

SWITCH FOR SIGNALING SYSTEMS

Filed July 12, 1929

Fig. 1

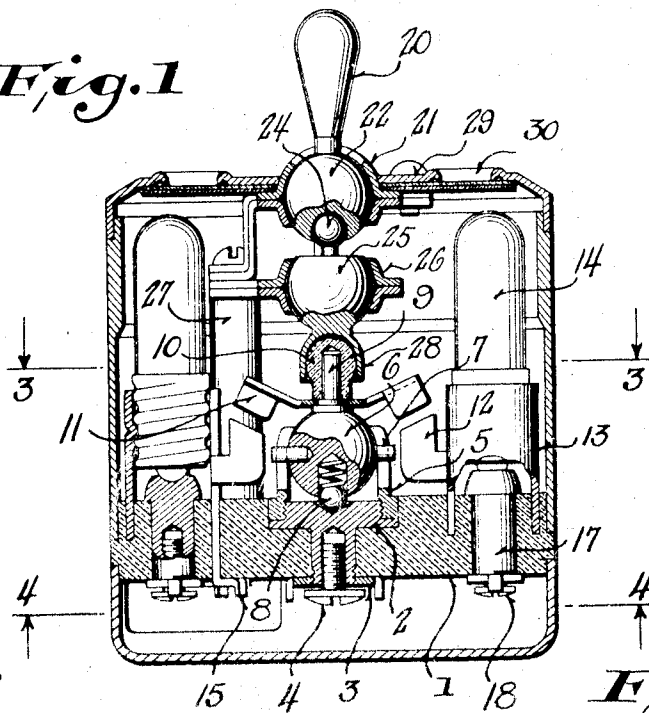


Fig. 2

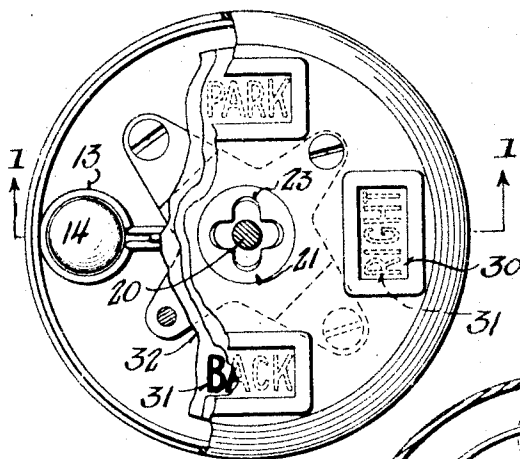


Fig. 3

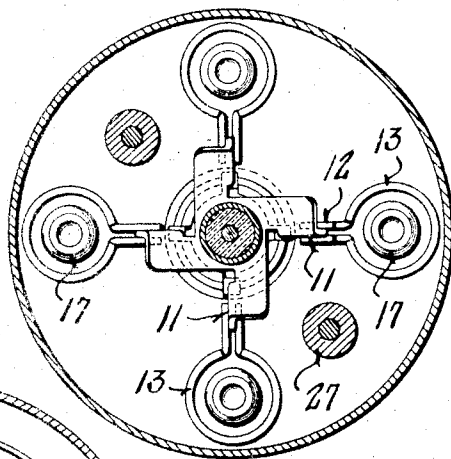
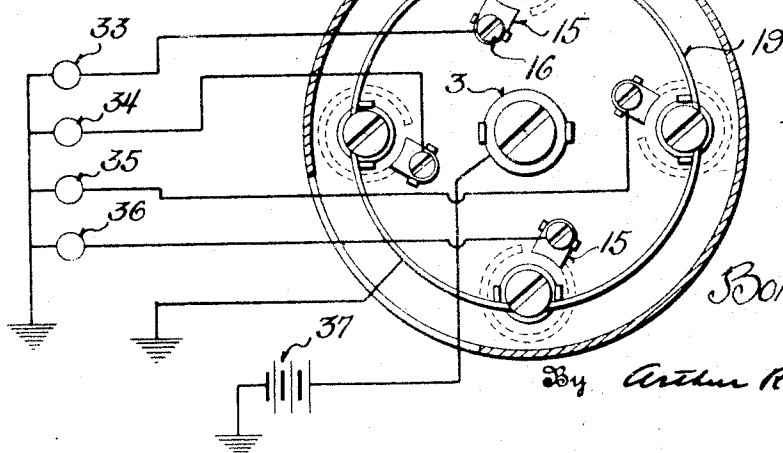


Fig. 4



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SWITCH FOR SIGNALING SYSTEMS

Application filed July 12, 1929. Serial No. 377,822.

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 an automobile, aeroplane, or other automotive vehicle, if the driver has to select one push button or switch from a group in order to indicate a particular direction in which he contemplates turning, his attention will be distracted from driving and more effort will be required of him than if he merely held his hand out of the window.

This invention is designed to overcome the defects noted above, and objects of this invention are to provide a novel form of switch for signaling systems which employs a single operating member or lever, which may be moved or rocked in the general direction in which it is intended to turn, which will give the desired connections to make the appropriate indications, which does not require any thought or effort on the part of the driver as he merely rocks or moves the operating member in the general direction in which he intends turning.

Further objects are to provide a switch in which a universally mounted operating member is provided, in which means are provided for constraining the member to move along paths at an angle to each other, for instance, at right angles to each other, and in which a very simple and practical construction is employed for securing the above noted result.

Further objects are to provide a switch for a signaling system in which a tell-tale lamp is associated with each pair of contacts, in which the tell-tale lamps are preferably carried within the control unit or switch, and in which novel means are provided for forming the stationary contacts as a part of the lamp sockets.

In greater detail, further objects of this invention are to provide a switch in which a series of stationary contacts cooperate with movable contacts carried by a universally mounted movable member, and to provide means for insuring not only the selective en-

gagement of a movable contact with the corresponding stationary contact, but also the correct alignment of a movable contact with the stationary contact it is about to engage so that there will be no undesirable angularity between engaging contacts.

Further objects are to provide a switch having the characteristics noted above, which is compact, which does not require any elaborate operations in producing it but which instead, may be simply constructed by ordinary machine shop processes.

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 2.

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

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

Figure 4 is a sectional view on the line 4—4 of Figure 1.

Referring to the drawings, it will be seen that the switch comprises a body portion, of fibre, bakelite or other insulating material. This body portion carries a central fitting or contact member 2 which is held in place by means of a clamping nut 3 and whose lower portion is provided with an internally threaded aperture for the reception of the conductor clamping screw 4. The upper portion of the fitting 2 is threaded and receives the shell or sleeve 5. This shell or sleeve is slightly contracted at its upper end so as to retain the ball 6 of the lower universally mounted member. Further, the shell 5 is provided with slots arranged at right angles to each other for the reception of pins 7 carried by the ball 6. The ball 6 carries a spring pressed small ball 8, which, together with the spring is slidably mounted within an aperture in the ball 6 of the lower universally mounted member. The ball 8 fits within the notched portion of the contact fitting or center contact member 2 and tends to hold the universally mounted member either in neutral position as shown, or in any of its laterally rocked positions.

The ball 6 or lower universally mounted

member is provided with a pin 9 which carries an insulated ball shaped member 10. Further, the lower universally mounted member carries a spider-like contact member provided with a plurality of movable contact blades or members 11.

A plurality of stationary contacts 12 are located in a circle about the universally mounted member and are arranged in pairs and are adapted to receive the corresponding movable contact member 11 between the adjacent bases of a pair. Preferably, the stationary contact members are formed integrally with sockets 13 for tell-tale lamps 14. The sockets, and consequently, the stationary contact members are provided with downwardly extending conductors 15 which project through the insulating base 1 and are provided with terminal attaching screws 16, as shown most clearly in Figure 4.

The center contacts of the tell-tale lamps 14, engage the center contact members 17 (see Fig. 1). The lower ends of these members project through the base 1 and are provided with conductor clamping screws 18. All of these center contact members 17 are connected together by means of conductor 19, as shown in Figure 4 and this conductor is grounded.

The means for moving the switch in any desired direction so as to close appropriate contacts may comprise an operating lever or handle 20 (see Fig. 1), which is carried by a socket 21 engaging the enlarged ball portion 22 of the handle. This handle or operating member, it will be seen, is universally mounted. It is constrained to move in predetermined paths at an angle to each other by means of slots 23 formed in the upper portion of the socket 21, as shown in Figure 2. The handle may be rocked into any one of these several slots.

The ball 22 is socketed and receives the upper ball shaped end 24 of an intermediate universally mounted member which operatively connects the upper or operating member with the lower or switch member, as shown in Figure 1. This intermediate member is provided with a ball 25 universally mounted within a socket 26. The sockets 21 and 26 are preferably carried by means of pillars 27 extending upwardly from the base 1. The lower end of this intermediate member is provided with a socket portion 28 which receives the rounded insulating portion 10.

Obviously, when the handle is rocked in one direction the intermediate member is rocked in the other direction and the lower universally mounted switch member is rocked in the same direction as the handle.

The switch is provided with a casing which is equipped with a top 29 provided with apertures 30 through which the legends 31, carried by a transparent plate or plates 32, will appear when the appropriate tell-tale lamp is

lighted. The legends 31 are painted on the under side of the transparent plate if a single plate is used, or else is painted on the upper side of the lower plate and is covered by the upper plate if two plates are used. Under all conditions the legends are invisible until a tell-tale light is lighted which illuminates the appropriate legend of the several legends.

As previously stated the switch is adapted to control any one of a plurality of signals such as indicated in my copending application. For instance, the members 15 which are in turn connected to the stationary contacts, as shown in Figure 1, are connected to the different indicating lights 33, 34, 35 and 36 indicated diagrammatically in Figure 4. The center contact member is connected to one side of the battery 37, the other side of the battery being grounded. Each of the lamps has one grounded side as indicated in Figure 4.

It is apparent that when the operating lever is swung in one direction a certain lamp of the group 33 to 36 is lighted. Similarly the appropriate tell-tale light is lighted.

It is to be noted particularly that when this switch is used in an automotive vehicle that no thought is required of the operator as he is merely required to move the lever 20 in the intended direction of travel. This automatically connects the appropriate indicating lamp as described in my copending application and also connects the corresponding tell-tale lamp.

It will be seen that a very substantial and relatively simple type of signaling switch has been provided by this invention which may be readily produced by ordinary machine shop methods.

It will be seen further that the switch is extremely compact and is free from any delicate or fragile parts which are likely to get out of order.

I claim:—

1. A switch for a signaling system comprising a body portion, a movable member universally mounted upon said body portion, an operating lever universally carried by said body portion, an intermediate universally mounted lever coupling said operating lever and said movable member, whereby said movable member rocks in same direction as said operating member, a plurality of movable contacts carried by said movable member and a plurality of stationary contacts adapted to cooperate with said movable contact.

2. A switch for a signaling system having a plurality of electrical circuits, said switch comprising a body portion, a movable member provided with contacts, said movable member being universally mounted upon said body portion, an operating lever universally mounted upon said body portion in axial alignment with said movable member, an intermediate universally mounted member op-

eratively coupling said lever and said movable member, and a plurality of stationary contacts adapted to be selectively engaged by said movable contacts.

5 3. A switch for a signaling system comprising a universally mounted member, a plurality of stationary contacts, a plurality of movable contacts controlled by said universally mounted member, and a second universally
10 mounted member for operating said first mentioned universally mounted member.

4. A switch for a signaling system comprising a universally mounted member, means
15 constraining said member to move along predetermined paths, a plurality of stationary and movable contacts whose selective engagement is controlled by said member and a
20 manually controlled member operatively coupled to said universally mounted member, said manually controlled member being supported independently of said universally mounted member.

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

25 BORNETT L. BOBROFF.

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