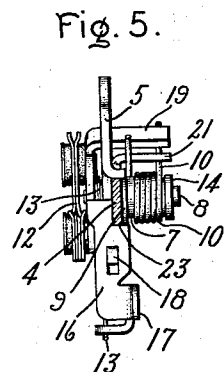
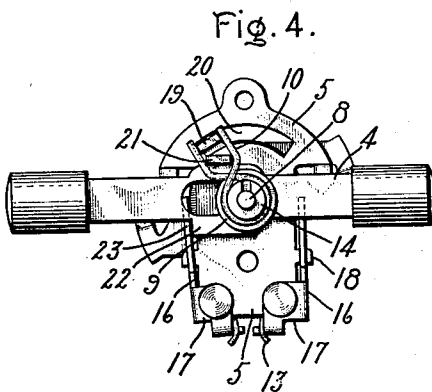
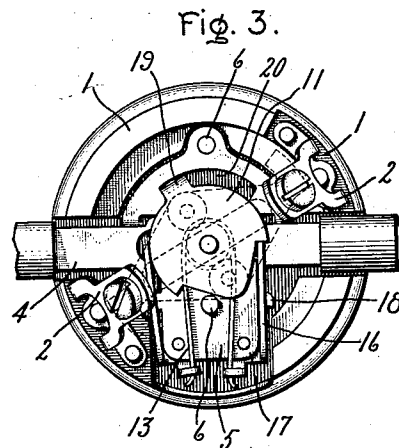
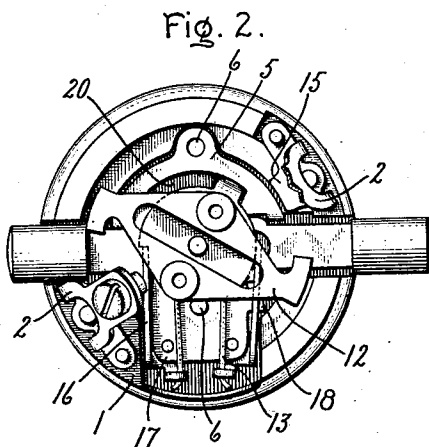
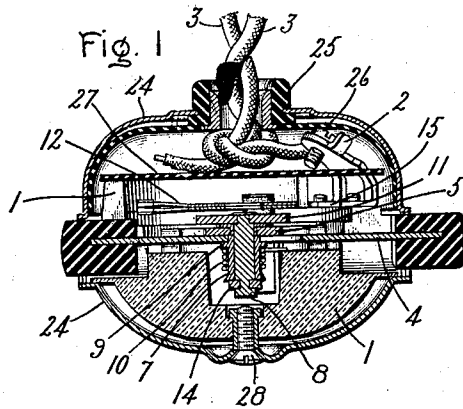


F. C. DE REAMER.
PENDENT SNAP SWITCH.
APPLICATION FILED JUNE 11, 1910.

1,015,999.

Patented Jan. 30, 1912.



Witnesses:

George H. Tilden
J. Ellis Klen

Inventor:

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by *Alfred Davis*
His Attorney.

UNITED STATES PATENT OFFICE.

FRANK C. DE REAMER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PENDENT SNAP-SWITCH.

1,015,999.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed June 11, 1910. Serial No. 566,359.

To all whom it may concern:

Be it known that I, FRANK C. DE REAMER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Pendent Snap-Switches, of which the following is a specification.

My invention relates to improvements in pendent snap switches, whereby I reduce the number of their moving parts to a minimum and otherwise so simplify their construction as to reduce their over-all dimensions and cost of making without interfering with their non-arcng characteristics.

I have designed a quick-make and -break push button switch of the reciprocating shaft type, the novelty of which will be particularly pointed out in the appended claims, but for a better understanding of the improvements indicated above and other advantages that will hereafter appear, reference may be had to the accompanying drawings, in which—

Figure 1 is a vertical central section through the entire switch with the mechanism in the position shown in Fig. 2; Fig. 2 is a top view with the casing removed showing the switch open circuited; Fig. 3 is a view similar to Fig. 2 with the switch blade removed showing the switch closed; and Figs. 4 and 5 are bottom and side elevations respectively of the supporting frame and mechanism.

Referring to the drawings by numerals, at 1 is shown a non-conducting supporting base of a cup-shaped form for receiving the mechanism of the switch, to which are secured the usual terminals 2, 2 for circuit leads 3, 3. This base 1 has a central transverse opening through which passes a reciprocating shaft 4 carrying at each end an insulating push button, and on its interior walls has shoulders to which a mechanism supporting plate 5 is secured by screw bolts 6 passing up through the base. This plate 5 carries a sleeve 7 into which as a bearing is seated a shaft 8, this sleeve having a horizontal flange 9 upon which slides the shaft 4 and carrying between said flange 9 and its lower end a loose ended helical spring 10 therearound. At its upper end the shaft 8 is secured to a shifter 11, to which in turn is secured but separated and insulated from a switch blade 12, this shifter 11 being sepa-

rated from plate 5 by a horizontal flange on the upper end of sleeve 7, around which flange passes a spring 13 for a purpose hereafter explained. The shaft 8 is locked into the sleeve 7 by means of a lock washer 14 frictionally engaging the lower end of the sleeve and the shifter 11 engaging its upper end. The blade 12 is formed of two plates with their ends slightly separated for gripping contacts 15 on terminals 2, 2. On the periphery of shifter 11 are formed two serrations or lips with which two latches 16 are adapted to engage, respectively, one when the switch is closed and the other when it is open, these latches being pivoted to plate 5 by horizontal lugs 17 near their outer ends, and their inner ends being held in engaging relation with the periphery of the shifter 11 by the spring 13 whose ends are hooked around upwardly extending ears formed on the lugs 17 of the latches 16. The latches preferably have central apertures for receiving guide projections 18 formed on the sides of plate 5. The shifter 11 has a downwardly extending arm 19 passing through a circular slot 20 in plate 5 and between the ends of spring 10, the end walls of this slot 20 serving as stops for arresting the oscillatory movements of the shifter. A downwardly disposed arm 21 from one side of shaft 4 also passes between the ends of this spring 10 for tensioning it when the shaft is reciprocated; and on its other side this shaft has an elongated projection 22 which engages alternately with lips 23 on latches 16 for disengaging these latches from the lips on shifter 11. This shaft 4 has an elongated central transverse opening through which sleeve 7 passes for permitting its reciprocatory movements.

At 24 is shown the usual casing with openings for the push buttons and incoming conductors, with the usual insulating bushing 25 in the conductor opening.

26 represents an insulating hood and 27 an insulating disk for insulating the terminals and conductors from the casing and mechanism. The casing is secured to the switch base 1 by a screw bolt 28 engaging an internally threaded bushing carried by the base.

The operation is as follows: With the switch in the position shown in Fig. 2, the reciprocating shaft 4 is pushed toward the left, its arm 21 carrying along with it one

end of spring 10; the other end of spring 10, however, cannot move since it is held back by arm 19 depending from the shifter 11 which is locked in position by the left-hand latch 16 engaging the corresponding lip on shifter 11, the spring 10 thereby being brought under tension. Just before the shaft 4 reaches its extreme left position its elongated projection 22 engages with lip 23 of this left-hand latch and moves the latch against the action of the spring 13 from the lip on shifter 11, which shifter now being free to move is oscillated by the energized spring 10 to the position shown in Fig. 3, the tongue 19 being arrested by the left-hand end wall of the slot 20, and the right-hand latch 16 now coming in engagement with the right-hand lip on shifter 11. To open the switch, the shaft is pushed toward the right, the operation being identical with that just described.

I do not desire to restrict myself to the particular form or arrangement of parts herein shown and described, since it is apparent that they may be changed and modified without departing from my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In an electric switch, the combination of a supporting plate carrying a sleeved bearing, a switch shifter having lips on its periphery and a shaft journaled in said sleeve member, two spring controlled latches alternately engaging with the lips of said shifter, a helical spring carried by said sleeve member and adapted to engage said shifter, and a reciprocating actuator adapted to tension said helical spring and trip the latch in engagement with the shifter.

2. In an electric switch, the combination of a supporting plate having stops and a sleeved bearing, a switch shifter having lips

on its periphery and an arm alternately engaging with said stops, a shaft for said shifter journaled in said sleeve member, two spring controlled latches alternately engaging with the lips of said shifter, a helical spring supported by said sleeve member and adapted to engage the arm of said shifter, and a reciprocating actuator having an arm adapted to tension said helical spring and a side projection adapted to trip the latch in engagement with the shifter.

3. In an electric switch, the combination of a supporting plate provided with a sleeved bearing and a circular slot, a switch shifter having lips on its periphery and an arm alternately engaging with the end walls of said slot, a shaft for said shifter journaled in said sleeve member, two latches pivoted on said plate and adapted to alternately engage the lips of said shifter, a spring passing around said shaft and engaging the outer ends of said latches, a helical spring carried by said sleeve member and adapted to engage the arm of said shifter, and a reciprocating shaft adapted to tension said helical spring and trip the latch in engagement with the shifter.

4. In an electric switch, the combination of an oscillating shifter for supporting the pole piece provided with an arm, latches for holding said shifter in extreme positions, a longitudinally reciprocating actuator provided with an arm and adapted to engage and trip said latches, and a double ended spring adapted to engage the arms of said shifter and said actuator.

In witness whereof, I have hereunto set my hand this 9th day of June, 1910.

FRANK C. DE REAMER.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.