Sept. 9, 1930. J. J. RATTAY 1,775,320

SWITCH

Filed June 23, 1928

Fig. 1.

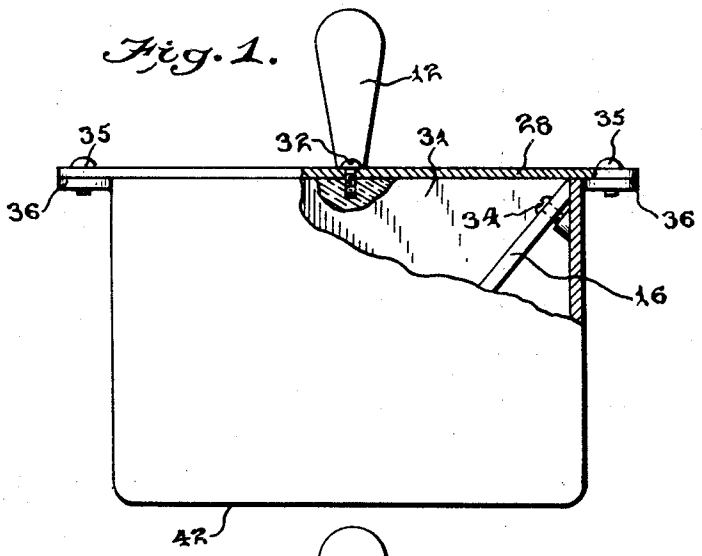


Fig. 2.

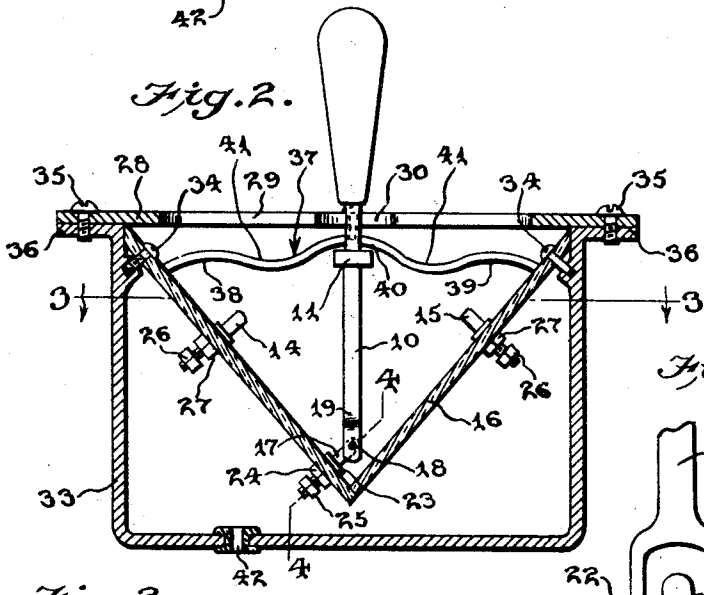


Fig. 3.

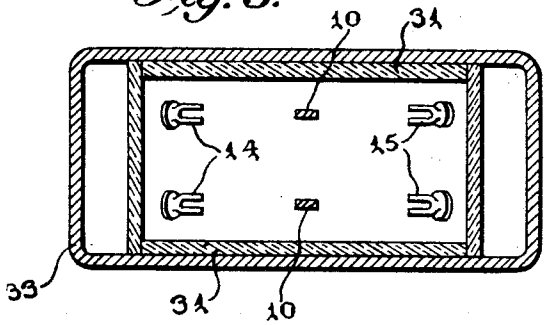
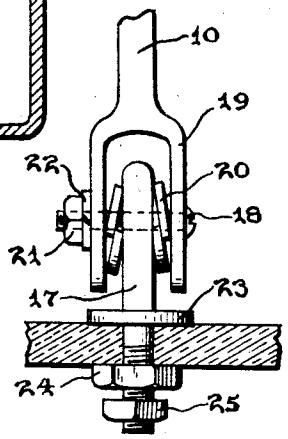


Fig. 4.



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UNITED STATES PATENT OFFICE

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SWITCH

Application filed June 23, 1928. Serial No. 287,705.

The object of the invention is to provide a switch particularly adapted as a remote control for vehicle direction indicators, as well as to provide a double-throw switch of compact form in which the two closing and neutral positions are effected by comparatively slight movement of the circuit closing element; to provide a switch in which the circuit closing element is retained positively in either of its two circuit closing positions or in neutral position—that is, positively retained in the sense that it is practically secure, when set in any position, against accidental displacement from that position; and to provide a switch which is of simple form and therefore susceptible of cheap manufacture and low marketing cost.

With this object in view, the invention consists in a construction and combination of parts of which a preferred embodiment is illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevational view of the invention, the outer casing being partly broken away.

Figure 2 is a central vertical longitudinal sectional view.

Figure 3 is a sectional view on the plane indicated by the line 3—3 of Figure 2.

Figure 4 is a detail sectional view on the plane indicated by the line 4—4 of Figure 2.

The switch comprises a movable circuit closing member and a plurality of stationary circuit closing members, of which the former follows the construction of the conventional knife switch, consisting of a pair of blades 10 of conducting material connected at one end by a cross bar 11 of insulating material, the latter at its longitudinal center having connected with it the actuating handle 12. The fixed or stationary contacts consist of clips 14 and 15 arranged in pairs and disposed for the reception of the switch blades as the latter are swung toward either pair. The switch clips 14 and 15 are mounted on insulating plates 16 arranged on convergent lines and united at their line of intersection, the switch blades being pivotally mounted on one of the plates 16 adjacent their connecting ends. The pivotal mounting of the switch blades 10 consists of studs 17 secured to the plates and pivot bolts 18 passing through the studs and through the forked extremities 19 of the blades, which forked extremities straddle the studs, spring washers 20 being interposed between the studs and the arms of the forks and the bolts 18 being provided with nuts 21 and lock washers 22, the lock washers bearing against the outer face of one arm of the fork of each blade and the nuts 21 engaging the lock washers, the heads of the bolts 18 bearing against the outer faces of the opposite arms of the switch blade forks.

The studs 17 are formed with fixed collars 23 bearing against the inner face of the plates 16 and nuts 24 threadingly engage the studs and bear against the outer face of the plates 16, additional nuts 25 being applied to the studs to constitute means for the attachment of conducting leads thereto.

The clips 14 are of the general form of the studs 17 and since they must necessarily be inclined in the circuits to be controlled, they are provided with nuts 26, in addition to the nuts 27 which secure them to the plates, for the purpose of connection of conducting wires to the clips.

The two plates 16 constitute the two walls of a triangular chamber in which the switch elements are housed, the top wall of this chamber being in the form of a cover plate 28 provided with a longitudinal slot 29 and through which the handle 12 extends, the slot being transversely enlarged at its center as indicated at 30 to permit the passage of the handle 12 in the assembling operation. Triangular blocks 31 of insulating material constitute the side walls of the triangular switch housing, these blocks being secured to the top plate 28 by screws 32 or some other acceptable form of fastener.

An outer casing or housing is provided in the form of a metallic box 33, the plates 16 being secured to this box at their upper ends by means of screws 34. The plate 28 is also secured to the box 33 by means of screws 35 which pass through the plate and through ears 36 on the box, these screws serving also to hold the whole assembly in position.

The slot 29 provides for movement of the

handle 12 and shifting the latter along the slot will dispose the switch blades 10 either in engagement with the clips 14 or the clips 15, depending on the direction of movement, and when the handle is positioned in the enlarged portion 30 of the slot 29 the blades will be disposed equal distances from both pairs of clips. To provide for the positive retention of the switch in either of the three positions, there are mounted in the triangular chamber housing the switch a pair of spring retaining members 37 secured to the plates 16 above the clips 14 and 15 respectively. The spring retaining members are of sinuous form so that on their under faces they provide terminal recesses 38 and 39 adjacent the clips 14 and 15 respectively and an intermediate recess 40 directly below the enlarged portion 30 of the slot 29. The several recesses are separated by bulges 41. The spring retaining members 37 straddle the cross bar 11 on the opposite side of the handle 12 and by movement of the handle, this cross bar may be engaged in any one of the recesses 38, 39 or 40, the spring members being sprung by the cross bar passing under the bulges 41. Obviously the spring retaining members constitute a means for retaining the switch blades in engagement with either the clips 14 or 15 or in the neutral position, depending on the recess in which the cross bar is engaged.

The interior triangular chamber constitutes the protective means for the switch and its associated elements and the outer casing or box 33 constitutes the protective means for the connection of the conducting wires with the hinge studs and the clips and in order that the conducting wires may be readily brought into the box 33, the latter is provided with a bushed opening 42 through which the wires may pass.

The invention having been described, what is claimed as new and useful is:

1. A switch comprising converging plates of insulating material, a bladed switch having its blades connected with a cross bar, the blades being pivotally mounted on one of said plates, switch clips mounted on each of said plates and selectively engageable by the switch bars, and spring retaining members spanning said cross bar and formed with recesses adjacent said clips and with an intermediate recess, the retaining members having bulges disposed between the recesses and the cross bar being engageable in any of said recesses to hold the switch blades in engagement with the clips on either plate or spaced from both.

2. A switch comprising a top plate formed with a longitudinal slot, converging plates of insulating material disposed below said top plate and having their line of intersection at the longitudinal center of the top plate, a knife switch having a pivotal mounting adjacent the line of intersection of the converging plates, clips secured to said converging plates adjacent the top plate, a handle connected with the switch and extending through said slot, and a resilient retaining means engaging the switch to yieldingly retain it in position with the clips on either of said plates, or in a position with the handle at an intermediate point in the length of the slot in the top plate.

3. A switch comprising a top plate formed with a longitudinal slot, converging plates of insulating material disposed below said top plate and having their line of intersection at the longitudinal center of the top plate, a knife switch having a pivotal mounting adjacent the line of intersection of the converging plates, clips secured to said converging plates adjacent the top plate, a handle connected with the switch and extending through said slot, and a resilient retaining means engaging the switch to yieldingly retain it in position with the clips on either of said plates, or in a position with the handle at an intermediate point in the length of the slot in the top plate, said retaining means consisting of springs spanning the switch cross bar, said springs being of sinuous form to provide spaced recesses on the under face with dependent bulges separating the recesses and the switch cross bar being selectively engageable in any of said recesses.

In testimony whereof he affixes his signature.

JOSEPH J. RATTAY.