

No. 656,282.

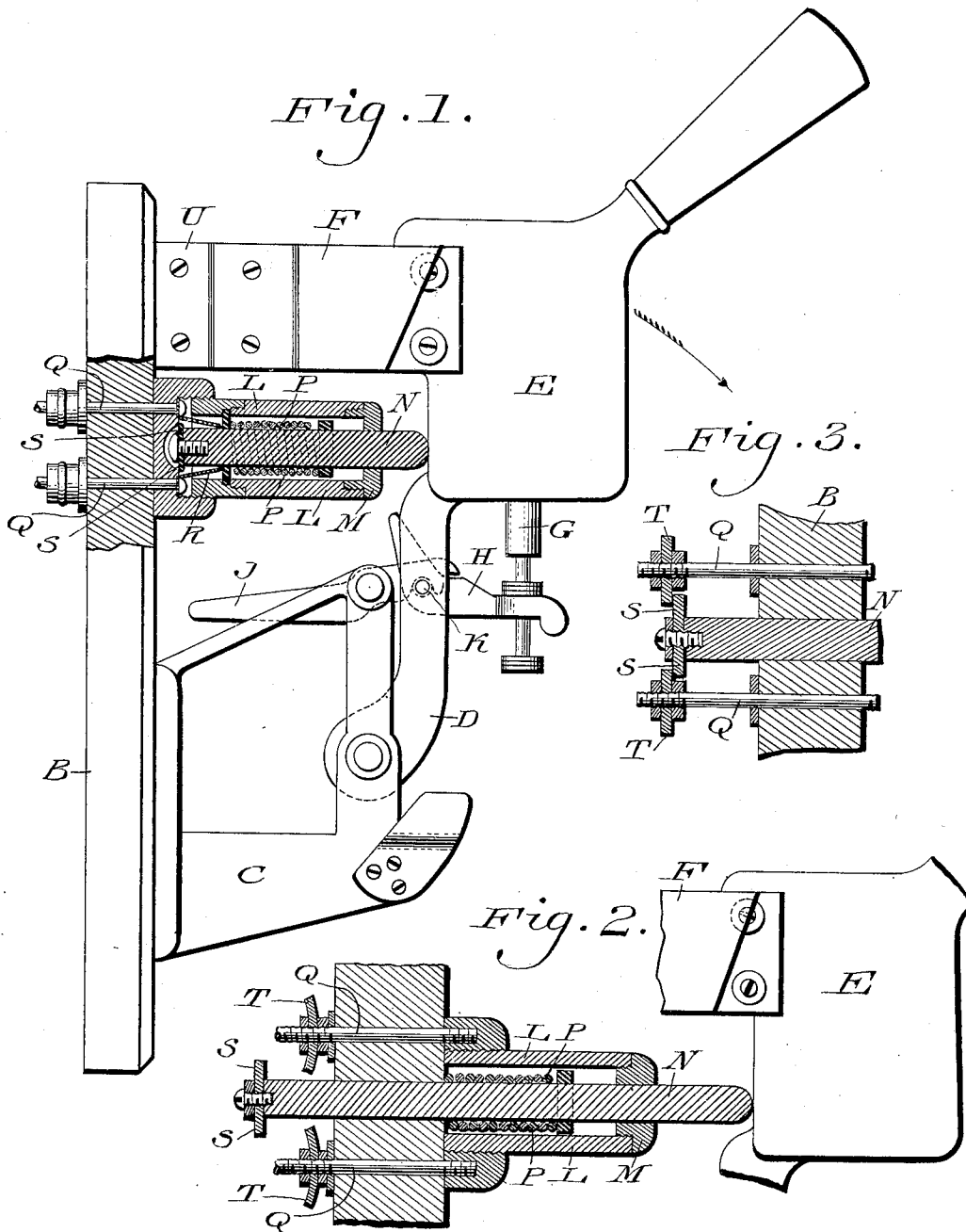
Patented Aug. 21, 1900.

G. S. W. BRUBAKER & W. S. TWINING.

CIRCUIT BREAKER.

(Application filed Nov. 20, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE S. W. BRUBAKER AND WILLIAM S. TWINING, OF PHILADELPHIA,
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CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 656,282, dated August 21, 1900.

Application filed November 20, 1899. Serial No. 737,558. (No model.)

To all whom it may concern:

Be it known that we, GEORGE S. W. BRUBAKER and WILLIAM S. TWINING, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Circuit-Breakers, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of an improvement in automatic circuit-breakers whereby a second or auxiliary circuit is automatically controlled by the action of the making or breaking of the main circuit.

It further consists in constructing a spring-tube or throw-out device so that the same may be placed in close proximity to the terminals or other live parts of an electric-circuit breaker.

Figure 1 represents a partial side elevation and partial vertical sectional view of a circuit-breaker embodying our invention. Figs. 2 and 3 represent a sectional view of a spring-tube or throw-out device and an automatic auxiliary circuit-controlling device showing different positions of the contact devices.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a circuit-breaker which consists of a base B, having a bracket C carried thereby.

D designates an arm pivoted to the bracket C, having an offset portion E, in which is located a solenoid or electromagnet (not shown) which is in connection with the contact device F, carried by said arm D.

G designates the armature of the magnet, which is adapted to operate a latch H, suitably mounted, and which is adapted to actuate the trigger or lock J, which engages with the pin K on said arm.

Secured to the base B is the spring-tube or throw-out device, which consists of a tube L, having a plug M, closing the same, through which passes the plunger N, which latter is actuated by a spring P within said tube, it being noted that the tube, plug, and plunger are formed of fiber, rubber, or any other suitable insulated material, or the parts may be covered with such material, thereby presenting a surface of non-conducting material. Pass-

ing through the base B are the rods or bars Q, to the inner end of which are connected the contacting devices R, the opposite or outer ends of said rods Q serving as terminals for the auxiliary or second circuit, which may be used to light a lamp or ring an alarm. S designates a contacting device suitably mounted on the inner end of said plunger N and which is adapted to close the circuit when in contact with the parts R.

U designates contact devices which are mounted on the base B.

In Figs. 2 and 3 we have shown a construction in which the inner end of the plunger N passes through an opening in the base B and is provided with the contacting-piece S, as before, and contacts with the brass or other suitable conducting washers T, mounted on the rods Q. In Fig. 2 the plunger projects beyond the contacting-pieces and forms the contact when the arm D is thrown out of engagement. In Fig. 3 the plunger N is between the contact-pieces T and the base B and forms the contact when the arm D is closed.

The operation will be readily seen. The parts are in their normal position, as in Fig. 1, and if the current deviates from the normal or on any variation of the flow of current the armature G will be drawn upwardly by the action of the magnet and will operate the latch H, which releases the trigger or catch J, and the throw-out device operates to break the connection between the contacts U and F and will throw the arm away, as indicated by the arrow in Fig. 1. When in this position, it will be seen that the spring P having forced out the plunger N contact is made between the parts S and R, and the auxiliary or second circuit is made and the alarm thus given, the second circuit being broken as soon as the arm D is returned to its normal position.

In Fig. 3 we have shown the construction wherein the circuit is made when the arm is closed; but this is merely a reversal of the operation.

Various changes may be made in the construction without departing from the spirit of our invention, and we do not therefore desire to be limited in every instance to the

exact construction as herein shown and described, and it will of course be understood that the spring-tube and parts may be used in conjunction with other forms of circuit-breakers.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a circuit-breaker means for operating the same and a spring-tube or throw-out device, the exposed parts of which present a surface of non-conducting material, so that the same can be placed in proximity to the terminals of other live parts of the circuit-breaker and arcing thereto is prevented.

2. In an automatic circuit-breaker, a spring-tube or throw-out device having the exposed parts protected by a non-conducting material, and means operated by said spring-tube for controlling a second or auxiliary circuit.

3. In an automatic circuit-breaker, a spring-tube or throw-out device, consisting of a tube, a spring-actuated plunger in said tube, means for operating said plunger, said tube and plunger being constructed of non-conducting material, whereby the said throw-out device can be placed in close proximity to current-carrying parts, and arcing thereto is prevented.

4. In an automatic circuit-breaker, a throw-out device, consisting of a tube, a spring-actuated plunger within said tube and a contact device carried by said plunger and adapted to close a second or auxiliary circuit.

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