

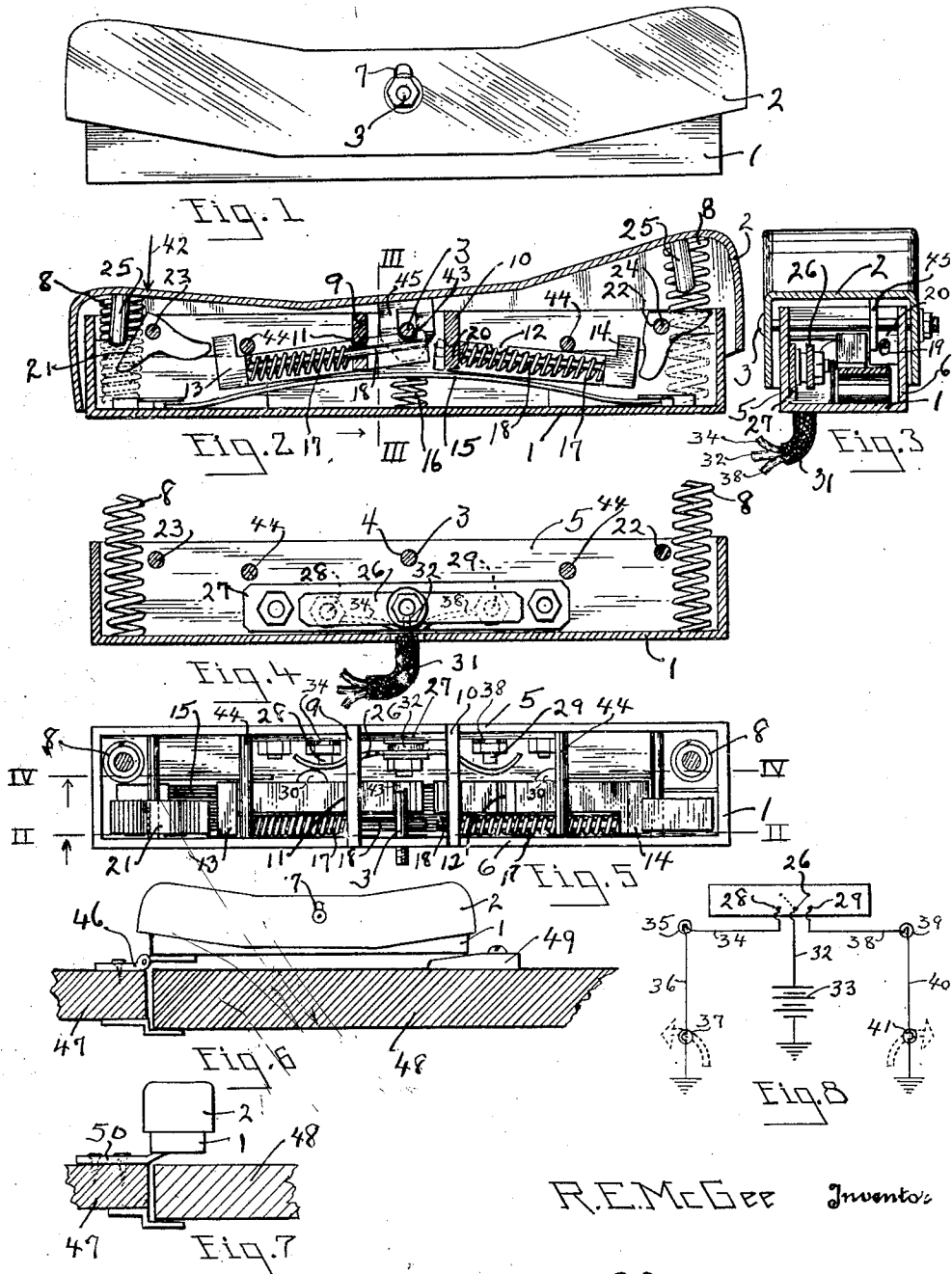
Sept. 8, 1931.

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1,822,706

SWITCH

Filed June 23, 1930



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SWITCH

Application filed June 23, 1930. Serial No. 462,945.

This invention relates to switches for the selective operation of either of two circuits, and it is particularly designed for use in an automobile for the display of either of two direction signals.

5 The principal object of the invention is the provision of a switch which may be operated by the foot of a driver who intends to turn to the right or to the left, the switch
10 being arranged to close either of two circuits and to hold that circuit closed to maintain a display of the signal until the switch is again actuated by the driver to break the circuit. A further object of the invention
15 is to provide a double switch for two circuits so arranged that the actuation of one element to close one circuit will automatically actuate another element to open the other circuit if it is already closed.

20 Another object is to enclose the switch within a strong protective cover to prevent injury to the parts, the cover being movable to actuate the switch. Further objects will appear in connection with the detailed description of an illustrative example showing
25 a preferred form of the invention, it being understood that changes and modifications may be made in the structure without departure from the broad scope of the invention.

30 In the drawings, Figure 1 is a front elevation with the cover in its normal position; Fig. 2 is a longitudinal section on the line II—II of Fig. 5, the cover being shown as depressed upon one side; Fig. 3 is a transverse section on the line III—III of Fig. 2; Fig. 4 is a longitudinal section, approximately on the line IV—IV of Fig. 5; Fig. 5
35 is a plan view with the cover removed; Fig. 6 is an elevation indicating the relation of the switch to the floor board of an automobile, the board being in section; Fig. 7 is an elevation of a modified form of mounting; and Fig. 8 is a diagram of the wiring.

45 The switch is shown as enclosed in a casing 1 having a cover 2 pivotally mounted thereon by means of a pin 3. The pin 3 fits within openings 4 in the side walls 5 and 6 of the casing, its outer ends passing through
50 slots 7 in the cover 2. Springs 8, 8, normally

hold the cover projected upward, the lower ends of the slots 7 limiting the upward movement of the cover.

The casing 1 has transverse detent bars 9 and 10, the lower edges of which are adapted
55 for engagement within notches 11 and 12 in sliding switch-bolts 13 and 14, a leaf spring 15 beneath the bolts acting to hold the bolts upward in contact with these detent bars. A coil spring 16 may be used to reinforce the
60 spring 15 if desired, this spring being omitted in Fig. 3.

Each of the switch-bolts has a spring 17 carried by a rod 18 secured within the head of the bolt, each rod passing through a slot 19 (Fig. 65
3), in a downwardly extending portion 20 of the detent bar 9 or 10, the slot permitting the rod and the bolt to move up and down. These springs 17 expanding between the head of the bolt and the part 20 act normally to hold the
70 switch-bolts in inoperative position, and they return the bolts to inoperative position when released from contact with their detents.

Bell crank levers 21 and 22 pivoted on transverse rods 23 and 24 have one arm of
75 each lever extending downward opposite the head of one of the switch bolts. The other arm of each lever lies beneath a push rod 25 projecting from the cover 2. Downward pressure exerted upon either end of the cover
80 causes compression of a spring 8 until a rod 25 engages an arm of the bell crank lever. Further downward movement of the cover causes the lever to swing about its pivot rod, the lower arm of the lever thrusting a switch
85 bolt lengthwise against the resistance of its spring 18.

When the bolt slides far enough, the spring 15 forces the notch 11 or 12 into engagement with the detent 9 or 10, and the continued
90 pressure of the spring 15, or of the two springs 15 and 16 when 16 is used, together with the friction of the bolt notch upon the detent bar will be sufficient to prevent the bolt from being thrown back by the spring 17 when the
95 cover is released and is swung upward by the spring 8.

Upon the side wall 5 of the casing is mounted the central portion of a spring contact member 26 upon an insulating base 27 which
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also serves to insulate contacts 27 and 28 which are set each opposite one end of the movable contact member 26. Upon each switch-bolt is a projection 30 arranged to engage the movable end portion of the member 26 and to move it into contact with one of the stationary members 28 or 29. The detent holds the switch-bolt with the projection 30 maintaining engagement of the movable and stationary contacts.

A cable 31 holds a wire 32 from the battery 33, the wire 32 being connected to the contact member 26, and the cable also has a wire 34 which extends from the contact 28 to a pilot light 35 connected by a wire 36 with a direction signal light 37 indicating a left turn, and a wire 38 which extends from contact 29 to a pilot light 39 connected by a wire 40 with a direction signal light 41 indicating a right turn. The lamps at 37 and 41 are both grounded.

In Fig. 2, the cover is shown as pressed down, as by a force applied at the point indicated by the arrow 42, the bolt 13 having been pushed forward until the notch 11 is engaged with the detent member 9. The cover has been allowed to recede until the push rod 25 no longer touches the bell crank lever 21 which has swung away from the head of the bolt 13 and hangs loosely on the rod 23.

As a further means for increasing the friction, a notch 43 may be formed upon the upper surface of the bolt 13 or 14 to engage the pin 3 within the common space occupied by both bolts as each is moved to operative position, and a cross pin 44 lying just above the bolt prevents the spring 15 from lifting the bolt too high for proper operation.

In the center of the cover is a downwardly extending slotted plate 45, which in Fig. 2 is shown as held above the spring 15 by the action of the spring 8 at the right. If the cover is pressed down at its center, compressing both springs 8, the plate 45 will engage the spring 15 and force it out of contact with the bolts 13 and 14, whereupon the spring 17 will act to thrust the bolt 13 into inoperative position, the frictional contact with the detent bar no longer being sufficient to overcome the force of the spring 17.

It will thus be apparent that with the switch in inoperative position with the cover lifted by both springs 8 to the limit set by the slots 7, as shown in Fig. 1, a downward pressure on the right end of the cover will cause the bolt 14 to close the circuit through the pilot light 39 and the right turn signal 41 by bringing the movable contact member into engagement with the stationary contact 29, and the signal will remain displayed until the cover is either pressed down in the center to cause the plate 45 to depress the spring 15 and thus to release the bolt 14, or until the cover is pressed down at the left to thrust the bolt 13 to the right, bringing

the ends of the bolts 13 and 14 together and pushing the bolt 14 out of engagement with its detent, the resilient member 15 yielding to permit the bolt 14 to slide, and the spring 17 completing the movement of the bolt to its inoperative position with the contact member 26 free from the contact 29.

Similarly, downward pressure at the left will cause the bolt 13 to close the circuit through the pilot light 35 and the left turn signal 37 by bringing the contact member 26 into engagement with the contact 28, and this signal will remain displayed until the cover is pressed down at the middle or at the right. The operator by observing the pilot lights can determine when either turn signal is displayed since the corresponding pilot light will be illuminated only when the turn signal is operative, and vice versa.

In Fig. 6 is illustrated a preferred mounting for the casing in which a hinge 46 mounted on the side frame 47 of the car permits the switch to be swung up to remove the floor board 48. A wedge 49 may be used at the outer end of the switch casing to permit adjustment of the inclination of the switch to agree with the position of the side frame and floor board. In Fig. 7, a rigid bracket member 50 may be used instead of the hinge when the switch is set parallel with the side of the car to tilt forward and back instead of right and left.

I claim:

1. A switch comprising a casing, a cover for the casing having a mounting upon the casing permitting pivotal movement and movement of the cover toward and away from the casing resilient means normally forcing the cover away from the casing at each end, two stationary contacts mounted upon the casing, a movable contact member mounted upon the casing, two bolts each mounted within the casing for sliding movement from an inoperative position to an operative position in which the bolt engages the movable contact member to move it and to hold it in engagement with a stationary contact, a spring to move each bolt into inoperative position, a lever for each bolt movable to cause the bolt to slide into operative position, and means upon the cover to engage either lever at will to cause movement of the bolt to operative position.

2. A device as in claim 1 having a detent to hold the bolt in operative position.

3. A device as in claim 1 having a detent, means to hold the bolt in contact with the detent to maintain it in operative position, and means upon the cover to cause the bolt to be released from its detent.

4. A device as in claim 1, in which both bolts in sliding into operative position move into the same common space, the device having a detent and resilient means to maintain

either bolt in contact with the detent to maintain it in operative position, whereby when one bolt is in operative position holding the movable contact member in engagement with one of the stationary contact members, movement of the other bolt toward operative position will cause the bolts to engage, the second bolt moving the first bolt out of the common space to release the movable contact member from the stationary contact.

from the detent, means to move the bolt into operative position, and means to release the bolt from the action of the detent spring.

In testimony whereof, I hereto set my hand.

R. E. McGEE. 70

5. A switch comprising a casing, a stationary contact mounted on the casing, a movable contact member mounted on the casing, a bolt slidable within the casing to an operative position in which it engages the movable contact member to move it and to hold it in engagement with the stationary contact, a spring to move the bolt into inoperative position, a detent to engage the bolt to hold it in operative position, and means to release the bolt from the detent.

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6. A switch comprising a stationary contact, a movable contact member, a bolt slidable to cause the engagement of the movable contact member with the stationary contact, a lever to move the bolt, an operating means to move the lever, and resilient means normally holding the operating means out of contact with the lever.

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7. A switch comprising a casing, a stationary contact member, mounted upon the casing, a movable contact member mounted on the casing, a bolt slidable within the casing to an operative position in which it causes the movable contact member to engage the stationary contact member, a lever to engage the bolt to move it into operative position, and an operating means to move the lever.

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8. A device as in claim 7, having a detent to hold the bolt in operative position, and means to release the bolt from the detent.

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9. A switch comprising two stationary contact members, a movable contact member, two movable switch bolts each adapted when moved to operative position to engage the movable contact member and to move it into engagement with the adjacent contact member, a detent spring to hold the bolt into engagement with a detent, a detent for each bolt to hold it in operative position, a spring for each bolt to move it into inoperative position when released from the detent, means to move either bolt at will into operative position, and means to release the bolt from the action of the detent spring.

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10. A switch comprising a stationary contact member, a movable contact member, a movable switch bolt adapted when moved into operative position to engage the movable contact member and to bring it into engagement with the stationary contact member, a detent spring to hold the bolt in engagement with a detent, a detent engaged by the bolt to hold it in operative position, a spring to move the bolt to inoperative position when released

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