Oct. 9, 1951 V. G. FARLEY 2,570,783

SWITCH AND OPERATING MEANS THEREFOR

Filed Nov. 3, 1950

FIG. 1

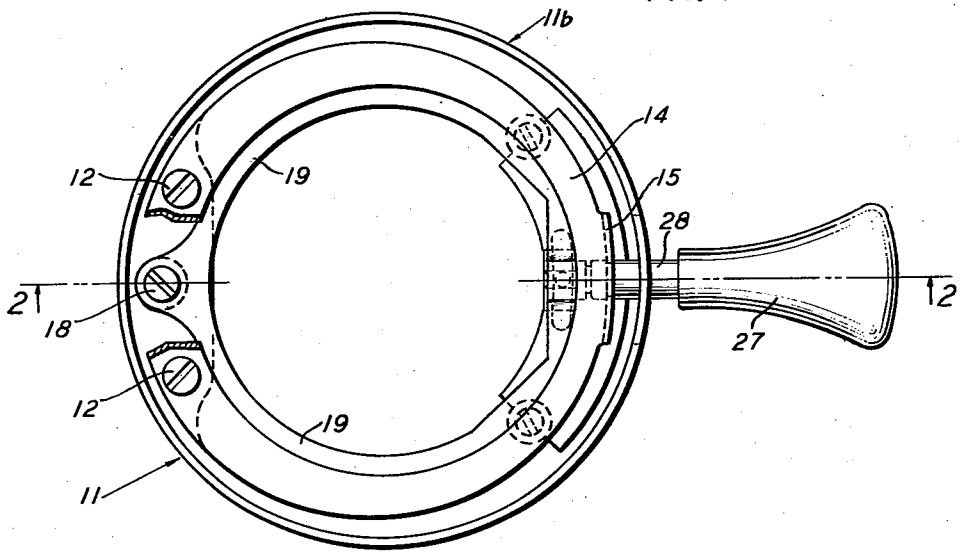


FIG. 2

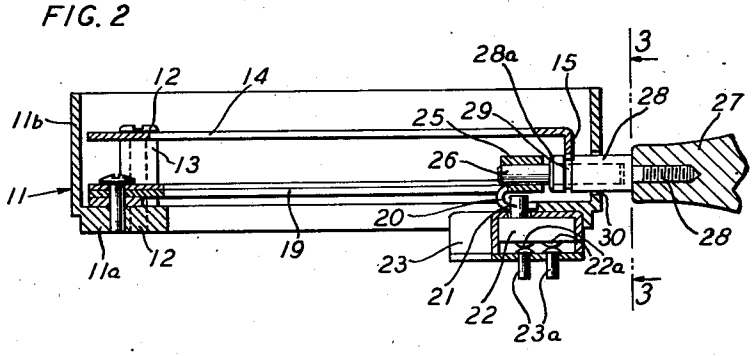


FIG. 3

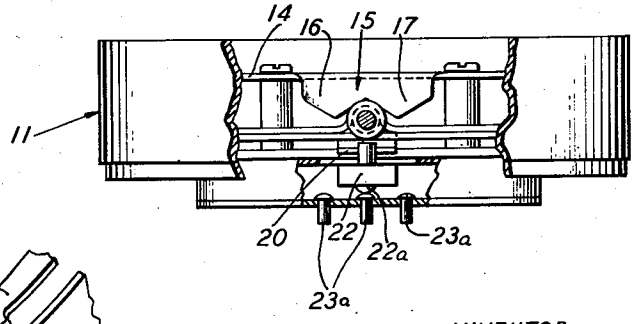
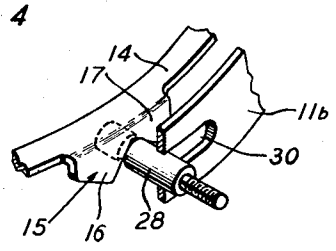


FIG. 4



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SWITCH AND OPERATING MEANS THEREFOR

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5 Claims. (Cl. 200—59)

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This invention relates to switches and operating means therefor and has for an object to provide an improved construction in which the operating handle may be readily removed and reapplied.

Another object is to provide a switch having a detent mechanism for detaining the switch in two or more positions of adjustment and having a removable operating handle which is held in place by a part of said detent mechanism.

Another object is to provide such an improved construction in which a part of the removable handle or other operating device cooperates directly with a spring biased detent.

Other objects will appear from the following description of an illustrative embodiment of the invention taken together with the attached drawings, wherein:

Fig. 1 is what may be regarded as a top view of a part of a switch and operating means therefor serving to illustrate one form the invention may take;

Fig. 2 is a horizontal cross-sectional view taken along the line 2—2 of Fig. 1, certain parts being shown in full;

Fig. 3 is a vertical sectional view taken along the lines 3—3 of Fig. 2, certain parts being shown broken away; and

Fig. 4 is a fragmental perspective view of certain of the parts.

Referring to said drawings, 11 indicates generally the base of the switch shown and may consist of a bottom ring 11*a* and a cylindrical enclosure ring 11*b*. Attached to the ring 11*a*, as by screws 12, are two supporting bushings 13 on the upper ends of which is supported an annular detent spring 14, it being clamped under the heads of screws 12. The other side of the detent ring is provided with a downwardly bent ear 15 formed with two V-shaped extensions 16 and 17 which together form four detent surfaces. Also attached to the ring 11*a*, as by a screw or rivet 18, is a switch operating ring 19 pivoted on said screw or rivet 18. Said switch operating ring at a point away from the pivot is formed with a bifurcated switch operating ear 20 which embraces a stud 21 attached to a slidable switch member 22 located within the housing 23. Said slidable switch member carries switch contacts 22*a* which cooperate as required with stationary switch contacts 23*a*. It will be seen that when switch operating member 19 is moved about its pivot 18, the switch member 22 will be caused to move so as to change the relationship of contacts 22*a* with contacts 23*a*. The switch shifting member 19 is also provided with a bushing 25 within which is firmly secured a rod 26.

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The switch operator consists of a handle 27 having molded or screw threaded thereinto a connector 28 formed with a tubular part to fit loosely over rod 26 and also provided with a circumferential groove 29 slightly wider than the thickness of the bent over ear 15 the edge of which is received in said groove 29. The connector member 28 extends through a slot 30 formed in the ring member 11*b*.

It will be readily understood that when the handle 27 is moved up or down from the position shown in Fig. 1, it will oscillate the switch operating ring 19 which will correspondingly operate the switch operating stud 21 and the switch member 22. Furthermore, the detent spring 14 will be cammed up out of the way while the connector 28 is passing under the high point of the V-shaped extensions 16 or 17 so that the switch operating ring 19 and associated parts will be detained in either the central position shown in Fig. 1 or a position above or below thereof. In addition to the parts 15 and 28 cooperating to provide such detent action, they perform a second function, namely, to lock the handle from withdrawal off of rod 26. This provides a simple and effective holding means at no cost and one permitting ready removal or replacement of the operating handle. To accomplish removal, a screw driver or the like is passed in through slot 30, is rocked to cam the detent spring 14 upwardly permitting the withdrawal of the handle 27 and connector 28. To replace the handle, the detent spring is similarly pried up by means of a screw driver or the like and the connector 28 pushed in over rod 26, or, if preferred, the end of connector 28 may be chamfered as at 28*a* so that it can be pushed into place without first raising the detent spring since the detent spring will be cammed up by the pressure of the chamfered edge thereagainst.

In the form shown, the center of the assembly is left open so that it may surround another member such as the steering post of a motor car in which event it may be used as a direction signal switch or the like. It is to be understood, however, that the present invention may be applied in various other ways. The convenient removal and replacement of the switch operating handle is particularly useful where it is desired to remove the handle for safety reasons as when the switch is used for controlling the motor of a dangerous machine. Another useful field of application is where it is desired to have

the switch handle readily interchangeable so that handles of different colors may be applied to fit in with the color scheme as when used for wall switches or in lamps or the like.

It will be noted that the construction shown and described will serve admirably to accomplish the objects stated above. It is to be understood, however, that the construction disclosed above is intended merely as illustrative of the invention and not as limiting, as various modifications therein may be made without departing from the invention as defined by a proper interpretation of the claims which follow:

I claim:

1. In a switch of the type having at least one stationary contact and at least one movable contact, the combination comprising a pivoted operator for operating said movable contact and formed with a cylindrical extension, a handle, a tubular member attached to said handle and telescopically embracing said cylindrical extension, said tubular member being formed exteriorly with a groove, and a spring detent extending into said groove and provided with detent surfaces, whereby said detent serves to detain the pivoted operator in different positions of adjustment and also serves to retain the handle against removal.

2. In a switch of the type having at least one stationary contact and at least one movable contact, the combination comprising a movable operator for operating said movable contact and formed with a cylindrical extension, a handle connected with said movable operator by means of a tubular member attached to the handle and formed with a groove, and a spring detent extending into said groove and provided with detent surfaces, whereby said detent serves to detain the movable operator in different positions of adjustment and also serves to retain the handle against removal.

3. In a switch of the type having at least one stationary contact and at least one movable contact, the combination comprising a movable operator for operating said movable contact, a handle

member connected with said movable operator by means of a telescopic connection comprising two telescoping members one of which is attached to the handle and is formed with a groove, and a spring detent extending into said groove and provided with detent surfaces, whereby said detent serves to detain the movable operator in different positions of adjustment and also serves to retain the handle against removal.

4. In a switch of the type having at least one stationary contact and at least one movable contact, the combination comprising a ring-shaped operator for operating said movable contact pivoted at one side, a handle member connected with said operator diametrically opposite its pivot by means of a telescopic connection comprising two telescoping members one of which is attached to the operator and the other is attached to the handle and is formed with a groove, and a ring-shaped spring detent supported near the pivot of said operator and formed with a bent over ear extending into said groove and provided with detent surfaces, whereby said detent serves to detain the movable operator in different positions of adjustment and also serves to retain the handle against removal.

5. A device for use in a switch having at least one stationary contact and at least one movable contact, an operator for operating said movable contact into and out of contact with said stationary contact, a handle for moving said operator and a spring detent for detaining said operator in one of a plurality of positions, said device comprising a tubular member having one end open and the other end provided with means for attaching it to said handle, said open end being adapted to telescope over a cylindrical extension attached to said operator and being provided with an external groove adapted to receive said spring detent.

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No references cited.