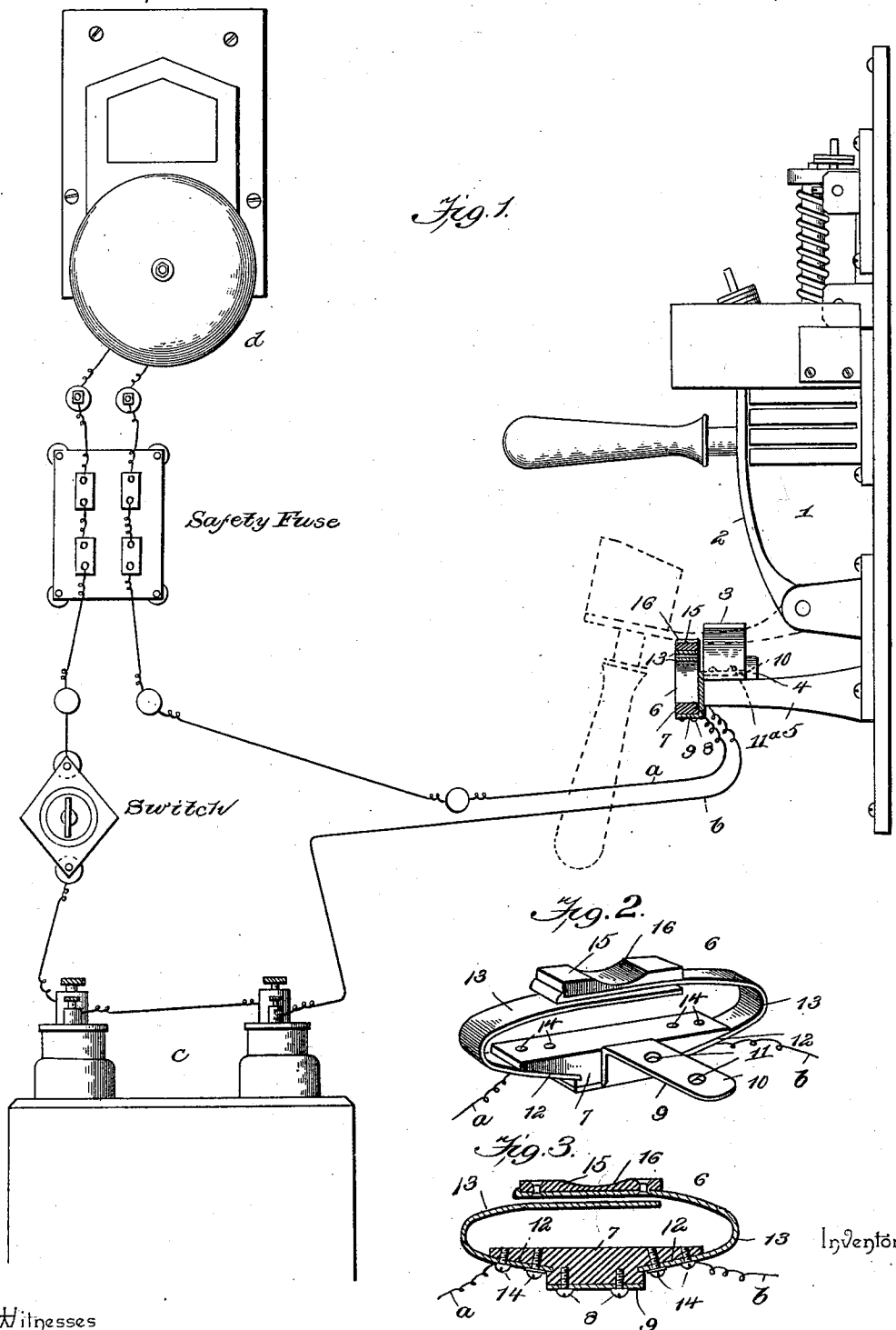


(No Model.)

J. H. DEVINE.
AUTOMATIC CIRCUIT BREAKER ALARM.

No. 548,968.

Patented Oct. 29, 1895.



Witnesses

John C. Shaw,
D. P. Mahan, Jr.

By *his* Attorneys.

John H. Devine,

Attorney.

UNITED STATES PATENT OFFICE.

JOHN H. DEVINE, OF JOHNSTOWN, PENNSYLVANIA.

AUTOMATIC CIRCUIT-BREAKER ALARM.

SPECIFICATION forming part of Letters Patent No. 548,968, dated October 29, 1895.

Application filed November 13, 1894. Serial No. 528,648. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DEVINE, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Automatic Circuit-Breaker Alarm, of which the following is a specification.

This invention relates to automatic circuit-breaker alarms; and it has for its object to provide a new and useful alarm attachment for automatic circuit-breakers of that character usually employed in connection with electrical street-railway systems, to provide automatic means for cutting out a particular loop of the system upon an increase in current strength beyond the limit of safety or for which the breaker is set to maintain the circuit closed.

To this end, therefore, the main and primary object of the present invention is to construct a simple and efficient alarm attachment for automatic circuit-breakers that will provide means for giving an instant alarm or signal to the attendant or operator the moment the circuit is opened by the circuit-breaker, so that there will be no loss of time whatever in reclosing the circuit, thereby avoiding the delay of cars operated on the system, which delay is oftentimes not only a public inconvenience, but dangerous where the lines are operated adjacent to railways and have railway-crossings.

The invention obviates the disadvantages noted, and primarily serves to indicate at once the opening of the circuit by the breaker, while heretofore the opening of the circuit by the breaker operating remains unnoticed for a considerable length of time, owing to the fact that the operators or attendants at power-stations have many duties to demand their attention, and while securing the results noted, the herein-described attachment is so constructed as to obviate any short-circuiting whatever by reason of its use.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of an ordinary Westinghouse automatic

circuit-breaker, showing in section the improved alarm attachment connected therewith. Fig. 2 is a detail in perspective of an automatic circuit-breaker alarm attachment disconnected from or unattached to the breaker. Fig. 3 is a central longitudinal sectional view thereof.

Referring to the accompanying drawings, 1 designates an ordinary "Westinghouse" automatic circuit-breaker, in which is employed an automatically-dropped swinging switch-arm 2, that provides for opening and closing the circuit through the instrument, and which automatically falls when there is an excess in current strength on the circuit in connection with which the instrument is employed, and said switch arm or lever 2, when it falls, is adapted to drop into the ordinary U-shaped catch-keeper 3, that serves to hold the switch arm or lever in its dropped position until thrown back in place by the attendant, and at one side of the catch-keeper 3 is arranged the usual rubber buffer or bumper block 4, that cushions the drop of the switch arm or lever. These parts just described are of a common and well-known construction as belonging to the Westinghouse circuit-breaker, and the catch-keeper 3 and the buffer-block 4 are arranged on the outer end of an off-standing supporting-arm 5, that is projected from one side of the base supporting the instrument, and said supporting-arm 5 serves as a convenient point of attachment for the alarm attachment 6, that is adapted to be supported at the outer end of the arm 5 at one side of the keeper 3, that receives the switch arm or lever 2.

The alarm attachment 6 consists of an insulator base-block 7, that is preferably of an elongated rectangular shape, and is made of hard rubber or other suitable insulating material, and said insulator base-block 7 is adapted to have secured to its lower side, by means of the securing-screws 8, one end of an L-shaped bracket-plate 9, that is projected to one side of the base-block 7, and is provided in its upper horizontal arm 10 with the screw-holes 11, that are preferably adapted to receive the fastening-screws 11^a, that serve to fasten the U-shaped catch-keeper 3 on top of the arm 5 at its outer end, and it will be therefore noted that the same set of screws may

serve to fasten the catch-keeper 3 of the circuit-breaker and the bracket-plate 9 of the alarm attachment to the offstanding arm 5 of the circuit-breaker instrument.

5 The insulator base-block 7 is provided at its opposite ends with the shoulder-inclines 12, on which are fitted the fastened ends of the reversely-bowed semielliptical spring contact-plates 13. The ends of the separate reversely-bowed spring contact-plates 13 that
10 are fitted on the shoulder-inclines 12 of the insulator base-block are fastened to such base-block by means of suitable securing or fastening screws 14, and the said spring contact-plates 13 have connected, respectively, thereto
15 the separate circuit-wires of a bell-circuit *a b*, including therein the bell-circuit battery or batteries *c* and an electrically-controlled bell or gong *d* of any approved construction
20 that will operate continuously when the circuit is closed over the bell-circuit by the contact of the separate contact-plates 13.

The reversely-disposed semielliptical contact-plates 13 have their free ends disposed
25 over and above the upper side of the insulator base-block 7, and these ends of the contact-plates overlap each other and are normally sprung apart and out of contact in order that the circuit over the wires *a b* will be
30 normally open. The free end of the uppermost of the overlapping contact-plates 13 has attached thereto an insulator strike-block 15, that is made of hard rubber or other suitable insulating material, and is provided at a point
35 intermediate of its ends with a rounded portion 16, that is adapted to receive one side of the switch arm or lever 2 when the same falls and automatically breaks the circuit through the circuit-breaking instrument.

40 The alarm attachment 6 is disposed in an upright position at one side of the keeper 13, so that when the switch arm or lever automatically falls the same drops onto the insulator strike-block 15, thereby depressing the
45 end of the contact-plate to which said block is attached and causing the free ends of both

of the spring contact-plates to be brought together, which immediately closes the circuit over the wires *a b* and energizes the operating means for the bell or gong *d*, which will
50 notify the attendant that the circuit-breaker has broken the circuit, and the said bell or gong will continue to ring until the attendant has thrown the switch arm or lever back in place and allowed the contact-plates of the
55 alarm attachment to separate and open up the bell-circuit.

The many advantages of the herein-described alarm attachment will readily suggest themselves to those skilled in the art, and it
60 it is to be further noted that the insulator base-block 7 and the insulator strike-block 15 serve to completely insulate the switch arm or lever from the alarm attachment and thereby positively prevent any short-circuiting through the said alarm attachment or the
65 switch arm or lever.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

In an automatic circuit breaker alarm, the combination of an insulator base block, a bracket plate secured to the under side of the base block and offstanding therefrom, reversely bowed semi-elliptical spring contact
75 plates fastened at one end to the opposite ends of the insulator base block and having their free ends overlapping and normally sprung apart, and an insulator strike block fastened on the free end of the uppermost of
80 the overlapping contact plates and adapted to be engaged by the falling switch arm or lever of an automatic circuit breaker, substantially as set forth.

In testimony that I claim the foregoing as
85 my own I have hereto affixed my signature in the presence of two witnesses.

JOHN H. DEVINE.

Witnesses:

JOHN H. SIGGERS,
G. C. SHOEMAKER.