

(No Model.)

H. P. BALL.  
SWITCH FOR ELECTRICAL CURRENTS.

No. 494,750.

Patented Apr. 4, 1893.

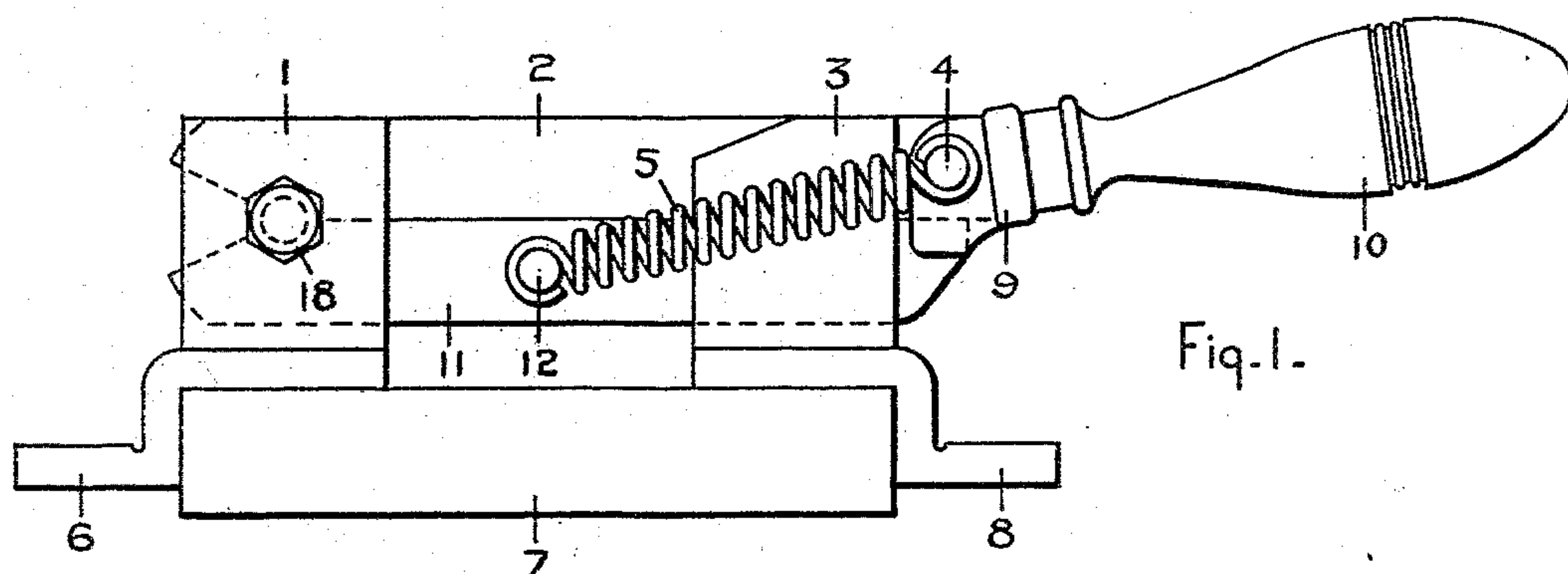


Fig. 1.

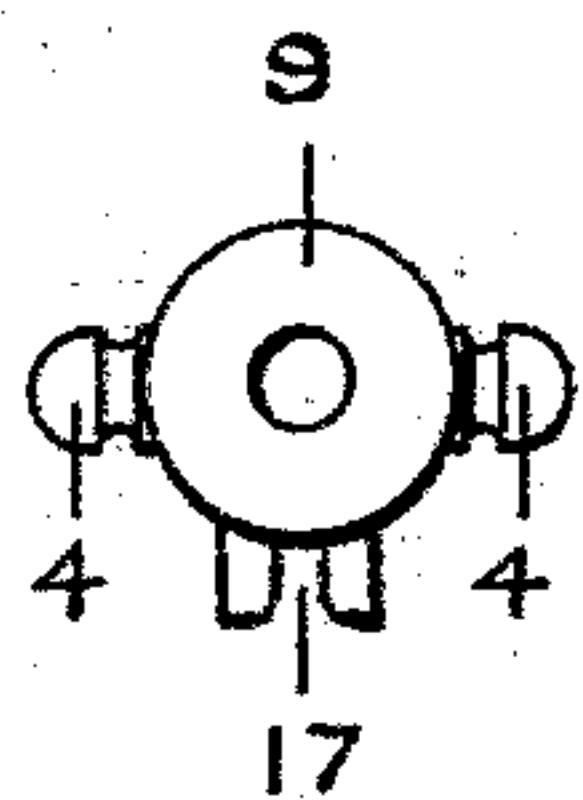
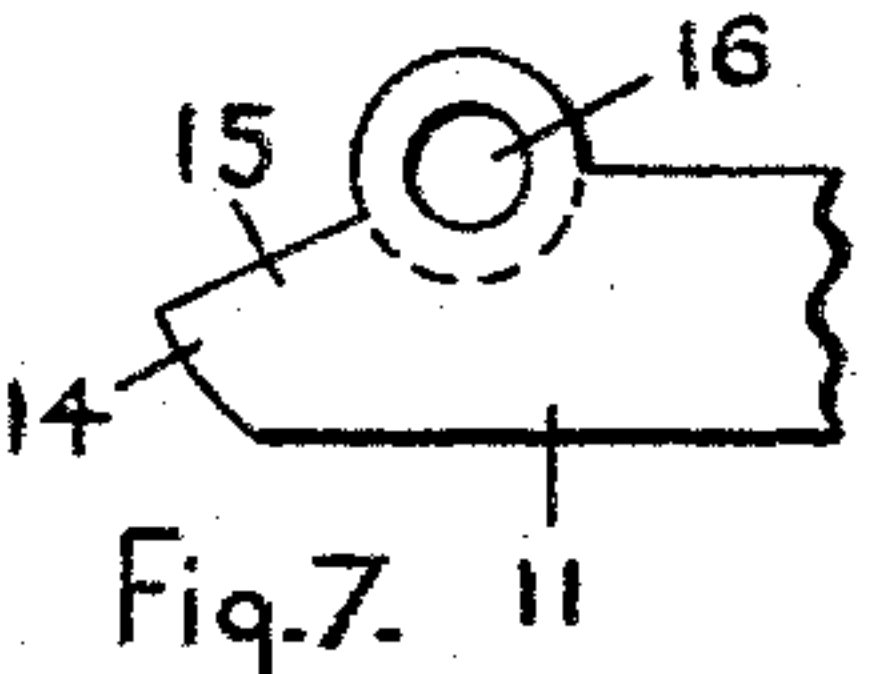
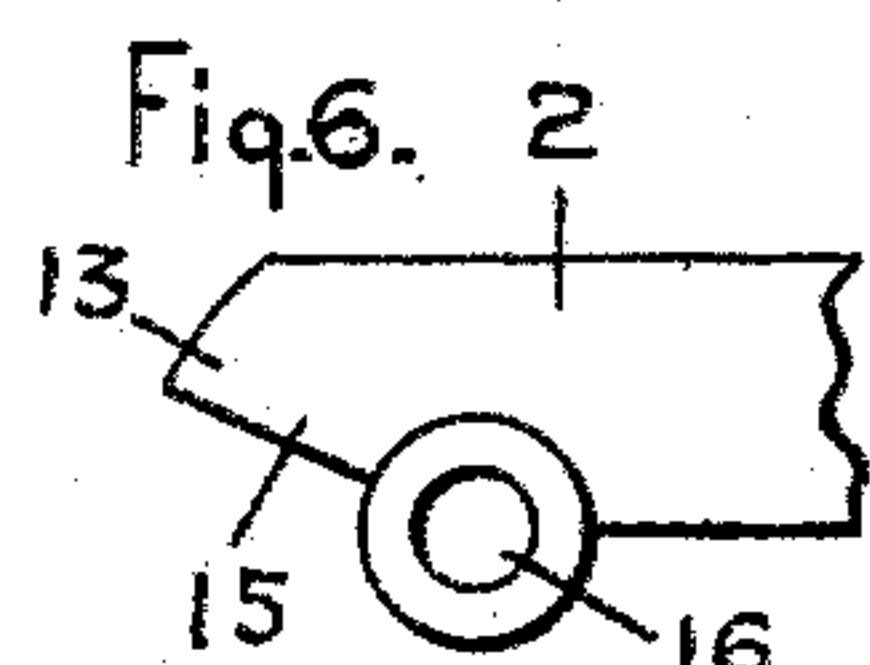


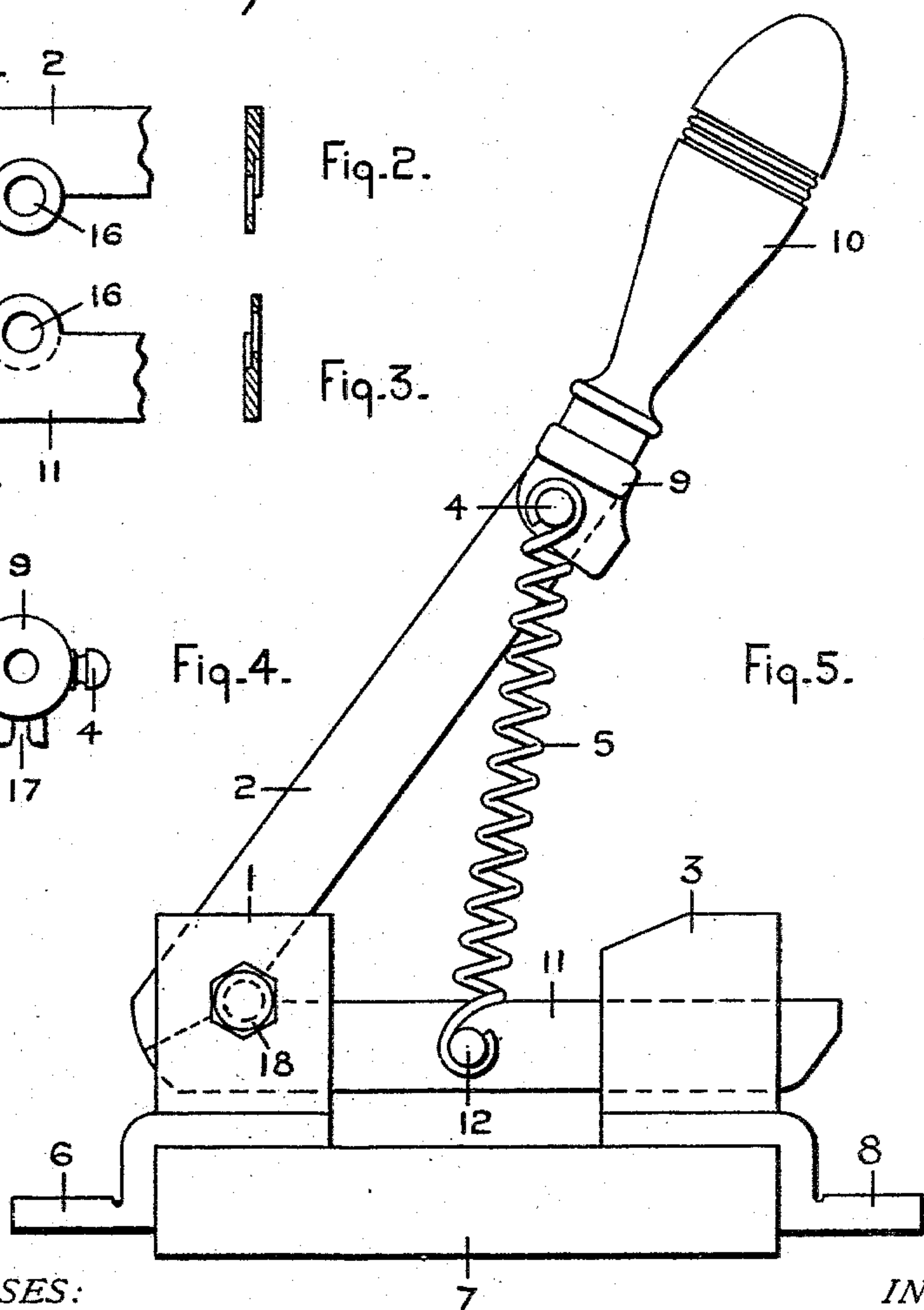
Fig. 2.



Fig. 3.

Fig. 4.

Fig. 5.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY PRICE BALL, OF SCHENECTADY, NEW YORK.

## SWITCH FOR ELECTRICAL CURRENTS.

SPECIFICATION forming part of Letters Patent No. 494,750, dated April 4, 1893.

Application filed July 1, 1892. Serial No. 438,652. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY PRICE BALL, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented a new and useful Switch for Electrical Currents, of which the following is a specification.

My invention relates to improvements in switches for electrical currents in which the switch opens with a quick snap action; and the object of my improvement is to provide a switch for electrical currents of high voltages. I attain this object by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a general side view of the switch. Fig. 2 is a sectional view of the upper blade of the switch through the center of its bearings. Fig. 3 is a similar view of the lower blade. Fig. 4 is an end view of the part carrying the handle and the ends of the springs. Fig. 5 is a general side view of the switch showing it partly open. Fig. 6 is a side view of the upper blade at its hinged end. Fig. 7 is a similar view of the lower blade.

Similar figures refer to similar parts throughout the several views.

My invention consists in using two blades instead of one as is usually the custom and having a spiral spring between the blades in such a manner that the spring is put in tension when the blades are separated.

Referring to the drawings 2 is the upper blade while 11 is the lower blade, both of which are hinged or are free to turn on the bolt 18 in the clips 1. This can be done in several ways, but preferably by leaving a round projection 16 Figs. 6 and 7 on the sides of the blades through which the bolt 18 passes. The sides of the blades around the bolt hole are counterbored to a depth of a little over one half the thickness of the blade. This allows one blade to fit into the other, see Figs. 2, 3, 6, 7, and the thickness of the joint is no thicker than that of either blade. The upper blade 2 has at its end farthest away from the hinge a part 9 such as shown in Figs. 1 and 4, having two projections 4, 4, which hold one end of the springs 5 and a socket or recess 17 upon its under side into which the lower blade 11 fits when the switch is not being operated. This same part 9 also holds the

handle 10 to the switch by means of a stem being screwed into it and passing through the center of the handle. The springs 5 are fastened at one end on the pins or projections 4, 4, and at the other end upon the projections 12 which extend on both sides of the lower blade 11. The two blades 2 and 11 are hinged at one end in the clips 1 which bear flat against both sides of the blades and a bolt passes through the clips and blades upon which the blades rotate. The free ends of the blades slide in and out of two clips 3 which bear flatly against the sides of the blades. It will be noticed that the hinged ends of the blades 2, 11 are rounded at 13 and 14 Figs. 6 and 7 and also cut diagonally as at 15, 15. The former allows the blades to be operated through one hundred and eighty degrees while the latter allows the upper blade to be operated through a certain angle before the lower blade 11 is moved. The size of this angle determines the length of the break obtained when the lower blade flies out of the clips. Lugs 6 and 8 form means by which connections can be made to the switch, by bolting the conductor thereon. The operation of the switch is done in this way. The handle 10 is lifted to the position shown in Fig. 5 at which position the beveled ends of the blades 15, 15, Figs. 6 and 7 engage with each other and the lower blade 11 is carried along with the upper blade 2 and handle 10 until it is out of clip 3, at which point it flies up to the upper blades, now some distance away from it, and a quick, long gap is formed between the blade 11 and the clip 3. The blades and handle can then be thrown back through one hundred and eighty degrees out of the way, where there is no danger of the switch being accidentally closed or the blades bent by any one brushing against them. In closing the switch the two blades are held together by means of the springs 5 and as the lower blade 11 is locked with the upper blade 2 from all side motion in socket 17, two blades can be closed in the clips 3 as if they were one blade.

An obvious change in the construction shown on the drawings would be to have the two blades lie side by side between three clips, one blade having a handle or means attached thereto for raising it directly from the clips while the second blade would not



be raised until the first blade was raised through a certain distance as previously explained.

It should be known, that whereas the drawings show simply a single pole switch, yet my invention is equally valuable when constructed as a two or three wire switch, in which case the upper blades would all travel together by means of a cross piece connected to, but insulated from each upper blade.

It would not depart from the spirit of my invention to use several blades in parallel to obtain greater carrying capacity of the switch, without increasing its size, as this is very desirable where a great number of amperes is to be carried.

Having described my invention so that any one skilled in the art to which it pertains could manufacture the same, what I claim as my invention, and wish to cover by Letters Patent, is—

1. A switch for electric currents consisting of a base having erected or mounted thereon, two sets of clips in a line with each other, one set of clips having pivoted or hinged therein, two blades on the same center, both of which carry current from one set of clips to the other when the switch is closed, said blades having springs for keeping them normally together, one above the other, and the upper blade having thereon a handle or means attached thereto for raising it through a certain distance, without disturbing the lower blade, as specified.

2. The combination in a switch for electric currents of a base having erected or mounted thereon a set of terminal clips, having pivoted or hinged therein, two blades on a common center, said blades and a second set of clips in the path of said blades with which the two blades can engage and make contact, and springs whereby said blades are held together normally one above the other and means for operating the other blade independently of the lower blade, through a certain distance as specified.

3. A switch for electric currents consisting of a base having erected thereon a set of clips having hinged or pivoted therein two blades,

another set of clips in the path of said blades into which said blades can enter, both blades carrying current from one set of clips to the other when the switch is closed, the blades being normally held close together by means of springs and one blade having means for raising it a certain distance out of the clips without disturbing the other blade as specified.

4. The combination in a switch for electric currents of a base having erected or mounted thereon a set of terminal clips, having pivoted or hinged therein, two blades on a common center, said blades and a second set of clips in the path of said blades with which the two blades can engage and make contact when the switch is closed, springs whereby said blades are normally kept in a certain definite position in relation to each other and means whereby one blade can be operated independently of the other through a certain distance.

5. The combination in a switch for electric currents of a base having erected or mounted thereon a set of terminal clips, having pivoted or hinged therein, two blades on a common center, said blades and a second set of clips in the path of said blades with which the two blades can engage and make contact when the switch is closed, springs whereby said blades are normally kept in a certain definite position in relation to each other, means whereby one blade can be operated independently of the other through a certain distance and a socket or means whereby one blade is locked in position with the other while the blades are in their normal position.

6. In a switch for electric currents, the combination of a base, two sets of clips mounted thereon, two blades engaging with and connecting said clips, springs holding said blades normally together, means for operating one blade independently of the other and a stop on the blade which engages with the other blade after the blades have been separated a certain distance as specified.

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Witnesses:

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