No. 665,514. Patented Jan. 8, 1901.

W. ELY.

ELECTRIC SWITCH.

(Application filed Aug. 13, 1898.)

(No Model.) 3 Sheets—Sheet 1.

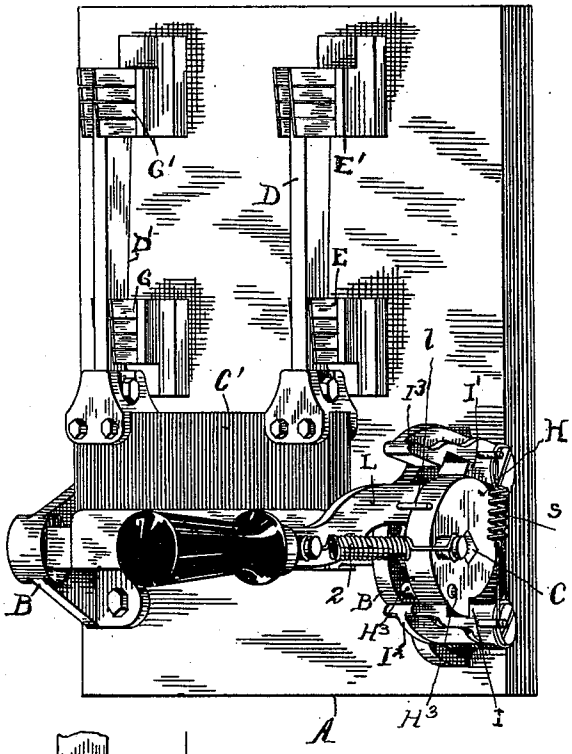


FIG. 1.

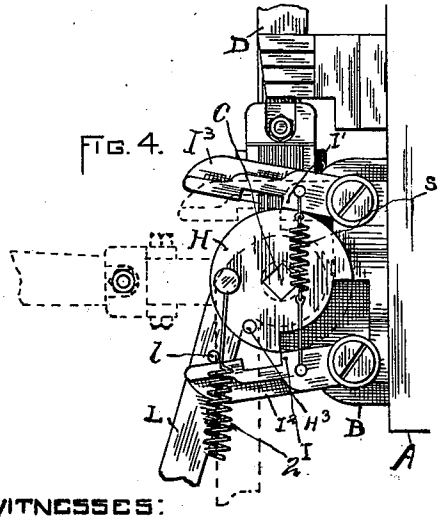


FIG. 4.

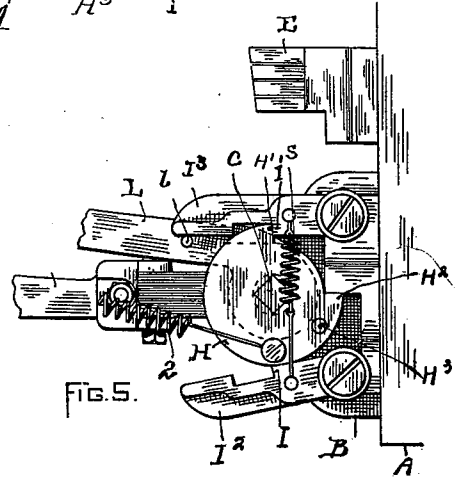


FIG. 5.

WITNESSES:

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Robert L. Ward

INVENTOR:

William Ely

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ATTY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 665,514. Patented Jan. 8, 1901.

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ELECTRIC SWITCH.

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(No Model.) 3 Sheets—Sheet 2.

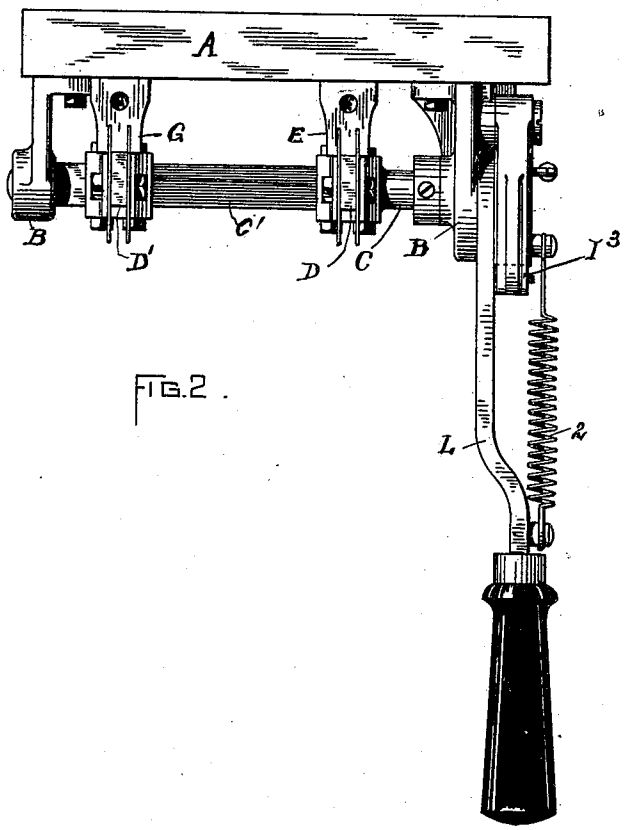


FIG. 2.

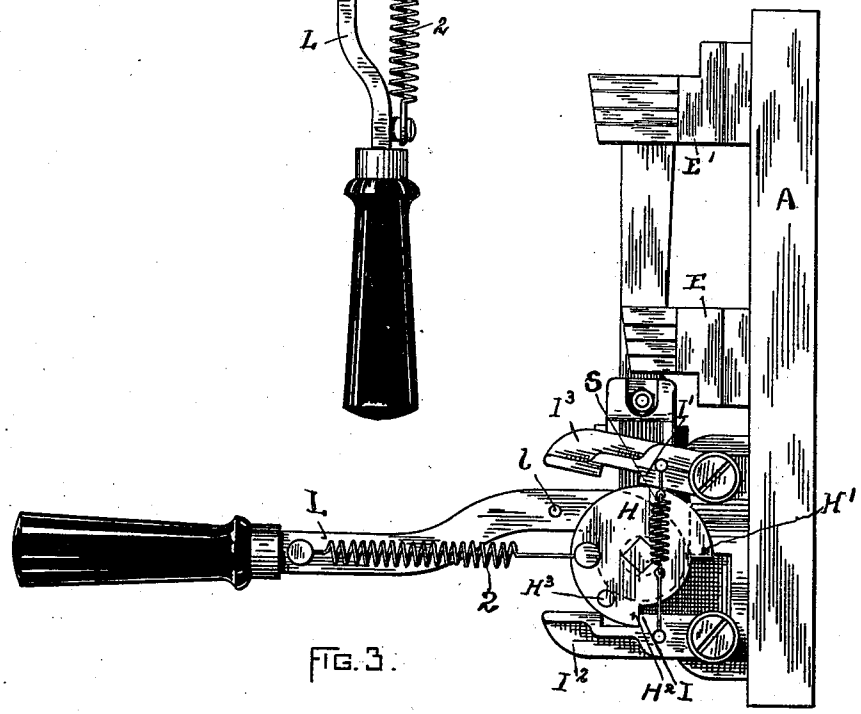


FIG. 3.

WITNESSES:

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No. 665,514. Patented Jan. 8, 1901.

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ELECTRIC SWITCH.

(Application filed Aug. 13, 1898.)

(No Model.) 3 Sheets—Sheet 3.

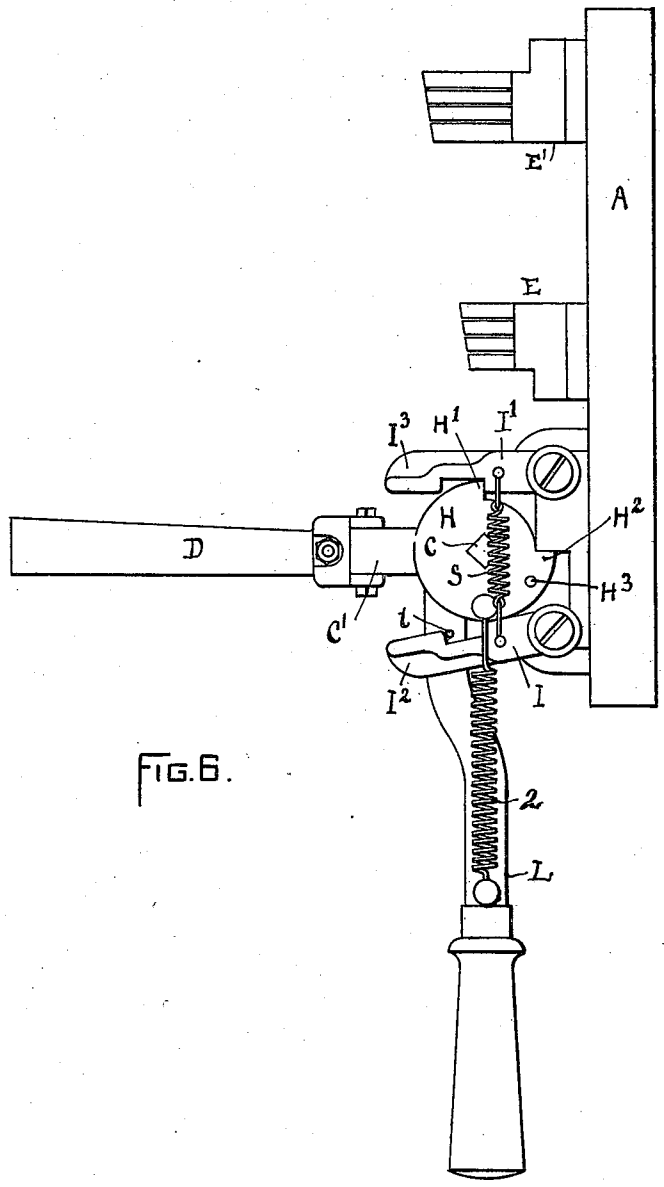


FIG. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM ELY, OF PROVIDENCE, RHODE ISLAND.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 665,514, dated January 8, 1901.

Application filed August 13, 1898. Serial No. 688,468. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ELY, a citizen of the United States, residing in the city and county of Providence, in the State of Rhode Island, have invented a new and useful Electric Switch, of which the following is a specification.

My invention consists in the novel combination and arrangement of the parts hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view with the base-plate in a vertical position, as the switch is ordinarily used. Fig. 2 is a top edge view of the same. Fig. 3 is a side view of the same. Fig. 4 is a side view with parts broken away, showing in solid lines the position of the parts just before the contact-plate is started to break the circuit and in dotted lines the position of the same parts after the contact-blade has been moved and the circuit broken. Fig. 5 shows the position of the operating parts on the point of starting to close the circuit. Fig. 6 is a side view showing the contact-blade in its disengaged position.

Similar reference characters indicate like parts wherever they occur in the drawings.

A represents the base-plate, constructed of non-conducting or insulating material. B B represent standards or brackets secured upon said base-plate and adapted to serve as pivot supports or bearings for the rotatable shaft C, upon one side of which latter is carried one or more contact blades or knives D D′, secured either directly to said shaft or, as shown, to an insulating block or plate C′, in turn secured to the shaft.

In the drawings I have illustrated a double-pole single-throw switch, and in this form circuit-terminals or contact-brushes E E′ are secured upon the base-plate A and arranged in line with each other and in the plane of the movement of contact-blade D, and similar circuit-terminals G G′ are likewise secured upon said base-plate with reference to each other and to the blade D′. It is obvious that any number of contact blades or knives may be carried upon said shaft C and the circuit-terminals for each correspondingly arranged.

Upon the shaft C, I secure a disk-crank H, provided with suitably-located engaging shoulders $H' H^2$, arranged in planes at or substantially at right angles to each other and adapted to be releasably engaged by spring-controlled pivoted pawls I I′, adapted to lock said disk at the termination of its movement in either direction and also to prevent rebound of the contact-blades at the termination of their opening and closing movements. Said pawls I I′ each extend outward from the base-plate and are continued outward to form extensions $I^2 I^3$, adapted to serve as hereinafter described. Said disk-crank is provided with a lug or projecting pin H^3, located in the path of an actuating lever or member L and adapted to receive the impact of the said lever when the latter is moved in one direction and by the force of said impact to impart initial positive movement to the contact-blades in their opening direction only.

The actuating lever or member L is loosely mounted upon the shaft C for pivotal movement without reference to the movement of said shaft and is provided with disengaging means, as a lug or projecting pin 1, adapted on the movement of said actuating member in either direction to engage with the extensions $I^2 I^3$ of the respective pawls I I′ to actuate said pawls, respectively, against the resistance of their controlling-spring *s*, and thereby release the disk H. Said disk H and the actuating member L are connected by a spring 2, secured at one end to the actuating member and at the other end to the disk at a point located at the opposite side of the axis of the shaft from that of the shoulder of the disk, which serves to hold the contact-blades in their disengaged position and so arranged that the said spring-connected points, the holding-shoulder of the disk, and the axis of the shaft will be normally in the same plane in both the engaged and disengaged positions of the contact-blade.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of the base-plate, the contact-brushes, the contact-blade, the holding-shaft, the disk secured upon said shaft and provided with the engaging shoulders located at about a quadrant with each other, and also provided with means adapted to receive the impact of the actuating member

when the latter is moved in the direction to withdraw the contact-blade from the contact-brushes, and the actuating member provided with pawl-disengaging means, with the opposite spring-controlled pawls projecting outward from the base-plate, and provided with the extensions adapted for the engagement therewith of the disengaging means of the actuating member, and the connecting-spring secured at one end to the actuating member and at the other to the disk at a point located at the opposite side of the axis of the shaft from that of the shoulder of the disk which by its engagement with the shoulder of the pawl serves to hold the contact-blade in its disengaged position, substantially as described.

2. The combination of the base-plate, the brushes, the contact-blade, the holding-shaft, the disk secured to said shaft and provided with the engaging shoulders located at about a quadrant with each other, and the actuating member provided with the pawl-disengaging means, with the opposite spring-actuated pawls projecting outward from the base-plate, and provided with outward extensions adapted for the engagement therewith of the disengaging means of the actuating member, and the connecting-spring secured at one end to the actuating member and at the other end to the disk at a point located at the opposite side of the axis of the shaft from that of the shoulder which serves to hold the contact-blade in its disengaged position, and so arranged that the said spring-connected points, the holding-shoulder of the disk, and the axis of the shaft will be normally in the same plane.

3. The combination of the base-plate, the contact-brushes, the holding-shaft, the contact-blade, the disk secured upon said shaft and provided with an engaging shoulder, and also with means adapted to receive the impact of the actuating member when the latter is moved in the direction to withdraw the contact-blade from the contact-brushes, and the actuating member provided with pawl-disengaging means, with a spring-controlled pawl projecting outward from said base and provided with a shoulder arranged for engagement with the engaging shoulder of said disk, and also with an outward extension adapted for engagement with the disengaging means of the actuating member, and the connecting-spring secured at one end to the actuating member and at its opposite end to the disk at a point at the opposite side of the shaft from the engaging shoulder of the disk, and so arranged that the two spring-connected points and the engaging shoulder of the disk will be in line with each other and with said shaft in both the engaged and disengaged positions of the contact-blade, and said connecting-spring will be adapted to cause the rapid automatic transfer of said contact-blade in either direction.

WILLIAM ELY.

Witnesses:
HENRY MARSH, Jr.,
SOCRATES SCHOLFIELD.