No. 875,406. PATENTED DEC. 31, 1907.

C. N. BERGMANN.

SWITCH.

APPLICATION FILED MAY 4, 1905.

Fig. 1.

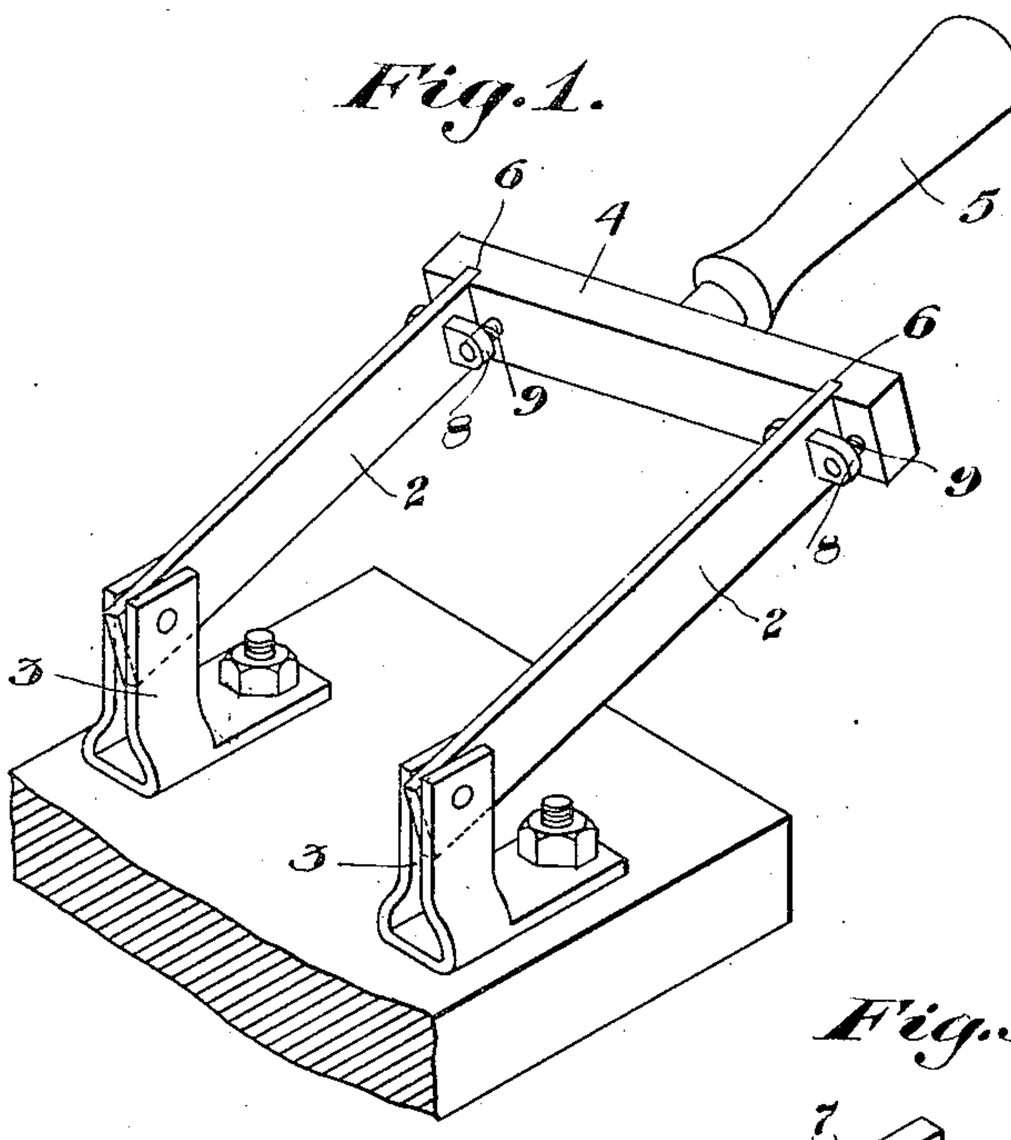


Fig. 2.

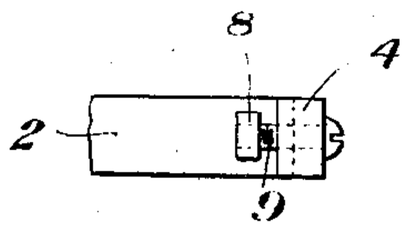


Fig. 3.

Fig. 4

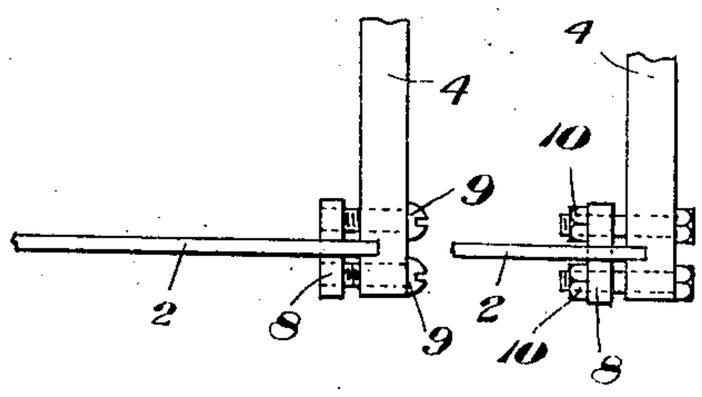


Fig. 5.

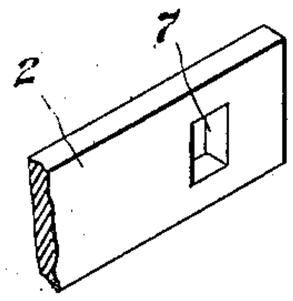


Fig. 6.

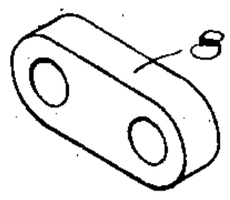


Fig. 7.

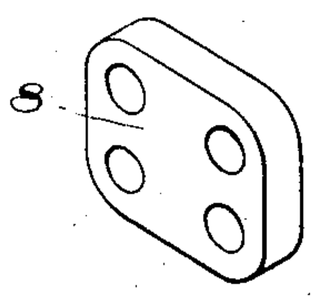


Fig. 8.

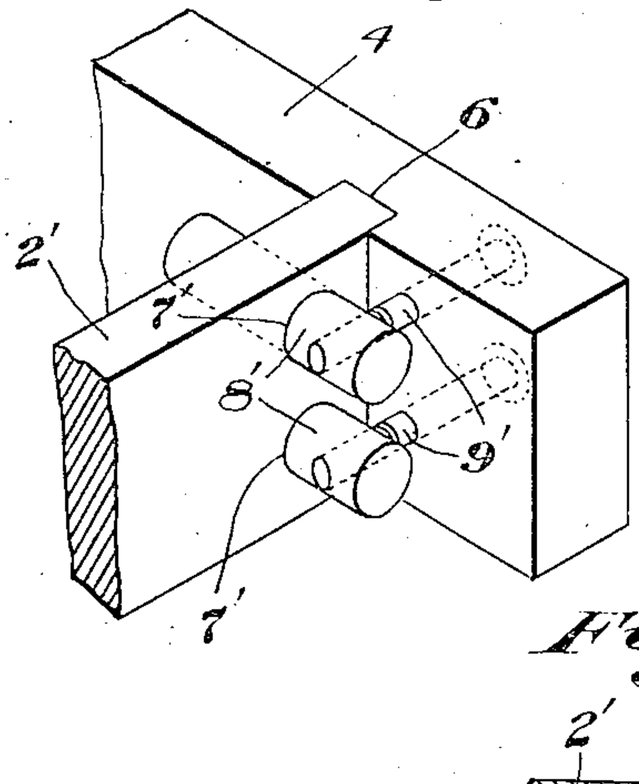


Fig. 9.

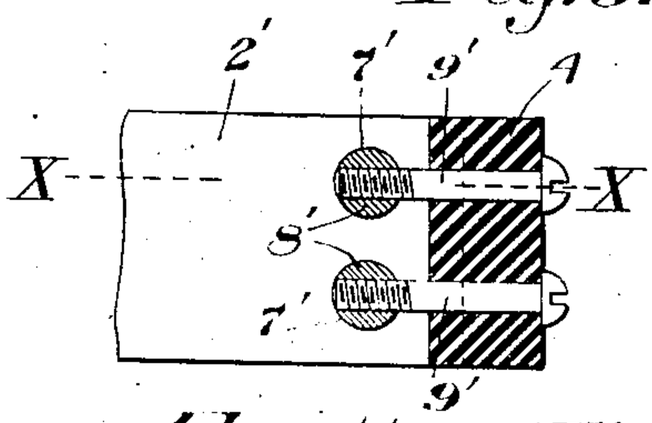


Fig. 10.

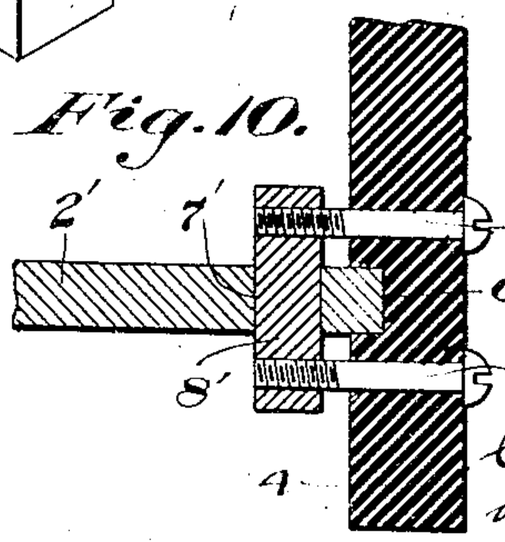


Fig. 11.

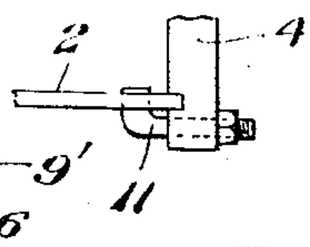
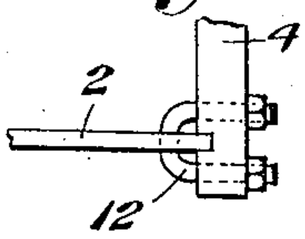


Fig. 12.



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Inventor:

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by O. M. Clarke

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UNITED STATES PATENT OFFICE.

CHRISTIAN N. BERGMANN, OF ALLEGHENY, PENNSYLVANIA.

SWITCH.

No. 875,406. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed May 4, 1905. Serial No. 258,749.

To all whom it may concern:

Be it known that I, CHRISTIAN N. BERGMANN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Switches, of which the following is a specification, reference being had therein to the accompanying drawing, forming part of the specification, in which—

Figure 1. is a perspective view of a portion of my improved switch blade, illustrating the manner of attaching the blade to the insulating handle bar. Fig. 2. is an edge view of the device. Fig. 3. is a plan view of Fig. 2. Fig. 4. is a similar view showing a modified construction. Fig. 5. is a perspective detail view of one end of the blade, detached. Fig. 6. is a detail view of one of the holding clips detached. Fig. 7. is a similar view showing a clip having a plurality of holes at each end. Fig. 8. is a perspective detail view showing a double attachment, employing round bars. Fig. 9. is a sectional view of the construction shown in Fig. 8. Fig. 10. is a horizontal sectional view on the line X. X. of Fig. 9. Figs. 11 and 12 are detail views showing further modifications.

My invention refers to improvements in electric switches and has for its object to provide a strong, simple, economical connection between the insulating handle bar or yoke and the switch blade so as to prevent relative movement of these parts and to hold them in continuous rigid operative relation to each other under the varying strains and operations to which devices of this character are subject in use:

Referring to the drawings, 2 represents the usual blade or blades of an electric switch pivotally mounted in a standard or standards 3 in electrical communication with the terminal or terminals of the circuit, and adapted to close the circuit with another contacting terminal, between the side plates of which the blade or blades 2 are adapted to engage in the usual manner.

4 represents the insulating cross bar or yoke to which the blades are secured, said bar being provided with an operating handle 5 of any suitable construction.

The present invention refers particularly to the means for connecting the blade 2 with insulating bar 4, and for this purpose I preferably recess or rabbet the bar 4 as shown at 6, into which recess the blade 2 partially extends, the blade being provided with one or more cross perforations 7 adapted to receive a securing clip 8 which extends outwardly at each side of the blade as shown, or to receive other securing means.

9, 9, are threaded screws or bolts extending through the insulating bar 4 from the opposite side and extending through the terminals of clip 8, by which the blade 2 may be tightly drawn up against bar 4. The clips 8 may be internally threaded and tapped into by the bolts themselves, or may be merely drilled in which case the bolts are provided with binding nuts 10 as shown in Fig. 4. With a narrow blade a single clip 8 is sufficient, and in such construction the clip is preferably made rectangular, fitting into a corresponding rectangular hole 7, thus increasing the holding power and preventing movement. It will be also obvious that a single clip may be used for holding two or more blades by connecting the holding bolt with the clip between the blades.

In Figs. 8 to 10 inclusive I have shown the blade 2′ as provided with a plurality of holding clips 8′ which are made in cylindrical form as shown above and below, extending through corresponding cylindrical openings 7′ in the end of the blade and held in position by securing screws 9′ tapped into the bolts in the same manner as just described. It will be understood that the number of clips may be varied to suit different widths of the blade, and that the clips may be made of any suitable construction in cross section, either oblong, round or square. If desired also, the clips 8 may be made sufficiently wide to provide space for two or more screw holes at each end, thereby further strengthening the joint, as in Fig. 7. In each case however, the effect is the same to hold the blade in immovable fixed relation with the insulating bar 4, the rabbeted engagement preventing lateral movement while the screws engaging the clips positively hold it against up or down shifting.

In Fig. 11 I show a single L-shaped bolt 11 engaging the opening 7 in the blade, and in Fig. 12 a U-shaped bolt 12 having tightening nuts at each side, in each of which obvious constructions the blade will be held tightly against the insulating bar.

Having described my invention, what I claim is:

1. In a joint for switch blades, the combination with a holding bar, of a blade pro-

vided with a transverse opening and abutting directly against the bar, and holding devices passing through the bar at each side of the blade and coacting with means engaging said opening to bind the blade against the bar, substantially as set forth.

2. Means for connecting a switch blade to a bar consisting of a transverse clip extending through the blade, and screws engaging the clip at each side of the blade and securing it thereto, substantially as set forth.

3. A connection for switch blades consisting of a transverse clip extending through and beyond the blade and provided with terminal openings, and means adapted to engage said openings and clamp said clip and the blade backwardly against a holding bar, substantially as set forth.

4. A connection for switch blades consisting of a transverse clip extending through and beyond the blade and provided with terminal openings, and means adapted to engage said openings and clamp said clip and the blade backwardly against a holding bar, said bar being recessed to receive the end of the blade, substantially as set forth.

5. In a joint for switch blades, the combination with an insulating bar provided with a recess, of a blade extending directly into said recess, a clip extending through and beyond the blade, and securing screws tapped into the terminals of the clip, substantially as set forth.

6. The combination with an insulating bar provided with a receiving recess, of a switch blade provided with a transverse opening, a holding clip extending through said opening and projecting outwardly at each side of the blade, with securing screws extending through from the opposite side of the insulator bar and tapped into the opposite ends of said clip, substantially as set forth.

7. Means for connecting a switch blade having a continuously solid bearing end to a bar, consisting of a transverse clip extending through and beyond the blade, and a bolt engaging the clip at one side of the blade and adapted to draw it and the blade backwardly against the bar.

8. The combination with an insulating bar, of a switch blade having a transverse opening, a holding clip engaging said opening and projecting laterally beyond the blade, and a securing bolt passing through the insulating bar and engaging the projecting portion of the clip.

9. Means for connecting a switch blade to a bar consisting of a transverse clip passing through and extending beyond the blade, and a bolt engaging the bar and the extended portion of the clip to draw it and the blade backwardly against the bar.

10. In a joint for switch blades, the combination with an insulating bar provided with a rectangular recess, of a blade having a rectangular end extending directly into said recess and a transverse opening located backwardly from its end, and a securing device embodying a threaded bolt portion extending through the insulating bar and having a terminal holding device removably inserted in the transverse opening of the blade.

11. The combination with an insulating bar, of a switch blade having a transverse opening, a holding clip engaging said opening and projecting laterally beyond the blade, and a securing bolt passing through the insulating bar and engaging the clip at one side of the blade.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTIAN N. BERGMANN.

Witnesses:
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C. M. CLARKE.