

J. A. YORK.
SNAP SWITCH.

APPLICATION FILED AUG. 12, 1907.

981 734.

Patented Jan. 17, 1911.

Fig. 1.

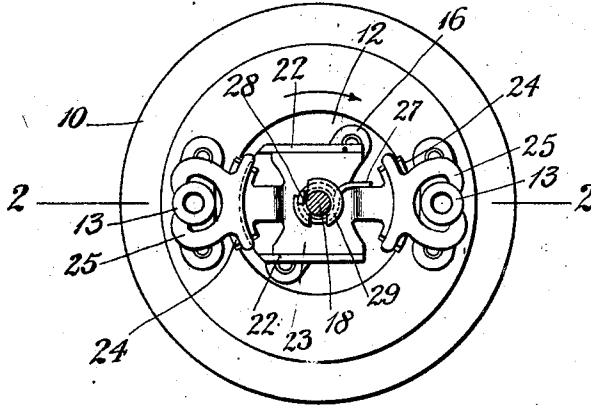


Fig. 2.

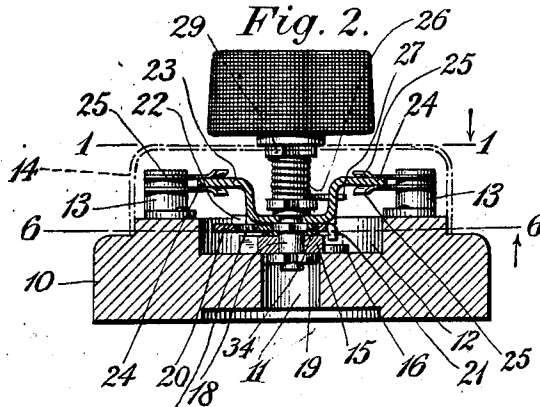


Fig. 4.

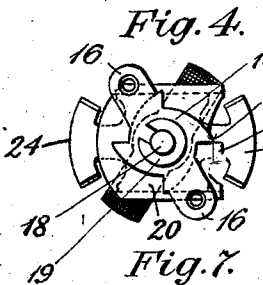


Fig. 3.

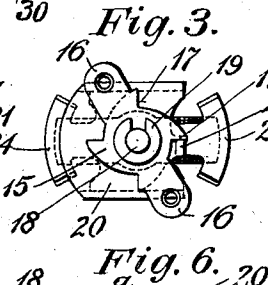


Fig. 5.

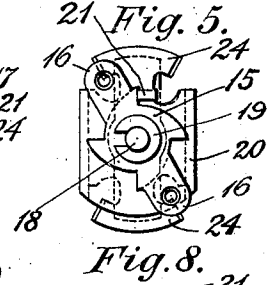


Fig. 7.

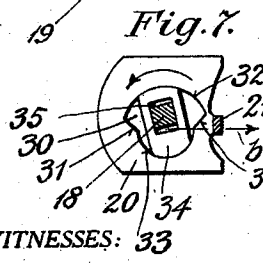


Fig. 6.

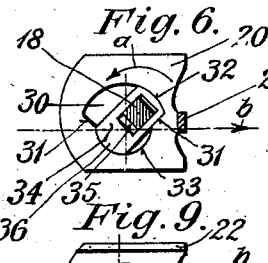


Fig. 8.

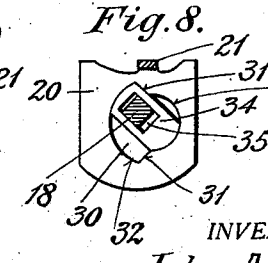
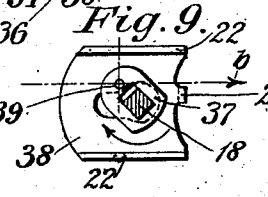


Fig. 9.



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SNAP-SWITCH.

981,734.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN A. YORK, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented a new and Improved Snap-Switch, of which the following is a specification.

My invention relates to the class of devices used for controlling the flow of a current of electricity by completing and breaking the circuit, and the object of my invention is to provide a device of this class that shall be extremely simple in construction and operation, comparatively inexpensive to manufacture, and especially one in which the action shall be sharp, decisive and positively determined. A form of device in the use of which these objects may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a top or plan view of a snap switch embodying my invention on plane denoted by dotted line 1—1 in Fig. 2. Fig. 2 is a longitudinal section through the device on plane denoted by dotted line 2—2 in Fig. 1. Fig. 3 is a bottom view of the parts, with the base and stationary contacts removed. Fig. 4 is a like view but showing the trip in position just previous to disengagement from the catch plate. Fig. 5 is a view similar to Fig. 3 but showing the parts in an advanced position from that shown in Figs. 3 and 4. Fig. 6 is a sectional view on plane denoted by line 6—6 of Fig. 2, looking from the bottom, and showing the trip plate and coupler in position corresponding to Fig. 3. Fig. 7 is a view similar to Fig. 6 but with the parts in position corresponding to Fig. 4. Fig. 8 is a view similar to Fig. 6 but with the parts in the same position as shown in Fig. 5. Fig. 9 is a top view showing a modified form of the invention.

In the accompanying drawings the numeral 10 denotes a base which may be made in any suitable form and of any desired insulating material. This base has a central opening 11 formed more especially for convenience in assembling the parts, and has on its upper surface a recess 12 within which a portion of the operative parts of the structure are located. Stationary contacts 13 of any suitable form and construction are secured to the base, and a cover 14 (shown in dotted lines in Fig. 2) may be employed for inclosing the parts.

A catch plate 15 is located within the recess 12 and overlying the opening 11, ears 16 provided with screw holes extending from the catch plate, serving as a means of securing the plate in position, as by means of screws inserted through said holes. Catches or shoulders 17 are formed upon the catch plate for a purpose to be hereinafter described. A spindle 18 is rotatably held in the catch plate in any suitable manner, as shown herein a washer 19 underlying the enlarged end of the spindle serving this purpose.

A trip plate 20 is mounted for rotation with the spindle and has on its under surface a trip 21 cooperating with the shoulders or catches 17 to limit the movement of the parts. This trip plate has guides 22, preferably extending along its edges and between which is located a switch bar 23 terminating in the movable contacts 24 which are adapted to pass between spring fingers 25 constituting parts of the fixed contacts. This switch bar is of U-shape, as shown in Fig. 2, and one end 27 of a spring 26 presses against one of the branches of the switch bar while the opposite end 28 of said spring is located in a recess in the key 29.

A coupler opening 30 is formed in the trip plate 20, this opening having stop shoulders 31. The opening 30 has its two opposing edges formed on the arcs of concentric circles, the larger arc 32 being joined with the smaller arc 33 by straight edges forming the shoulders 31. A coupler 34 is located within the coupler opening, this coupler having its opposite edges formed to fit the curved edges of the coupler opening. The coupler has a slot 35 through which the spindle 18 projects, this spindle, as to that part at least projecting through the coupler, being of non-circular form in cross-section. As shown herein, this section of the spindle is square.

It will be noted that the end 36 of the coupler is of a width to occupy half of the smaller arc 33, so that as turning movement is applied to the spindle in the direction of the curved arrow *a*, force will be imparted through the coupler to the trip plate 20 to move the latter in the direction of the straight arrows *b* shown in the figures. The true center of the coupler will move with the trip plate in a right line, and the slot in the coupler allows the latter to move lat-

crally of the spindle to permit sliding movement of the trip plate, which is guided in its movements by reason of the engagement of the lips 22 with the switch bar 23.

5 In the operation of the device, the parts being in the position shown in Figs. 1, 2, 3, and 6, and force being applied to the key to turn the spindle in the direction shown by the curved arrows, tension is placed upon
10 the spring tending to rotate the switch bar. The latter is, however, held by the trip plate which in turn is held from turning movement by engagement of its trip 21 with the stop shoulders or catches 17 on the catch
15 plate. The force, however, applied through the coupler to the trip plate moves it in the direction of the straight arrow in the figures from the position shown in Figs. 1, 2, 3, and 6 to the position shown in Figs. 4 and
20 7, when the trip is just ready to disengage from the stop shoulder. A slight further movement disengages the trip, when the trip plate and switch bar are quickly thrown by the spring 26 into position shown in Figs.
25 5 and 8, the contacts 24 on the switch bar being quickly thrown from engagement with the fingers 25. Upon applying force to the key in the same direction the action will be repeated and the contacts upon the
30 switch bar quickly thrown into engagement with the contact fingers forming part of the stationary contacts 13.

In the form of the device shown in Fig. 9 the coupler 37 is pivotally attached to the
35 catch plate 38, the force transmitted to the coupler through the spindle being imparted to the trip slide through the pivot 39, which moves in a right line, as denoted by the straight arrow *b*, the operation of the parts
40 being practically the same as above described and the coupler being slotted to permit the action of the parts.

It will be noted that the slot in the coupler affords a means for loosely connecting it
45 with the spindle, the latter and the key being the prime operating means for the switch.

I claim—

1. A base having contacts and a catch
50 secured thereto, a trip cooperating with said

catch, a switch bar connected to said trip, a spindle non-circular in cross section, means for operating the spindle, a coupler slidably connected to said spindle and to said trip, and means for imparting rotary
55 movement to the trip.

2. A base having contacts, a catch secured to the base, a trip cooperating with said catch, a switch bar connected with the trip and having contacts, means for imparting
60 rotary movement to the switch bar, a spindle non-circular in cross-section with means for operating it, and a coupler operatively connected with the trip and having a slot to slidably receive said spindle.
65

3. A base having contacts, a catch secured to the base, a trip plate having a trip for said catch, a switch bar having contacts and forming a guide for the trip plate, means for rotating the trip plate, a spindle of non-
70 circular form in cross-section, means for operating the spindle, and a coupler having a slot to slidably receive said spindle and in engagement with the trip plate.

4. A base having contacts, a catch secured
75 to the base, a trip plate having a coupler opening and a trip to cooperate with said catch, means for rotating the trip, a spindle of non-circular form in cross-section, a coupler fitting said coupler opening and having
80 a slot to slidably receive said spindle, and a switch bar operatively connected with the trip and having contacts.

5. A base having contacts, a catch secured thereto, a trip plate having a trip cooperating
85 with the catch and provided with a coupler opening having opposite edges formed on arcs of concentric circles, means for rotating the trip, a switch bar forming a guide for the trip plate and having con-
90 tacts, a spindle of non-circular form in cross-section, means for operating the spindle, and a coupler located in said coupler opening and having a slot to receive said
95 spindle and with opposite ends fitting the curved parts of the coupler opening.

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Witnesses:

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