No. 827,181. PATENTED JULY 31, 1906

G. W. RICHARDSON.

ELECTRIC SWITCH.

APPLICATION FILED MAY 16, 1905.

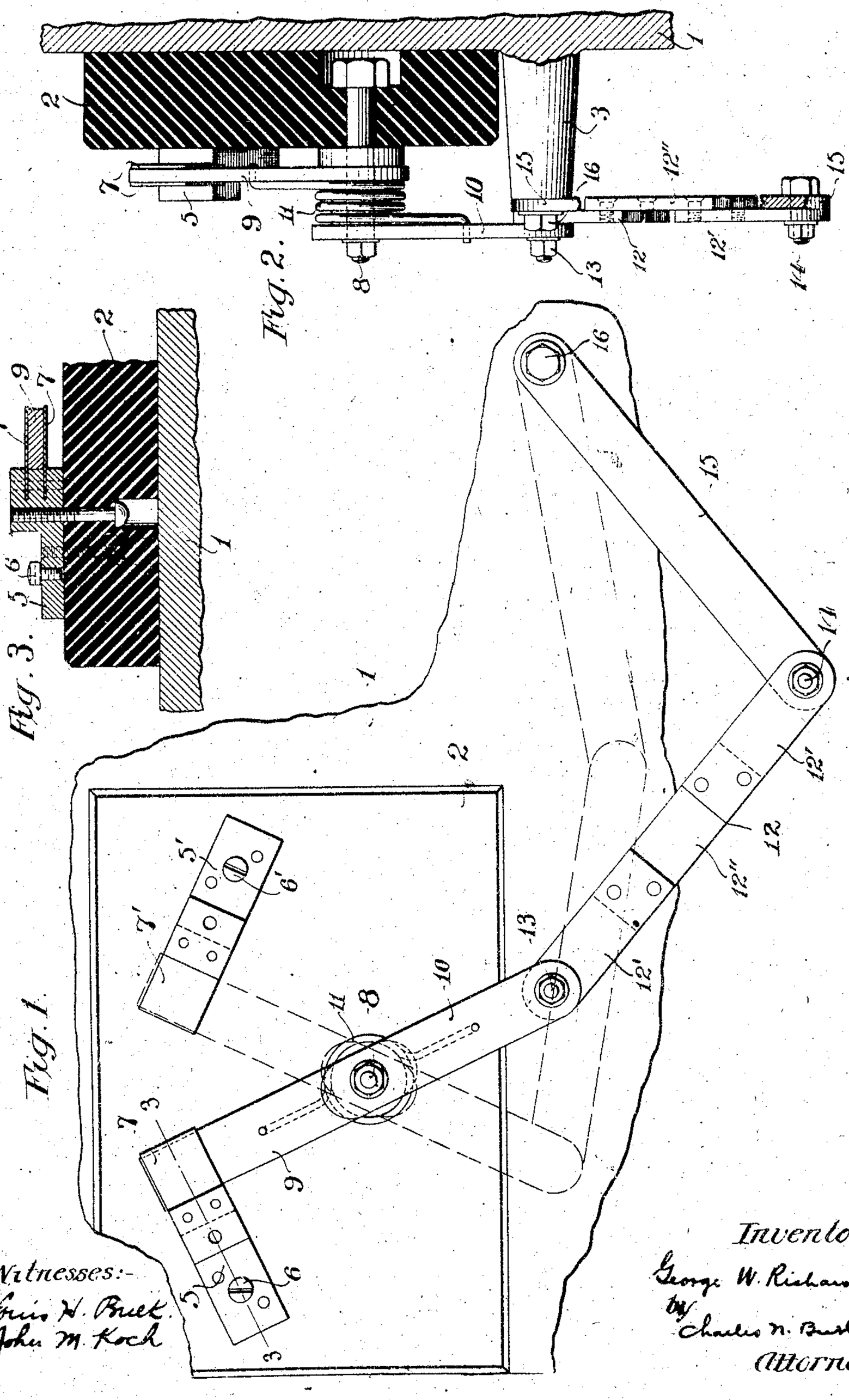

Fig. 1.

Fig. 3.

Fig. 2.

Witnesses:-
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ELECTRIC SWITCH.

No. 827,181. Specification of Letters Patent. Patented July 31, 1906.

Application filed May 16, 1905. Serial No. 260,615.

To all whom it may concern:

Be it known that I, GEORGE W. RICHARDSON, residing at Wissahickon, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Electric Switches, of which the following is a specification.

This invention is an electric switch which throws positively to break or make a circuit when struck by a moving part. It is designed to provide a simple and efficient mechanism operating automatically, as by the impact of the lifting block, to prevent the overhoisting of electric cranes or hoists and the breaking of the mechanism. The switch is adapted to be held upon a stationary part of the mechanism independent of the lifting mechanism, to be operated thereby as a safety device in the emergency of their reaching the permissible limit of their movement, upon which the switch is thrown and the circuit broken.

In the accompanying drawings, Figure 1 is a plan view representing the switch as it is mounted. Fig. 2 is a transverse sectional view thereof and Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1.

As shown in the drawings, the mechanism comprises the base 1, to which is fixed the insulating-plate 2 and the stud 3. The plate has fixed thereto the terminal pieces 5 and 5′, provided, respectively, with the binding-screws 6 and 6′ and with the contact-jaws 7 and 7′. A stud-bolt or spindle 8, fixed to the plate 2, acts as a fulcrum for the arm 9, being the switch-blade, and the arm 10 for operating it, these parts being connected together to form a flexible lever by a spring 11, coiled upon the spindle and having its respective ends fixed to the parts 9 and 10. A link 12 is pivotally connected by a bolt 13 to the arm 10 and by a bolt 14 to an arm or link 15, having the pivotal connection 16 with the stud 3, the link 12 having the parts 12′ electrically separated and mechanically connected by the insulating-piece 12″. With this mechanism in the position shown in Fig. 1 a part moving as the arrow shown will strike the elbow of the broken toggle formed by the links 12 and 15 and throw the movable parts to the positions shown by the dotted lines, the switch-blade 9 being withdrawn from the jaws 7 to break the circuit therethrough and engaged with the jaws 7′. As the action of the link 12 upon the arm 10 is carried through the spring 11 to the arm 9, the latter is not thrown until the spring has been brought under tension, and thereupon the blade is snapped or thrown quickly by the spring to make and break contact without sparking. By breaking down the toggle, either manually or automatically, the switch-blade is thrown in the opposite direction.

Having described my invention, I claim—

1. An electric switch comprising an insulating-support, a contact member fixed thereto, a contact member fulcrumed on said support to engage and disengage said fixed contact member, and a toggle mechanism having a spring connection with said fulcrumed member for snapping it into and out of engagement with said fixed contact member, substantially as specified.

2. An electric switch comprising an insulating-support, a terminal fixed thereto, jaws fixed to said terminal, a switch-blade fulcrumed on said support for making and breaking a circuit through said terminal, an arm fulcrumed on said support, a coiled spring connected to said blade and arm for transmitting the movement of the latter to the former, and a toggle for operating said arm, substantially as specified.

3. An electric switch comprising a terminal having a contact member, a flexible lever having a contact-arm for engaging said contact member, and a toggle for operating said lever, substantially as specified.

4. An electric switch comprising an insulating-support, a pair of terminals having jaws fixed to said support, a spindle carried by said support, a switch-blade fulcrumed by said spindle and adapted for engaging the respective jaws of said terminals, an arm fulcrumed by said spindle, a spring coiled on said spindle and connected to said blade and arm, and mechanism for operating said arm, substantially as specified.

5. The combination of a base, an insulating-plate secured to said base, terminals secured to said plate, a fulcrum, an arm adapt-

ed to oscillate on said fulcrum to make and break contact with said terminals, a second arm oscillating on said fulcrum, a spring connecting said arms, an arm fulcrumed on said base, and a link connecting the second with the last-named arm, substantially as specified.

In testimony whereof I have hereunto set my hand, this 13th day of May, 1905, in the presence of the subscribing witnesses.

GEORGE W. RICHARDSON.

Witnesses:

HOMER S. GATES,

UTLEY E. CRANE, JR.