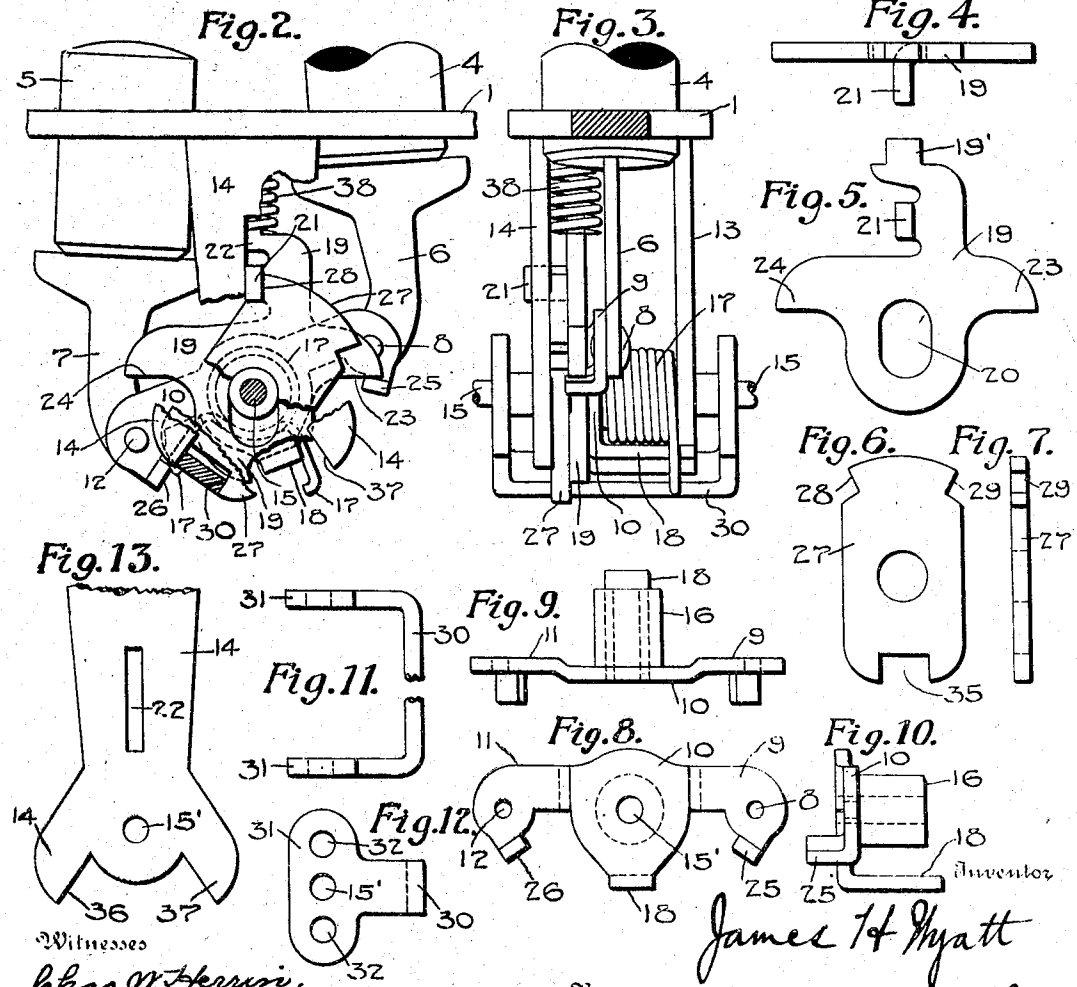
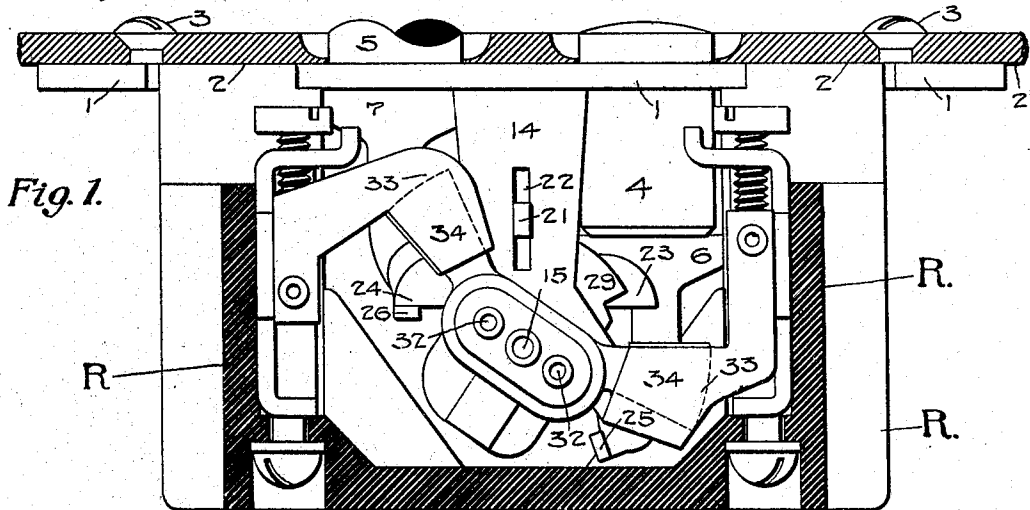


J. H. WYATT.
SNAP SWITCH.
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930,449.

Patented Aug. 10, 1909.



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SNAP-SWITCH.

No. 930,449.

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To all whom it may concern:

Be it known that I, JAMES H. WYATT, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Snap-Switches, of which the following is a specification.

My invention relates to an electrical switch and more particularly to a snap switch, and preferably of the type to be operated by push button or the like.

It is the object of my invention to produce a snap switch which shall make and break circuit with a sharp decisive movement and yet with the expenditure of a minimum of effort on the part of the operator. And it is the further object of my invention to produce a snap switch of the type disclosed in which it shall be impossible for the moving contacts to stop in any position other than the full open circuit position or the full circuit closing position. To this end I have provided a snap switch in which the contact carrying member is held restrained in both of its positions by a reciprocating detent or latch engaging with a locking member engaging the contact carrying member, projections being provided upon the operating or spring winding member for engaging the detent or latch only at very nearly the end of travel of the operating or spring winding member to lift the latch or detent and to permit the free and sudden movement of the contact carrying member.

My invention relates to further features hereinafter described and pointed out in the claims.

For an illustration of one of the forms my invention may take, reference is to be had to the accompanying drawing, in which:

Figure 1 is a vertical sectional view through the cover and switch box, the switch parts being shown in elevation. Fig. 2 is a side elevation of the switch mechanism isolated, the contacts being omitted and parts cut away for the sake of clearness. Fig. 3 is a vertical end elevation of the switch mechanism taken at right angles to the view in Fig. 2. Fig. 4 is an edge view of the detent or latch. Fig. 5 is a side elevation of the same. Fig. 6 is a front elevational view of the locking member. Fig. 7 is an edge view of the same. Fig. 8 is a front elevational view of the operating or spring wind-

ing member. Fig. 9 is a plan view of the same. Fig. 10 is an end view of the same. Fig. 11 is a side view of the contact carrying member. Fig. 12 is an end view of the same. Fig. 13 is a front elevational view of a portion of the switch supporting plate.

Referring to the drawing, R is a casing or receptacle of insulating material, such as molded porcelain, adapted to contain and surround the switch mechanism. Upon the top of the receptacle is secured the base plate 1 upon which the entire switch mechanism, except the stationary contacts, is supported. A finishing plate 2 is secured by screws 3 to the plate 1.

Apertures are made through the base plate 1 as well as through the finishing plate 2 to permit the passage of the two push buttons 4 and 5. The buttons 4 and 5 are mounted, respectively, upon the vertically disposed metallic members 6 and 7. The member 6 is pivoted at 8 to the arm 9 of the spring winding member 10 to whose other arm 11 there is pivoted at 12 the other button member 7. Depending from the under side of the base plate 1, between the buttons 4 and 5, are the two downwardly extending switch supporting members 13 and 14. Extending horizontally through them is the supporting spindle or shaft 15. The operating or spring winding member 10 has secured thereto a bushing or hub 16 through which the shaft 15 passes. A coiled spring 17 surrounds the bushing 16 and the ends of the spring 17 extend downwardly one on each side of the horizontal lug or projection 18 upon the operating or spring winding member 10. As viewed in Fig. 3, immediately to the left of the operating or spring winding member 10, is the detent or lock 19 which has the elongated opening 20 surrounding a bushing upon the shaft 15. The lock or detent 19 has an outwardly projecting lug 21 which extends through the slot 22 in the downwardly extending switch supporting member 14. The tongue 21 engaging in the slot 22, and the provision of the elongated slot 20, allows the detent or latch plate 19 to slide or reciprocate vertically. The lock 19 is provided with the two wings 23 and 24 which are adapted to be engaged respectively by the projections or lugs 25 and 26 upon the operating or spring winding member 10.

Immediately to the left of the detent or lock 19, as viewed in Fig. 3, is the locking member 27 which is freely mounted upon a bushing carried by the shaft 15 and which has the locking surfaces 28 and 29. The locking surfaces 28 and 29 are adapted to be engaged by the tongue or lug 21 upon the latch or detent plate 19.

The contact carrying member 30, shown in Figs. 11 and 12, has two end heads 31 having central openings 15' for the passage of the shaft 15 upon which the contact carrying member is pivoted, the outer holes 32 serving to receive fastening means for holding the movable contacts 33 carried by but insulated from the member 30 and adapted to engage the stationary contacts 34.

The horizontally extending portion 30 of the contact carrying member passes through the notch 35 in the locking member 27 and is embraced between the two ends of the spring 17 in the same manner as the horizontal lug or projection 18 of the member 10 is embraced. The horns 36 and 37, at the bottom of the switch supporting member 14, serve as limits for the movement of the contact carrying member.

Between the under side of the base plate 1 and the lug 19' upon the detent 19 is a spiral spring 38 embracing the lug 19' and tending to hold the latch 19 depressed.

With the parts in the circuit closing position as shown in Fig. 1, to open the circuit, the operator presses the button 5. This rotates the operating or spring winding member 10 in a counter-clockwise direction, as viewed in Fig. 2, thus winding the spring 17 whose one end is carried around in this movement by the lug 18 while the other end remains in contact with one side of the bar 30 of the contact carrying member. When the button 5 has very nearly completed its movement, the lug 25 on the end of the operating or spring winding member 10, opposite to the button 5, engages the wing 23 upon the latch or detent 19, raising the same, the lug 21 is raised in the slot 22 and finally lifted upwardly beyond the edge of the locking surface 28 on the locking member 27. When this point has been reached, the locking member 27 and contact carrying member are released and the contact carrying member and locking member 27 are thrown by the spring 17 to open circuit position, moving the movable contacts 33, 33' out of engagement with the stationary contacts 34, 34'. When the pressure upon the button 5 has been removed, the detent 19 is forced slightly downward and the lug 21 passes behind the corner of the locking surface 29 of the locking member 27 to prevent the switch parts being moved in opposite direction. Upon pressing upon button 4, the lug 21 descends still further behind 29 and fully locks the member 27 which is held in locked position

until tripped by the lug 26 engaging the wing 24 and lifting the detent 19 sufficiently. Thus pushing upon the one button or the other opens or closes the switch, the action being clean cut and positive, the tripping occurring only at the extreme end of the spring compressing movement, thus preventing the movable parts taking any positions intermediate the full open circuit or full circuit closing position.

What I claim is:

1. In a snap switch, the combination with a pivoted contact carrying member, of a locking member engaging the same, a spring, a spring winding member, a reciprocating latch engaging said locking member, and means on said spring winding member engaging and actuating said latch only just before the end of the movement of said spring winding member to disengage said latch from said locking member.

2. In a snap switch, the combination with a pivoted contact carrying member, of a locking member engaging the same, a spring, a spring winding member, a reciprocating latch engaging said locking member, and a projection on said spring winding member engaging and actuating said latch only just before the end of the movement of said spring winding member to disengage said latch from said locking member.

3. In a snap switch, the combination with a shaft, of a contact carrying member mounted on said shaft, a spring, a spring winding member, a latch plate embracing said shaft and engaging said contact carrying member and mounted for reciprocating movement only, and a projection on said spring winding member engaging and actuating said latch plate only just before the end of the movement of said spring winding member.

4. In a snap switch, the combination with a fixed member, of a pivoted contact carrying member, means rotating with said contact carrying member for restraining the same, a spring, a spring winding member, a latch for restraining said means rotating with said contact carrying member, said latch guided by said fixed member and mounted for reciprocating movement, and means on said spring winding member for engaging said latch only just before the end of the movement of said winding member to actuate said latch.

5. In a snap switch, the combination with a pivoted contact carrying member, of a spring, a spring winding member, a latch plate having reciprocating movement only, a member intervening between said contact carrying member and said latch, said latch engaging said intervening member for restraining said contact carrying member, a wing on said latch plate, and means operative just before the end of the movement of

said spring winding member to engage said wing to actuate said latch plate and release said contact carrying member.

6. In a snap switch, the combination with a pivoted contact carrying member, of a spring, a spring winding member, a reciprocating latch plate, means intervening between said contact carrying member and said latch plate for restraining said contact carrying member, said latch plate engaging said means to restrain said contact carrying member, fixed means for guiding said latch plate for reciprocating movement, a spring depressing said latch plate, and a projection on said spring winding member engaging and actuating said latch plate only just before the end of the movement of said winding member to release said contact carrying member.

7. In a snap switch, the combination with a pivoted contact carrying member, of a spring, a spring winding member mounted concentrically with said contact carrying member, a concentrically mounted locking member movable with said contact carrying member, a reciprocating latch plate engaging said locking member, and means on said spring winding member operative only just before the end of the movement of said spring winding member to disengage said latch plate from said locking member.

8. In a snap switch, the combination with a switch supporting member, of a shaft supported thereby, a contact carrying member movable upon said shaft, a spring, a spring winding member movable upon said shaft, a latch plate embracing said shaft and guided in said switch supporting member, means engaged by said latch plate intervening be-

tween said latch plate and said contact carrying member, and means on said spring winding member operative only just before the end of the movement of said spring winding member to engage and actuate said latch plate to unlock said contact carrying member.

9. In a snap switch, the combination with a fixed member, of a shaft, a pivoted contact carrying member, a locking member engaging and rotating with said contact carrying member, a spring, a spring winding member, a latch engaging said locking member and embracing said shaft and guided in said fixed member, and means on said spring winding member engaging and actuating said latch only just before the end of the movement of said winding member.

10. In a snap switch, the combination with a slotted fixed member, of a shaft, a pivoted contact carrying member, a locking member engaging and rotating with said contact carrying member, a spring, a spring winding member, a latch plate embracing said shaft and having a lug guided in the slot in said fixed member, said lug engaging said locking member, and means on said spring winding member engaging and actuating said latch plate to reciprocate the same only just before the end of the movement of said spring-winding member.

In testimony whereof I have hereunto affixed my signature in the presence of the two subscribing witnesses.

JAMES H. WYATT.

Witnesses:

ANNA E. STEINBOCK,
DANIEL WEBSTER, Jr.