G. R. HEBDEN.

SWITCH CLIP.

APPLICATION FILED NOV. 19, 1910.

995,599. Patented June 20, 1911.

Fig. 1

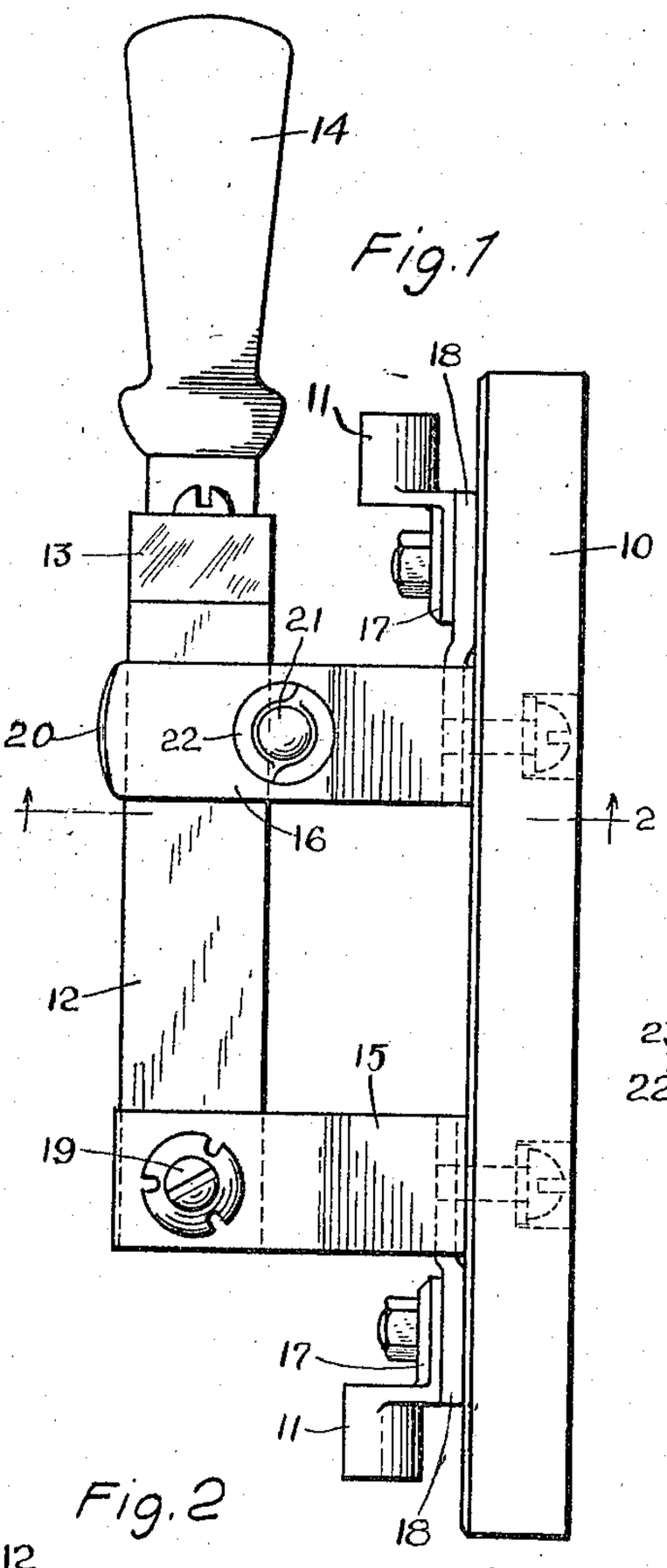


Fig. 3

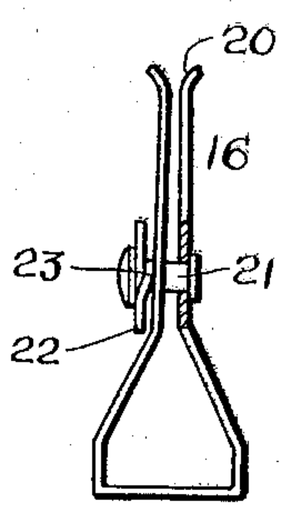


Fig. 4

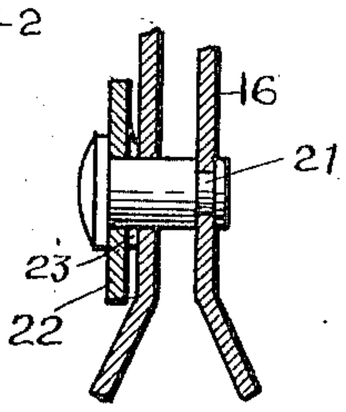
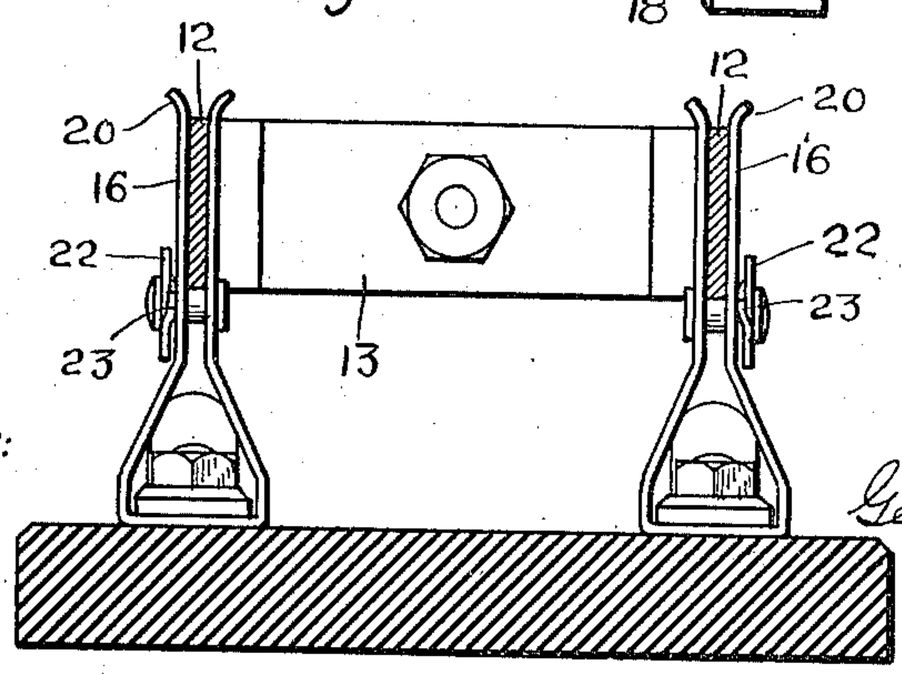


Fig. 2



WITNESSES:

H. W. Meade

S. W. Atherton.

INVENTOR

George R. Hebden

BY

A. M. Wooster

ATTORNEY

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

UNITED STATES PATENT OFFICE.

GEORGE R. HEBDEN, OF PLAINVILLE, CONNECTICUT, ASSIGNOR TO THE TRUMBULL ELECTRIC MANUFACTURING COMPANY, OF PLAINVILLE, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SWITCH-CLIP

995,599. Specification of Letters Patent. Patented June 20, 1911

Application filed November 19, 1910. Serial No. 593,200.

To all whom it may concern:

Be it known that I, GEORGE R. HEBDEN, a citizen of the United States, residing at Plainville, county of Hartford, State of Connecticut, have invented an Improvement in Switch-Clips, of which the following is a specification.

This invention has for its object to produce a switch clip especially adapted for use in knife switches, either single or multiple pole, which may be made from relatively thin metal, will provide a yielding contact with the switch blades, a positive stop to limit the closing movement of the blades and yielding means for limiting the separation of the blades, thereby insuring perfect electrical contact while at the same time the cost of construction shall be reduced to the minimum.

With these and other objects in view I have devised the novel yielding switch clip which I will now describe, referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts.

The invention is shown as applied to a double pole switch.

Figure 1 is an elevation of the switch in the closing position; Fig. 2 a transverse section on the line 2—2 in Fig. 1, looking in the direction of the arrows; Fig. 3 a similar view of one clip with the blade removed as when the circuit is open; and Fig. 4 is a detail sectional view on an enlarged scale, showing a variation in the details of construction.

10 denotes an insulating base which may be made of slate or any suitable material, 11 terminals, 12 the switch blades, 13 an insulating cross piece to which the swinging ends of the blades are rigidly secured, 14 an insulating operating handle for convenience in operation, 15 brackets to which the other ends of the blades are pivoted and 16 my novel clips. The special construction of all of these parts with the exception of the clips is unimportant so far as the present invention is concerned. The terminals, the brackets and the clips are of course rigidly secured to the base. The brackets are formed from strips of relatively thin sheet metal bent to substantially U-shape, the ends of the arms being sprung toward each other and the ends of the blades being pivoted between them as at 19. In the present instance I have shown the terminals as provided with attaching plates 17 which overlie conducting plates 18, the conducting plates in turn overlying the bottom portion of the brackets and clips and all of said parts being rigidly bolted to the base.

The clips are formed substantially like the brackets, that is from strips of relatively thin sheet metal bent to substantially U-shape. The arms of the clips are made slightly longer than the arms of the brackets, are sprung toward each other and the upper ends are curved outward, as at 20, for convenience in passing the blades between them. The upper ends of the arms normally lie quite close to each other so that in forcing the blades between the arms the arms are forced apart slightly, thus insuring a positive and uniform contact of the arms with the blades. In order to increase the spring pressure of the arms of the clips upon the blades to limit the outward movement of the blades and to provide positive stops for the blades in their downward movement, I provide studs 21 which pass through both arms, are made longer than the combined thickness of the arms and the spaces between them, are headed at both ends and are provided under one or both heads with spring washers 22. These spring washers may be of any ordinary or preferred form, those shown in the drawing being ordinary flat washers with curved tongues 23 separated from the metal of the washers except at one end and their free ends turned inward. In the drawing I have shown each clip as provided with one spring washer only which I have found quite sufficient in practice.

In Fig. 3 I have shown the stud as of uniform diameter between the heads and not rigidly secured to either arm of the clip. In Fig. 4 I have shown a form in which one end of the stud is reduced in diameter, leaving a shoulder against which the corresponding arm of the clip rests so that when the end of the stud is headed down the stud will be rigidly secured to that arm of the clip. I preferably use the form illustrated in Fig. 4, although these details of construction are not essential features of the invention.

The operation will be obvious from the drawing. To close the circuit, the blades are swung down between the arms of the clips, as in Fig. 1, the arms being pressed tightly against the blades by their own re-

siliency assisted by the action of the spring washers and the downward movement of the blades being stopped by the studs, thus insuring positive and smooth action of the switch. By this arrangement stud 21 and spring 22 co-act to form a positive stop to limit the spreading of the clip to more than the width of the switch blades 12, removing the bending strains from the extreme bottom corners of the clips.

Having thus described my invention I claim:

An electrical switch comprising a base, brackets carried thereby, a switch blade pivoted between said brackets, a clip secured to said base and spaced from said brackets, said clip being provided with resilient arms between which said blade is adapted to pass, a stud loosely engaging said arms to limit the separation thereof, said stud also serving as a stop for said blade, and a spring washer on said stud to permit a yielding separation of said arms.

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

GEORGE R. HEBDEN.

Witnesses:
GEORGE A. CASE,
FRANK T. WHEELER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."