No. 844,791. PATENTED FEB. 19, 1907.

H. GEISENHÖNER.

COMBINED FUSE AND SWITCH.

APPLICATION FILED JULY 14, 1904.

Fig. 1.

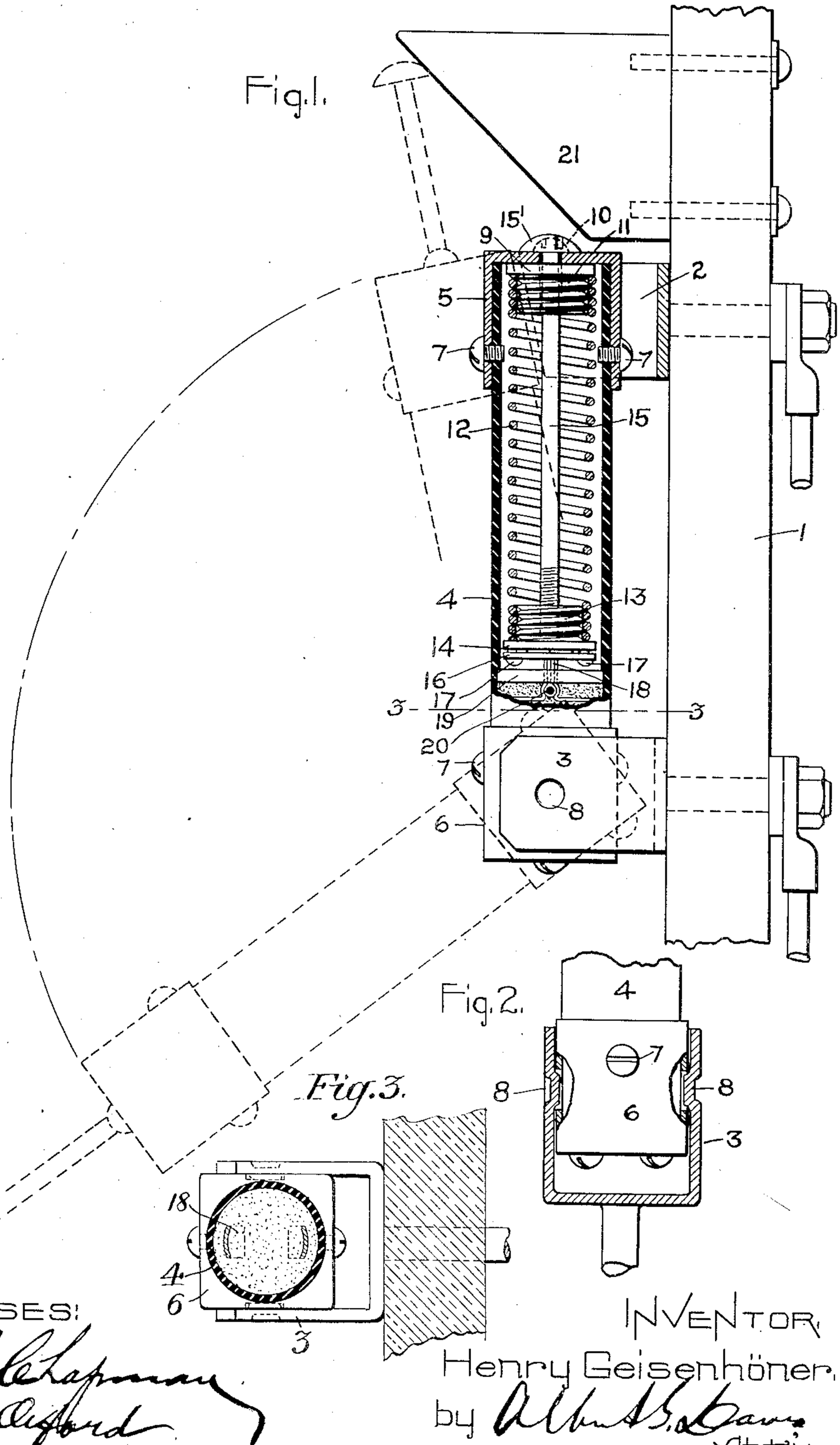

Fig. 2.

Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY GEISENHÖNER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

COMBINED FUSE AND SWITCH.

No. 844,791. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed July 14, 1904. Serial No. 216,483.

To all whom it may concern:

Be it known that I, HENRY GEISENHÖNER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in a Combined Fuse and Switch, of which the following is a specification.

This invention relates to cut-outs for electric circuits; and its object is to combine an arc-rupturing fuse and a mechanical cut-out or switch in such a manner that the blowing of the fuse will automatically open the switch. To this end the hinged switch member is provided with a fuse-support and also with a fuse-rupturing spring, which when the fuse blows forces a plunger against a cam-surface, and thereby turns said switch member on its hinge and throws it out of the contact-clip.

In the accompanying drawings, Figure 1 is a side elevation of my invention, partly in section. Fig. 2 is a cross-section of the hinge-joint, and Fig. 3 is a cross-section taken on line 3 3 of Fig. 1.

The parts are mounted on a suitable insulating-panel 1, to which are secured the contact-clip 2 and the hinge-clip 3. The switch member has a body or barrel of insulation provided with square metallic cupped heads 5 6, which are secured to the barrel by screws 7 and fit between the jaws of the clips 2 3. The head 6 has round holes in two opposite sides, which receive circular bosses 8 on the inside of the jaws of the hinge-clip 3 and form the pivots of the hinge-joint. Inasmuch as the jaws are made of spring metal, they can be forced apart when it is desired to remove the switch member after a fuse has blown.

A plate 9 is fastened by screws 10 to the inside of the head 5 and is provided with a neck 11, to which is secured one end of a strong helical spring 12, housed in the barrel 4 and attached at its other end to a nut 13, having a flange 14. A plunger 15 is screwed into the nut and projects through the head 5. The plunger has a head 15′, which is brought into good electrical contact with the head 5 when the parts are in the normal position.

A disk 16 is fastened by screws 17 to the flange of the nut and serves to clamp thereto the ends of a doubled strip 18 of fusible metal, the bight of which passes through a hole in a stout diaphragm 19, fixed in the barrel 4. A wisp of asbestos 20, caught in the loop, holds the strip in place against the tension of the spring 12. The ends of the fuse are brought through the hole in the diaphragm, passed through a compartment filled with sand, and secured to the head 6. An electrical connection is thus established between the two clips 2 3 by way of the heads 5 6, the plate 9, spring 12, plunger 15, and fuse 18.

Adjacent to the clip 2 and in the plane of the plunger 15 is a stationary inclined plane or cam 21, made, preferably, of insulation. The head 15′ of the plunger stands close to or in contact with this inclined plane.

The operation is as follows: When the parts are in the position shown in full lines in Fig. 1, the circuit is from one clip to the other through the heads 5 6, the plunger 15, and the fuse 18. When an overload causes the fuse to blow, the spring is released, and its recoil ruptures the arc; but lest the arc might in some case persist I have provided means for automatically opening the circuit. The spring not only tends to break the arc, but it also thrusts the plunger outward, forcing its end to ride up the inclined plane or cam, and thereby lifting the head 5 out of the contact-clip 2. Since the switch is placed in an upright position, the switch member will open wide by gravity as soon as it clears the clip, as indicated by the broken lines in Fig. 1, so that its position is a visual indication that the fuse has blown. It can then be replaced by a fresh one, which may be easily pushed into place in the clips. By providing the barrel or one of the heads 5 6 with a suitable insulated handle the device can be used as a hand-switch.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A switch having its movable member provided with a current-carrying fuse, and means for automatically opening the switch whenever said fuse is disrupted.

2. The combination with a movable switch member, of a spring carried thereby and adapted to actuate the same, and a fuse connected in circuit with said switch member and holding said spring under tension.

3. The combination with suitable clips, of a switch member comprising a body of insu-

lation provided with metallic heads, a spring electrically connecting said heads, a fuse in series with said spring and holding it under tension, and means whereby said spring disengages said switch member from one of said clips when the fuse blows.

4. The combination with a movable switch member, of a plunger carried thereby, a spring for actuating said plunger, an inclined plane in line with said plunger, and means for automatically releasing said spring on an overload.

5. The combination with a movable switch member, of a plunger carried thereby, a spring for actuating said plunger, a cam in line with said plunger, and a fuse for holding the spring under tension.

6. The combination with a movable switch member, of a plunger carried thereby, a current-carrying spring for actuating said plunger, a cam in line therewith, and a fuse in series with said spring and holding the same under tension.

In witness whereof I have hereunto set my hand this 11th day of July, 1904.

HENRY GEISENHÖNER.

Witnesses:
BENJAMIN B. HULL,
MARGARET E. WOOLLEY.