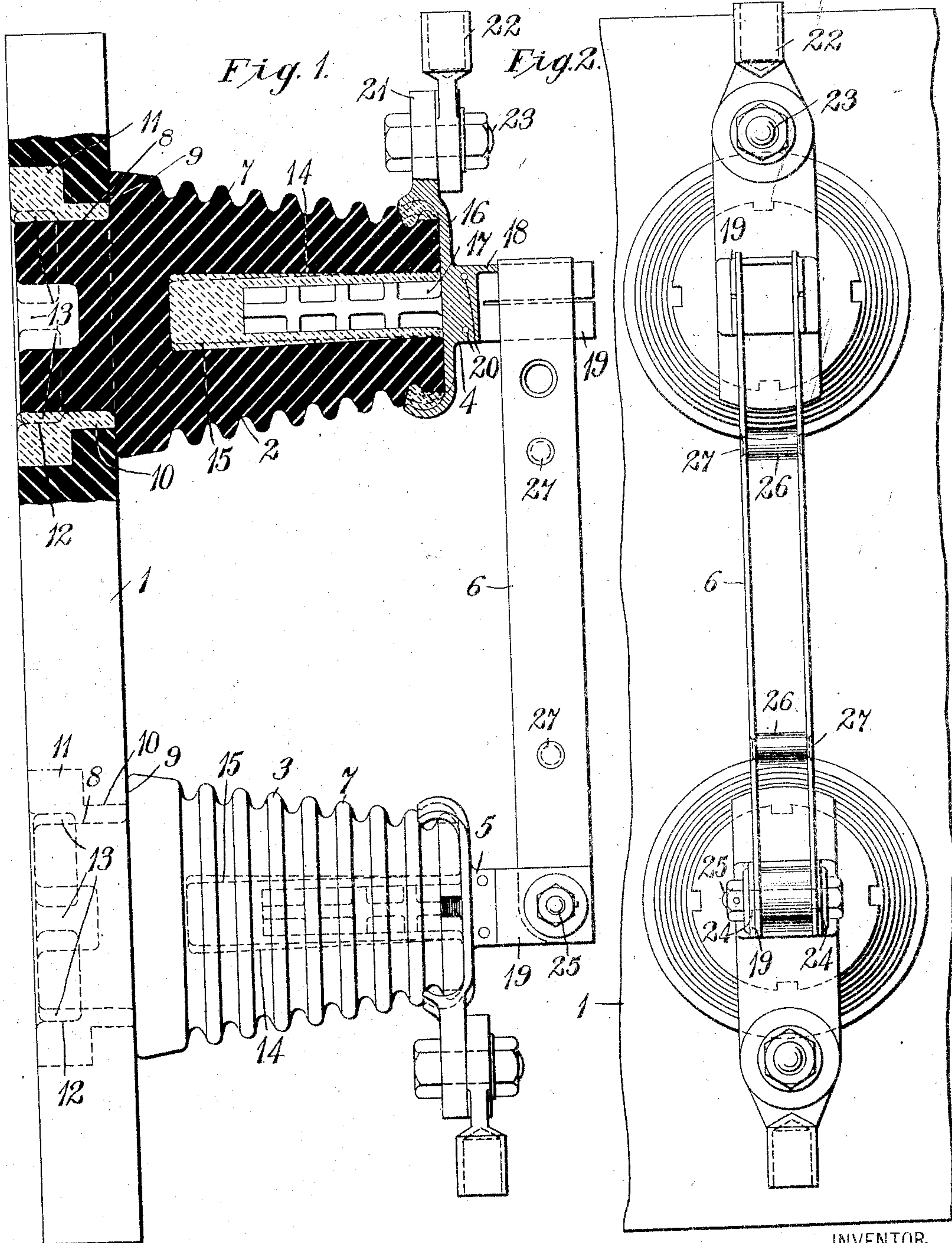


F. W. HARRIS.
ELECTRIC CIRCUIT SWITCH.
APPLICATION FILED JAN. 10, 1908.

Patented Nov. 15, 1910.

975,417.



WITNESSES:

Frederic H. Miller
R. J. Dearborn

INVENTOR.

Ford W. Harris
BY
Wm. E. Harris
ATTORNEY

UNITED STATES PATENT OFFICE.

FORD W. HARRIS, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ELECTRIC-CIRCUIT SWITCH.

975,417.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed January 10, 1908. Serial No. 410,242.

To all whom it may concern:

Be it known that I, FORD W. HARRIS, a citizen of the United States, and a resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electric-Circuit Switches, of which the following is a specification.

My invention relates to switches for electric circuits, and it has special reference to such knife-blade switches as are adapted to interrupt relatively high voltage circuits.

The object of my invention is to provide a device of the aforesaid class that shall be particularly rigid and durable in construction and that may be readily actuated by an attendant from a material distance, by means of a pole having a hooked extremity.

Manually operated disconnecting switches are often employed in the circuits of transformers and other high voltage electrical apparatus for the purpose of interrupting the supply of energy which is continuously received, under normal conditions, by such devices. The blades of these switches are necessarily of considerable length in order that the contact terminals may be widely separated from each other when the switch is open, and the joint between the switch-blade and the terminal to which it is pivoted is made relatively stiff in order to maintain the proper alinement of the switch parts.

According to my present invention, I employ improved means for securing the contact members of the switch to a rigid plate or slab, whereby they are adequately insulated therefrom and from each other and, at the same time, a particularly strong and rigid connection is made for resisting the strains incident to the opening and closing of the switch-blade which may be stiffly joined to one of the contact members, as above indicated.

Figure 1 of the accompanying drawings is a side elevation, partially in section, of a switch constructed in accordance with my invention, and Fig. 2 is a front elevation of the device shown in Fig. 1.

Referring to the drawings, the device here illustrated comprises a slab or base 1 which may or may not be constructed of insulating material, posts or supports 2 and 3, of porcelain or other suitable insulating material, contact members 4 and 5, which are respec-

tively secured to the posts 2 and 3, and a switch-blade 6 which is pivotally secured to the contact member 5.

The posts 2 and 3 are similar to each other and the post 2 may be considered as illustrative of both. This post or support comprises a frusto-conical body member 7 having a corrugated outer surface and a substantially cylindrical inner end or projection 8. The diameter of the projection or end 8 is materially less than the largest diameter of the body so that a shoulder 9 is formed at the junction of said parts. The length of the projection 8 corresponds substantially to the thickness of the plate or slab 1 which is provided with a hole 10 into which the projection is loosely fitted, this hole being provided with a counter-bore 11 on the opposite side of the slab from the body of the post. In this way, an annular pocket is formed, when the post is assembled with the shoulder in engagement with the face of the slab, which is filled with cement to rigidly secure the post to the slab. In order to still further improve the holding power of the joint thus formed, the outer extremity of the cylindrical projection 8 is provided with an annular flange 12 which is interrupted at intervals by notches 13 to permit the cement, in a plastic state, to enter the clearance space between the walls of the hole 10 and the projection 8 and between the flange 12 and the shoulder 9. The base of the insulating post may be recessed to avoid unnecessary material in its construction. The body of the post is provided with a substantially cylindrical hole or recess 14, the walls of which are provided with longitudinal grooves 15 which grow deeper as they approach the bottom of the recess.

The contact member 4 comprises a cap 16 which fits over the outer corrugation of the insulating post 2, a projection 17 which is integral with the cap and extends into the recess 14 and a slotted projection 18 to which switch jaws 19 are secured by means of pins 20 and by sweating or calking. The cap 16 is also provided with a projection 21 to which a terminal member 22 is secured by a bolt 23. The projection 17 is provided with side recesses, as indicated, to receive portions of the cement which is placed in the recess 14. The clearance spaces under

the edges of the cap and between the cap and the outer corrugation of the post are also filled with cement. The grooves 15 and the recesses in the projection 17 enable the cement, when set, to hold the parts securely in position. It is evident that the caps serve merely to provide additional security and rigidity between the insulation and the contact members and, consequently, that they may be varied in form or dimensions, or both, or be omitted altogether, if desired.

The contact member 5 is similar to the contact member 4 and corresponding parts are designated by the same reference characters. The switch jaws 19, however, are provided with holes 24 to receive a bolt 25 which projects through the switch-blade 6 to form a hinge-connection for the blade. The switch-blade 6 may preferably be built up of two blade members, as shown in Fig. 2 of the drawings, said parts being secured to each other and spaced apart by pieces 26 having end projections 27 of smaller section which are upset in holes in the blade members. It will be observed that special attention is given to the joint between the insulating posts and the slab and also between the contact members and the posts.

It is to be understood that variations in the shape and size of the parts illustrated may be effected within the scope of my invention as defined in the appended claims.

I claim as my invention:

1. In a switching device, the combination with a supporting slab provided with holes having rear enlargements, frusto-conical insulating posts having recesses in their outer ends and substantially cylindrical inner ends provided with flanges and located in said holes, bodies of cement surrounding said

parts within the holes, contact members comprising caps fitted over the outer ends of the posts and having projections located in said recesses and cemented therein, switch jaws projecting outwardly from the caps, and a switch-blade pivotally secured to one pair of the jaws.

2. In a switching device, the combination with a supporting slab having holes cut through it and counter-sunk at the rear, frusto-conical insulating posts projecting outwardly from the face of the slab and having corrugated outer surfaces and end recesses and provided with cylindrical flanged inner ends which are cemented into said holes, of caps having projections cemented into the recesses in the posts, switch jaws projecting outwardly from the caps, and a switch-blade pivotally secured to one pair of jaws.

3. In a switching device, the combination with a supporting slab having holes cut through it and counter-sunk at the rear, frusto-conical insulating posts having corrugated outer surfaces, and substantially cylindrical flanged inner ends cemented into said holes, of contact members comprising caps fitted over the outer ends of the posts, projections cemented into recesses in the posts, switch jaws projecting from the caps, and a switch-blade pivotally secured to one pair of the jaws.

In testimony whereof, I have hereunto subscribed my name this 31st day of Dec., 1907.

FORD W. HARRIS.

Witnesses:

HERBERT FABER,
BIRNEY HINES.