(No Model.)

# C. DAUFFENBACH.

## MECHANICAL SWITCH FOR ELECTRIC SYSTEMS.

No. 457,110. Patented Aug. 4, 1891.

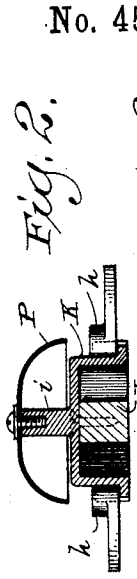


Fig. 2.

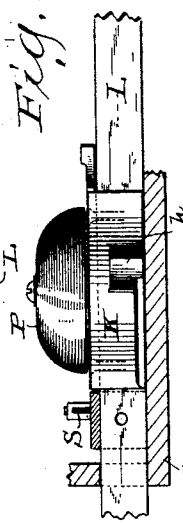


Fig. 3.

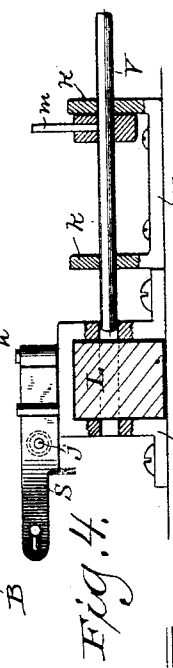


Fig. 4.

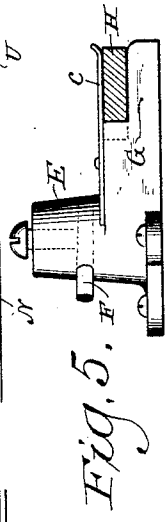


Fig. 5.

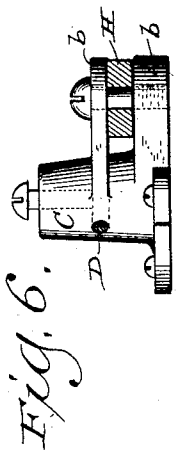


Fig. 6.

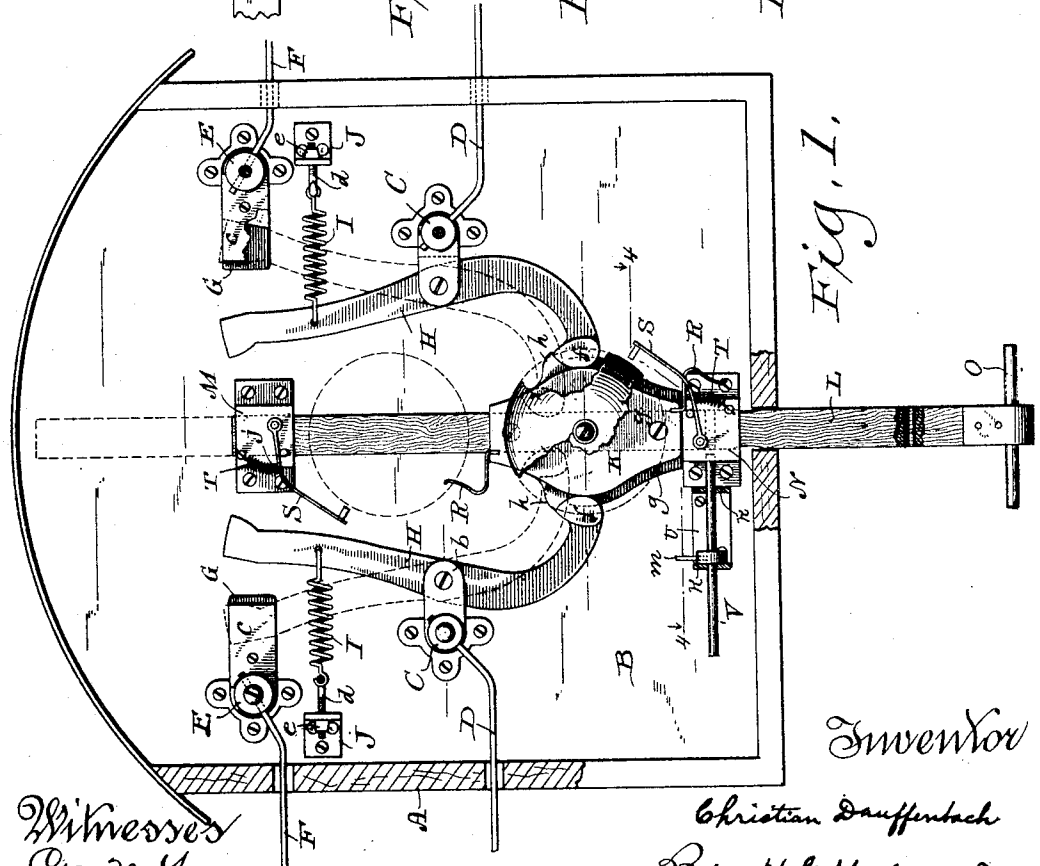


Fig. 1.

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# UNITED STATES PATENT OFFICE.

CHRISTIAN DAUFFENBACH, OF MILWAUKEE, WISCONSIN.

## MECHANICAL SWITCH FOR ELECTRIC SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 457,110, dated August 4, 1891.

Application filed March 3, 1891. Serial No. 383,609. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTIAN DAUFFENBACH, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Mechanical Switches for Electric Systems; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents an elevation of my device having certain of its parts broken away for the purpose of better illustration; Fig. 2, a detail transverse section illustrating a slide-bar, cam, and alarm-bell; Fig. 3, a detail elevation of the parts shown in the preceding figure, together with guides for the slide-bar illustrated in section; Fig. 4, a detail elevation, partly in section, on line 4 4 of Fig. 1, illustrating a locking device in connection with said slide-bar and one of its guides; Fig. 5, a detail elevation of a binding-post having a contact-extension; and Fig. 6, a detail elevation of another binding-post having a lever pivotally connected between lugs thereon, the lever being illustrated in transverse section.

Referring by letter to the drawings, A represents a box that in practice will be provided with a door having a lock. Arranged on the back wall or a supporting-base B within the box are binding-posts C for main wires D of a high-tension electric system, and above these posts are similar devices E for loop-wires F, forming part of said system.

The binding-posts E are provided with extensions G, cut out to form seats for the upper ends of levers H, that are pivoted between lugs *b* on the binding-posts C, the contact between the binding-post extensions G and the levers being improved by spring-plates *c*, arranged on said extensions to exert pressure on said levers when the latter are seated, these levers in the latter position serving as connections to complete the circuit between the main and loop wires above described.

Fast to the levers H, above the binding-posts C, are spiral springs I, that connect with bolts *d*, engaging brackets J on the supporting-base B, and by means of set-nuts *e* on the bolts said springs may be adjusted as to tension.

The lower ends of the levers H are preferably in the form of convex lugs *f*, normally in the path of a cam K, the latter being fast on the slide-bar L and having its faces provided with lateral guide-flanges *g* for the lug ends of the levers. The faces of the cam are also provided with lateral extensions *h*, having a curvature corresponding to that of the lugs *f* on the levers H, whereby the contact-surface between said cam and lever lugs is increased to lessen resistance to current, as well as to prevent reversal of the current when the slide-bar is operated to bring said levers into contact with the extensions G of the binding-posts E for the loop-wires. The slide-bar L works in fixed guide-brackets M N, fast on the supporting-base B, and extends through an opening in the bottom of the box A, the lower end of said slide-bar being preferably provided with a handle O, as shown in Fig. 1.

On a stem *i*, projecting from the outer side of the cam K, I secure a gong-bell P, and fast to each end of said cam is a trip-finger R, that throws back an opposing pivoted striker-arm S against the power of a spring T, and upon the trip of the finger the spring is expanded to cause impact of the striker against the bell. As a matter of mechanical convenience, I prefer to pivot the striker-arms S to the guide-brackets M N, the springs T being also secured to these brackets to engage lugs *j* on said striker-arms.

In the position of the parts shown the slide-bar L has been drawn down to cause the cam K to actuate the levers H against the power of the springs I, and thereby break the contact of these levers and extensions G on the binding-posts E for the loop-wires, the completion of the operation being signaled by a stroke of the lower striker-arm on the gong-bell P that is carried by said cam. It being desirable at times to lock the slide-bar in the position to which it is adjusted, I provide the lower guide-bracket N with a lateral arm U, having perforated ears *k*, that serve as guides for a sliding bolt V, that is brought in and out of engagement with openings or sockets in

said slide-bar, the bolt being provided with a thumb-piece *m* for the grasp of the operator. The slide-bar being pushed up, the springs I contract and draw the upper ends of the levers H into contact with the extensions G on the binding-posts E, the guide-flanges *g* on the cam K overcoming the tendency of said springs to draw down on said levers, and thereby bringing the latter into register with the seats in said binding-post extensions. By the peculiar contour of the cam K the levers H are kept in contact therewith until their upper ends are in full contact with the extensions G of the binding-posts E, and thus current is gradually let onto the loop-wires, after which the lower ends of said levers come against said slide-bar, the latter being of wood or some other material that is either a poor conductor or entirely non-conductive. The slide-bar being pushed up its full stroke, the alarm-bell is sounded, and thus the operator is assured that connection has been made between the main and loop wires.

The main object of my invention is to signal when the connection or disconnection of the main and loop wires of a high-tension electric system is completed, it being understood that the box is generally closed and locked, and while I have described an alarm-bell and automatic striking mechanism some other suitable automatically-actuated signal may be employed without departure from said invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an inclosing box, binding-posts for main and loop wires of a high-tension electric system, spring-controlled levers pivoted to the binding-posts of one set of wires and designed for contact with the binding-posts of the other set of wires, a slide-bar, a cam fast on the slide-bar in opposition to the levers, and guides for these levers in the form of flanges that extend laterally from the cam, substantially as set forth.

2. The combination of an inclosing box, binding-posts for main and loop wires of a high-tension electric system, spring-controlled levers pivoted to the binding-posts of one set of wires and designed for contact with the binding-posts of the other set of wires, convex lugs extended from the levers, a slide-bar, and a cam on the slide-bar provided with lateral extensions having a curvature corresponding to that of said lugs to which they are opposed, substantially as set forth.

3. The combination of an inclosing box, binding-posts for main and loop wires of a high-tension electric system, spring-controlled levers pivoted to the binding-posts of one set of wires and designed for contact with the binding-posts of the other set of wires, lugs extended from the levers, a slide-bar, a cam fast on the slide-bar and provided with lateral extensions in opposition to the lever-lugs, and a locking device for said slide-bar, substantially as set forth.

4. The combination of an inclosing box, binding-posts for main and loop wires of a high-tension electric system, spring-controlled levers pivoted to the binding-posts of one set of wires and designed for contact with the binding-posts of the other set of wires, a slide-bar, a cam carried by the slide-bar in opposition to the levers, a gong-bell arranged on the cam, fingers extending from the ends of said cam, and pivoted spring-controlled striker-arms arranged in the path of the fingers, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

CHRISTIAN DAUFFENBACH.

Witnesses:
N. E. OLIPHANT,
WM. KLUG.