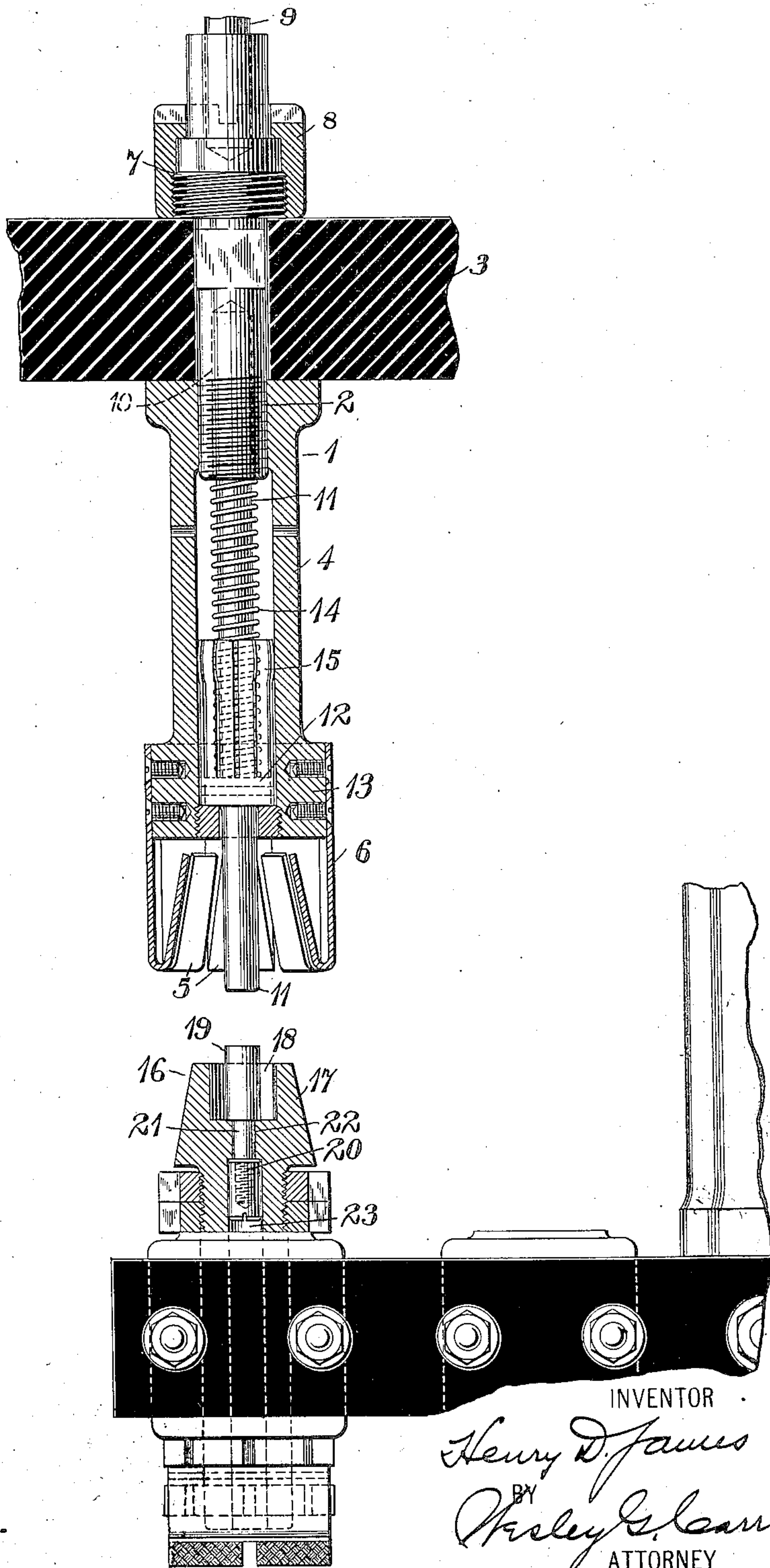


No. 896,210.

PATENTED AUG. 18, 1908.

H. D. JAMES.
CONTACT MEMBER.
APPLICATION FILED MAY 16, 1906.



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No. 896,210.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed May 16, 1906. Serial No. 317,229.

To all whom it may concern:

Be it known that I, HENRY D. JAMES, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Contact Members, of which the following is a specification.

My invention relates to contact members for switching devices and it has for its object to provide improved cooperating contact members which may be traversed, without injury, by relatively large values of electrical current and which shall maintain an excellent contact between the engaging parts in its closed position after having been utilized for effecting a great number of circuit interruptions.

Contact members for switching devices have usually been provided with arcing contact members, which finally interrupt the controlled circuit and which are distinct from the normal current-carrying parts, in order to avoid the deterioration of the latter which would otherwise result from the action of the electric arcs. A well known form of contact device comprises a stationary member having a resilient cup-shaped terminal and a yieldingly mounted center plug, which serves as an arcing contact and a movable member of conical shape which first engages the arcing contact plug of the stationary member and finally makes electrical contact with the inner surface of the resilient cup. After an arrangement of this kind has been subjected to a large number of circuit interruptions, the end of the conical member which comes into contact with the arcing plug becomes seriously burned and the surface of the cone, which should engage the entire inner surface of the cup, becomes corroded or covered with slag, so that the resilient terminal is forced away and a poor contact between the two members results. When this stage is reached, the contacts are soon destroyed or become useless, since arcing and burning continue even when the switch is closed. In order to obviate the aforesaid objections I provide a cylindrical recess in its upper surface in which a detachable plug of considerably less cross-section than that of the recess, is located. This detachable plug cooperates with the yielding center plug of the stationary member so that arcs which occur upon interruption of the circuit affect only the engaging ends of

these two plugs, and since these plugs are detachable, they may be replaced from time to time, and the current-carrying contact members will always be maintained in good condition.

The single figure of the accompanying drawing is a longitudinal section of a pair of cooperating contact members, constructed in accordance with my invention.

Referring to the drawing, a stationary contact member 1 comprises a stud 2, which may pass through a square hole in an insulating plate 3 or be otherwise suitably supported, a sleeve 4 which is screw-threaded onto the lower end of stud 2, and a plurality of flexible contact fingers, or blades 5, which are so attached to the sleeve 4 as to form a resilient cup 6. The end of the stud 2, which is opposite the sleeve 4, is provided with an enlargement 7 so that the stationary contact member may be clamped to the insulating plate 3 that is located between one end of the sleeve 4 and this enlargement. The enlargement 7 is screw-threaded to receive a cap 8, its upper end being drilled to fit a terminal 9, which may be soldered or otherwise attached to a suitable conducting lead. The stud 2 is provided with a recess 10 which receives one end of a center plug 11. The center plug 11, which is provided with a collar or enlargement 12, is located within the sleeve 4 and one extremity projects through a bushing 13, which is screw-threaded into the sleeve 4. The center plug 11 is free to slide within the sleeve and is held at one extremity of its motion by a spring 14 which is interposed between the collar 12 and one end of the stud 2. In order to insure a good electrical contact between the center plug and the sleeve 4, a resilient contact sleeve 15 is attached to the collar 12 and engages the inner surface of the sleeve 4.

A movable contact member 16, which is adapted to cooperate with the stationary member 1, comprises a current-carrying contact member 17, in the form of a frustum of a cone that is provided with a recess 18 and a detachable plug 19 which is located in the center of the recess. The plug 19 is adapted to first complete the circuit by engaging the extremity of the center plug 11 and is attached to the conical member 17 by a nut 20, and a screw-threaded bolt projection 21 that extends through a small hole 22 in the

center of the cone into a tubular opening 23 of larger diameter.

Although one of the contact members, as illustrated and described, is adapted for mounting on a stationary insulating plate, the members, of course, may be interchanged, within the scope of my invention, only a relative motion between two being essential.

I claim as my invention:

10 1. In a switching device, the combination with a contact member having an end recess, and a projecting plug of materially smaller section located in the recess, of a cooperating contact member having a projecting plug 15 the end of which engages the end of the first-named plug, one of said plugs being yieldingly supported to permit the main contact surfaces to make engagement with each other.

20 2. In a switching device, the combination with a contact member having a frusto-conical outer surface, a cylindrical end recess, and a plug projecting from the center of the recess, of a cooperating contact member having a 25 longitudinally yielding plug the end of which engages the end of the other plug.

3. The combination with a frusto-conical contact member having a cylindrical end recess, and a plug projecting from the center 30 of the recess, of a cooperating contact member having laterally yielding fingers to engage the frusto-conical surface of the other contact member, and a longitudinally yielding plug the end of which engages the end of 35 the other plug.

4. The combination with a frusto-conical contact member having a cylindrical recess, and a plug projecting therefrom, of a resilient cup-shaped cooperating contact member hav-

ing a yielding plug to engage the first-named 40 plug.

5. A switching device comprising a tubular member having resilient fingers attached thereto and bent inwardly to form a cup, an arcing contact plug projecting from the end 45 of the tubular member, and a cooperating frusto-conical member having a recess, and a plug projecting therefrom to cooperate with the arcing contact plug.

6. In a switching device, the combination 50 with a tubular member having resilient fingers attached thereto to form a cup, an arcing contact plug projecting from the center of the cup, and a resilient sleeve between the plug and the inside walls of the tube, of a 55 cooperating frusto-conical member having a recess, and a plug supported in the center of the recess and adapted to engage the arcing contact plug.

7. In a switching device, the combination 60 with a tubular member, resilient fingers attached thereto to form a cup or socket, a longitudinally movable arcing contact plug partially located in the tubular member and projecting therefrom, a resilient sleeve inter- 65 posed between the plug and the inner walls of the tube, and a spring surrounding the plug, of a cooperating frusto-conical member having a recess, and a plug projecting from the recess to engage the arcing contact plug. 70

In testimony whereof, I have hereunto subscribed my name this 10th day of May, 1906.

HENRY D. JAMES.

Witnesses:

EDWIN LEHR,
BIRNEY HINES.