No. 798,171. PATENTED AUG. 29, 1905.

H. P. DAVIS.

CIRCUIT BREAKER.

APPLICATION FILED DEC. 26, 1901.

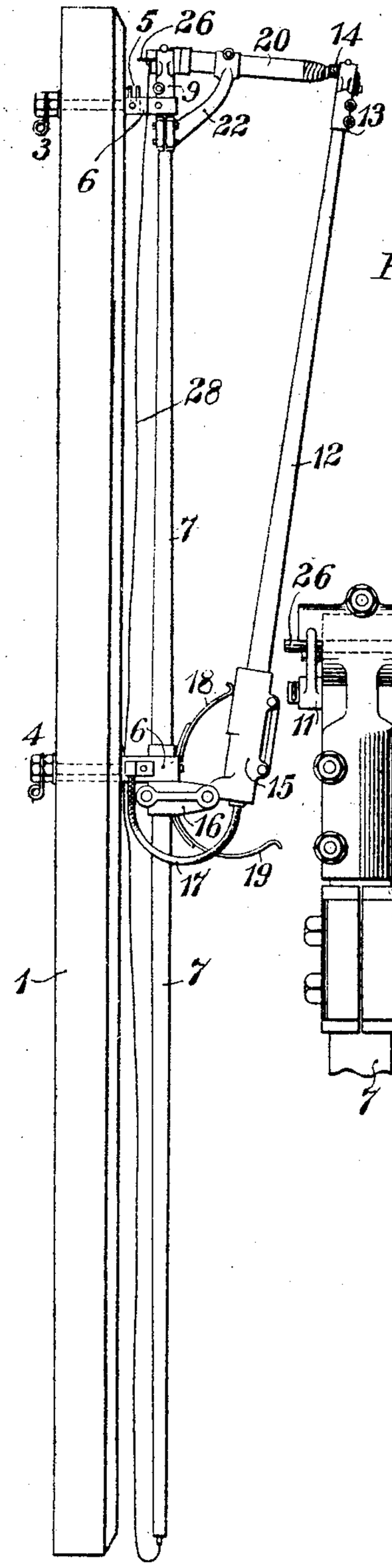

Fig. 1.

Fig. 2.

WITNESSES:

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HARRY PHILLIPS DAVIS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CIRCUIT-BREAKER.

No. 798,171. Specification of Letters Patent. Patented Aug. 29, 1905.

Application filed December 26, 1901. Serial No. 87,303.

To all whom it may concern:

Be it known that I, HARRY PHILLIPS DAVIS, a citizen of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Circuit-Breakers, of which the following is a specification.

My invention relates to circuit-interrupting devices, and particularly to devices of this character which act automatically when the current in the circuit in which they are connected exceeds a predetermined critical amount.

My invention is an improvement upon the circuit-breaker covered by Patent No. 622,885, granted to the Westinghouse Electric & Manufacturing Company on the 11th day of April, 1899, upon an application filed by me; and it has for its object to promote the extinguishment of arcs which are formed by the interruption of circuits of high potential.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a circuit-breaker constructed in accordance with my invention; and Fig. 2 is a view, on an enlarged scale, of the upper portion of the device shown in Fig. 1, the device being shown partially in side elevation and partially in section.

The supporting-base 1 for the members of the circuit-breaker will ordinarily be a switch-board-panel and may be of any suitable non-conducting material, such as marble or slate. This base is provided with two terminal studs 3 and 4, which project through the base and have at their front ends suitable supporting means for the circuit-breaker proper—such, for example, as those shown in the above-mentioned patent—the front end of the terminal post 3 having a notch or hook 5 and the front end of the lower terminal post 4 having a suitable head with which spring-arms 6 on the rod 7 of the circuit-breaker make frictional engagement.

The rod 7, which may be of any suitable non-conducting material, such as wood, is provided at its upper end with a metal head 9, in which is clamped a perforated carbon terminal piece 10. The head 9 is also provided with a fuse-clamping device 11, all as set forth in the above-mentioned patent.

The rod 12, which constitutes the body portion of the movable member of the circuit-breaker, is provided at its upper end with a metal head 13, in which is clamped a perforated carbon terminal piece 14, and is provided at its lower end with a metal socket-piece 15, which is hinged to a bracket 16 on the rod 7. The contact-pieces 6 are connected to the terminal head 13 by means of a flexible wire or cable 17, and the member 12 is normally pressed outward by means of a suitable spring 18, supported by the stationary member of the device. A spring 19 is also provided to receive the impact of the member 12 when it drops on being released and forced outward by gravity and the spring 18.

The parts thus far described are in all essential respects like those set forth in the patent hereinbefore mentioned and operate in the same way.

While the device has been found effective in service, it is regarded as advantageous to provide additional means for extinguishing the arcs formed upon the interruption of high-potential circuits, and I have accordingly added to the original instrument the following parts: A tube 20, of suitable non-conducting material—such, for example, as hardwood—and having a bore 21 of suitable diameter to accommodate the fuse which is adapted to the service in connection with which the instrument is used is mounted and clamped in the upper end of a bracket 22, the other end of the bracket being mounted upon and clamped to the rod 7 below its head 9. Any other suitable means may obviously be employed for supporting the tube 20, although that shown has been found to be satisfactory in practice. The inner end of the tube 20 is shown as provided with a recess 23 to receive the outer end of the carbon terminal piece 10, and the respective ends of the tube are also provided with metal strengthening-bands 24 and 25. The outer end of the tube is also beveled, as indicated, in order that its face may be parallel to the face of the carbon terminal piece 14 when the circuit-breaker is closed, though obviously the end of the terminal piece might be beveled or the ends of both of the devices suitably formed to adapt each to the other. A fuse 26 is employed in connection with this apparatus, as set forth in the patent hereinbefore mentioned, the outer end of the fuse being clamped to the head 13 by means of a binding-screw 27 or other suitable clamping device and its inner end being clamped by the device 11, the cord

28 being attached to the device 11 and extending downward within reach of the operator, so that the fuse may be released to open the circuit-breaker whenever desired. The tube 20 serves as a blow-out device, so that when the fuse is blown the sudden violent expansion of the gases will have vents at the ends of the tube, and thus blow out the arc, which might otherwise persist a sufficient length of time to injure the contact-terminals of the circuit-breaker.

I claim as my invention--

1. A circuit-breaker comprising a stationary member having a substantially infusible terminal piece, a hinged, movable member having a substantially infusible terminal piece at its free end, a fuse-wire having its ends clamped to said terminal pieces, and a solid non-conducting tube immovably supported between said terminal pieces and having an internal diameter that is only slightly greater than the diameter of the fuse-wire.

2. In a circuit-breaker, the combination with a stationary member and a movable member respectively provided with infusible terminal pieces and fuse-clamps, of a fuse-wire the ends of which are held by said clamps and a tube detachably but rigidly supported by the stationary member and having an internal diameter that is only slightly greater than the diameter of the fuse-wire.

3. In a circuit-breaker, a base having terminals and a non-conducting rod having terminals adapted for detachable engagement with the base-terminals, in combination with a non-conducting rod hinged at one end to the first-named rod, a non-conducting tube rigidly attached to said first-named rod and projecting laterally from its free end and a fuse-wire located in and approximately fitting the interior of said tube and having its ends clamped to the ends of the rods.

In testimony whereof I have hereunto subscribed my name this 16th day of December, 1901.

HARRY PHILLIPS DAVIS.

Witnesses:
H. N. BARTLETT,
JOS. W. ALEXANDER.