objects are to provide a signaling switch in which a plurality of stationary contacts are arranged in a circle about a spider-like member provided with a plurality of movable contacts adapted to engage the stationary contacts, in which a universally mounted movable member is provided which is adapted to selectively operate any one of the movable contacts to cause such movable contacts to engage or bear against the corresponding stationary contact, and in which there is a slight sliding contact between the movable contacts and the stationary contacts to thereby keep the contacts clean.

Further objects are to provide a novel form of switch in which a spider spring cooperates to temporarily hold the movable members in any of several predetermined positions to which it may be moved and in neutral or central position.

Further objects are to provide a type of switch, as outlined above, in which a spider-spring and a spider-like contact member are locked to the body portion by a substantially centrally arranged conductor receiving stud or member.

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

Figure 1 is a vertical sectional view through the switch, such view corresponding to a section on the line 1—1 of Figure 3.

Figure 2 is a plan view of the switch with parts broken away and in sections.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a perspective view showing the switch applied to the steering column of an automobile.

The switch comprises a body portion 1 formed of insulating material such as fibre or bakelite. This body portion is provided with a centrally arranged contact stud 2, as shown most clearly in Figure 1, which projects through the body portion and which is provided on its lower side with a conductor clamping screw 3.

The switch is provided with a spider-like contact member 4 which is provided with a plurality of angularly turned arms 5 which terminate in downwardly looped portion 6. The arms 5 and 6 constitute movable contact members as will hereinafter appear. The spider-spring 7 is positioned upon the spider-like contact member 4 and this spring and the contact member are locked in place by means of the screw 8 passing therethrough and into the center stud 2.

It is to be noted that the body portion is provided with an angular cut-out 9 which

provides space for a portion of the movable contact members when they are deflected as will hereinafter appear. The body portion is provided with a plurality of stationary contact members 10 which surround the movable contact members and which are locked in place by the studs 11, in the same manner as described in connection with the movable contact members. The lower end of the studs 11 are provided with conductor receiving screws 12.

The body portion carries a plurality of pillars 13 which, in turn, carry a lower socket bearing member 14 and an upper socket bearing member 15. The lower socket bearing member 14 carries a universally mounted member 16 provided with a downwardly projecting portion having an operating head 17 formed of insulating material and of generally cylindrical contour, although obviously the shape of this head may vary. The head is preferably provided with flattened faces which engage the movable contact arms or members as shown. The universally mounted member is provided with upwardly projecting stem terminating in a ball 18.

An operating member such as a handle 19 is provided for operating the switch. This handle is carried by the bearing ball 20, seated within the upper socket 15 and having a lower portion recessed for the reception of the spherical end 18 of the universally mounted member.

It will be seen that the handle is universally mounted and that the head 17 of the lower member moves in the same direction that the handle is moved. For example, if the handle 19 is rocked to the left as viewed in Figure 1, the head 17 is also rocked to the left. The switch may be provided with any suitable form of casing having a top 21 apertured for the reception of the upper portion of the socket 15 as shown in Figures 1 and 2 and provided with legends 22 (See Fig. 2) to indicate the different circuits controlled by the switch. Preferably the upper portion of the socket 15 is provided with notches or slots 23 (See Fig. 2) which constrain the handle to move in different predetermined paths arranged at an angle to each other. The number of slots, of course, corresponds to the number of paths of stationary and movable contacts.

In order to temporarily hold the switch in neutral position use is made of the spider spring 7 (See Figs. 1 and 3) which cooperates with the head 17 in a novel manner. The out-turned ends of the spider spring 7 normally engage slightly flattened faces formed on a reduced cylindrical portion 24 of the head. At least one pair of the arms of the spider spring constantly engage the corresponding flattened faces of the head and thus prevent rotation of the head. In addition to this, the arms of the spider spring are

rounded at their upper ends and are adapted to snap into notches 25 formed in the lower face of the head 17 when the head is rocked laterally into any of its predetermined positions. These spider springs, therefore, cooperate with the head to provide a temporary locking means tending to hold the head in its outermost position whenever the head is moved. This construction, therefore, holds the particular pair of contacts in engagement with each other until the handle is positively moved back to its neutral position.

It is preferable to mount the switch on the steering column of an automobile centrally of the hand wheel 26 as shown in Figure 4 so it will at all times be within easy access of the driver. Obviously the switch can be mounted wherever desired without departing from the spirit of this invention.

It will be seen that a very simple type of signal switch has been provided by this invention which utilizes a universally mounted member controlled in a suitable manner and itself controlling a plurality of pairs of contacts.

It will be seen further that by mounting the movable contacts independently of the universally mounted member that an extremely simple construction results and one which may be made at a very low cost.

It is to be noted further that there is a slight sliding action between the movable contacts and stationary contacts occurs during closing and opening and consequently the contacts clean themselves and insure a perfect operation of the switch at all times.

It is to be noted also that the switch has relatively few parts and is of sturdy construction.

Although the invention has been described in considerable detail, it is intended that such description be interpreted as illustrative rather than limiting, as the invention may be variously embodied and is to be interpreted as claimed.

I claim:—

1. A signaling switch comprising a body portion, a universally mounted member carried by said body portion, a plurality of stationary contacts surrounding said member, and a spider-like movable contact member secured to said body portion and having a plurality of integral arms adapted to be selectively engaged by said universally mounted member and forced into contact with a stationary contact.

2. A signaling switch comprising a body portion, a universally mounted member carried by said body portion, said member having a head formed of insulating material, a plurality of stationary contacts surrounding said member, and a spider-like movable contact member secured to said body portion and having a plurality of arms adapted to be selectively engaged by the head of said uni-

versally mounted member and forced into contact with a stationary contact.

3. A signaling switch comprising a body portion, a universally mounted member, a plurality of groups of contacts arranged in cooperating pairs surrounding said member and separate from said member and adapted to be selectively operated by said member, and an operating member for moving said first mentioned member; said members having a toggle joint connection.

4. A signaling switch comprising a universally mounted member having an insulated operating head, a plurality of groups of contacts adapted to be operated by said head, means for rocking said universally mounted member, said head having a plurality of spaced notches, and a spider spring having arms adapted to selectively engage said notches to temporarily hold said head in any one of a plurality of different positions.

5. A signaling switch comprising a universally mounted member having an insulated operating head, a plurality of groups of contacts adapted to be operated by said head, means for rocking said universally mounted member, said head having a plurality of spaced notches, and a spider spring having arms adapted to selectively engage said notches to temporarily hold said head in any one of a plurality of different positions, said head having a plurality of flat faces along its sides, some of the arms of said spider spring being adapted to engage said flat faces in all positions of said head, whereby said head is prevented from rotating.

6. A signal switch comprising a body portion, a pendant member adapted to swing in any one of a plurality of directions at an angle to each other, a spider contact member secured to the body portion below the lower end of said pendant member and having angularly turned arms surrounding the lower end of said pendant member and forming movable contacts, and a plurality of stationary contacts surrounding said movable contacts.

7. A signal switch comprising a body portion, a universally mounted member carried by the body portion and adapted to swing along different lines at an angle to each other, a spider contact member having its central portion secured to the body portion and having a plurality of outwardly turned arms, said arms terminating in looped portions constituting movable and yielding contacts, said universally mounted member having an operating head surrounded by said movable contacts, and a plurality of stationary contacts arranged adjacent said movable contacts and adapted to be engaged by said movable contacts.

8. A signal switch comprising a body portion, a plurality of stationary contacts carried by said body portion, a plurality of mov-

able contacts carried by said body portion and adapted to engage said stationary contacts, a pivotally mounted member for selectively forcing said movable contacts into engagement with said stationary contacts, said member being pivoted intermediate its ends, and an operating member pivoted intermediate its ends, said members having juxtaposed ends operatively coupled together.

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

BORNETT L. BOBROFF.

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