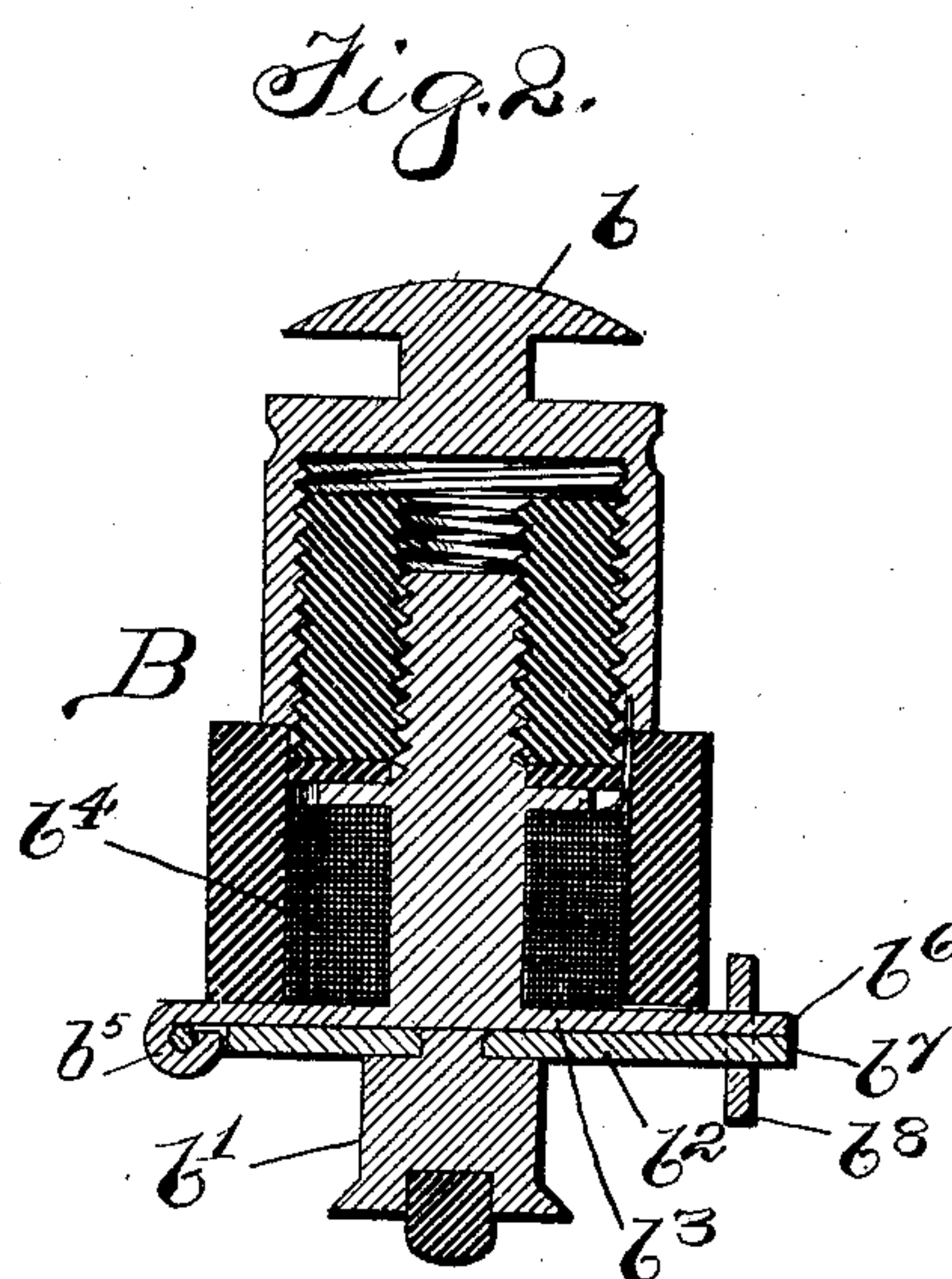
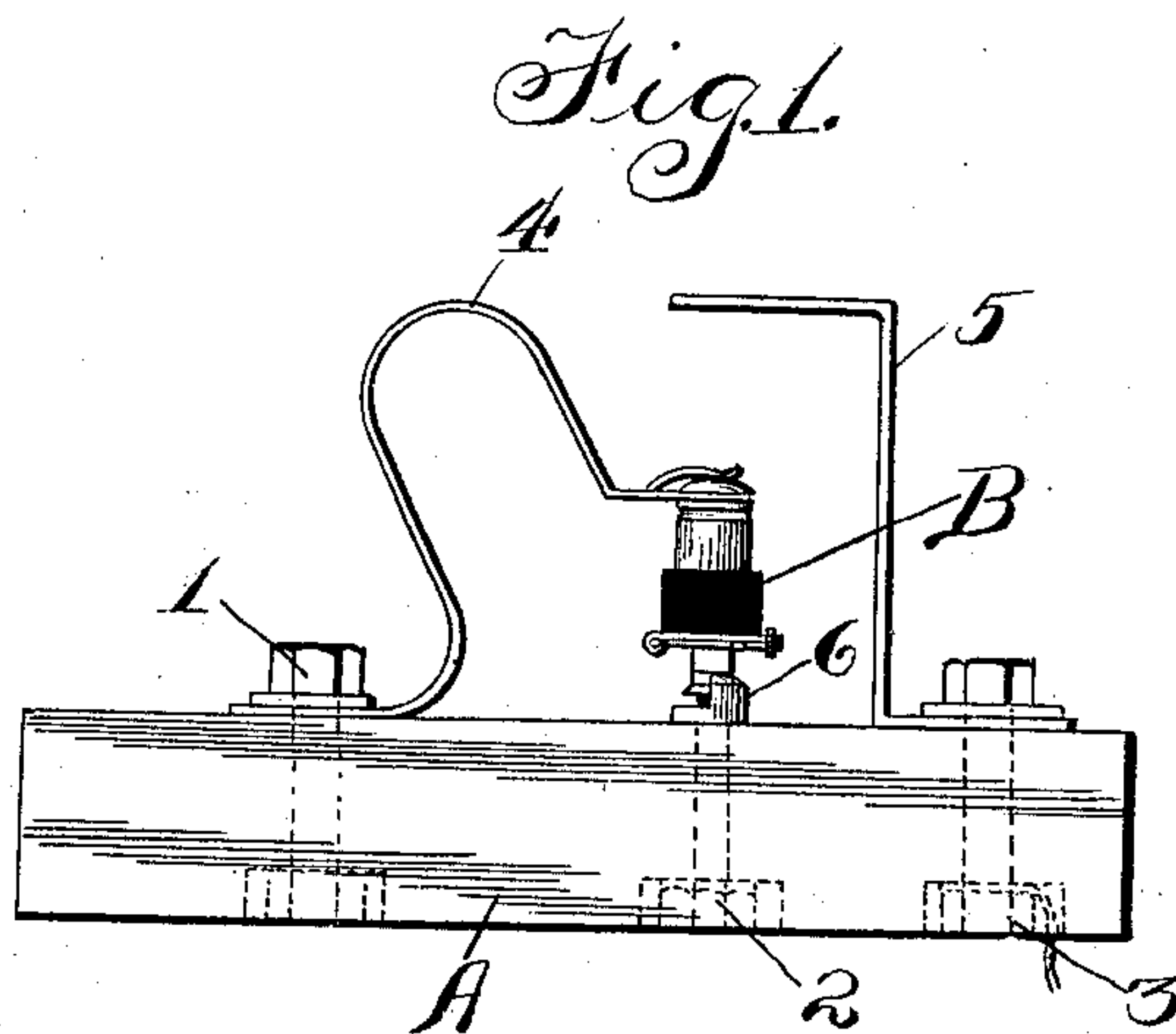


No. 757,972.

PATENTED APR. 19, 1904.

M. SETTER.
THERMAL CUT-OUT.
APPLICATION FILED AUG. 5, 1903.

NO MODEL.



Witnesses:

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Om Kermis

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UNITED STATES PATENT OFFICE.

MICHAEL SETTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO P. C. BURNS AND
J. G. IHMSEN, OF CHICAGO, ILLINOIS.

THERMAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 757,972, dated April 19, 1904.

Application filed August 5, 1903. Serial No. 168,268. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL SETTER, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have
5 invented a certain new and useful Improvement in Thermal Cut-Outs, of which the following is a specification.

My invention relates to thermal cut-outs for protecting electric circuits and delicate electrical devices against abnormally strong currents.
10

Generally stated, the object of my invention is the provision of a simple and highly-efficient thermal cut-out.

15 A special object is the provision of an improved construction and arrangement whereby a removable piece of solder may be employed to prevent two members which are normally subject to the pull of a spring from being pulled apart.
20

Another object is the provision of an improved construction and arrangement whereby a small removable ring of solder may be employed as a link for normally preventing
25 the said members from being pulled apart or separated.

It is also an object to provide certain details and features of improvement tending to increase the general efficiency of a thermal cut-out of this particular character. To the
30 foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is
35 a side elevation of a thermal cut-out embodying the principles of my invention. Fig. 2 is an enlarged longitudinal section of the heating-coil comprised in the construction shown in Fig. 1 and to which my invention more
40 particularly relates. Fig. 3 is a face view of the small removable ring of solder which is employed for maintaining the thermal cut-out in its normal condition.

As thus illustrated my improved thermal
45 cut-out comprises a suitable base A, whereon are mounted binding-posts 1, 2, and 3. The binding-post 1 is provided at its upper end with the flexible or springy member of a spring-switch 4, while the binding-post 3 is provided

with a stop or contact 5, constituting the circuit-opening connection of said switch. The binding-post 2 is provided at its upper end with a catch or engaging portion 6, adapted to engage the lower end of the heat-coil B. The upper end of the heat-coil is engaged and held
55 by the end of the spring 4. Fig. 1 illustrates the normal condition of the different parts.

By referring to Fig. 2 it will be seen that the heat-coil B comprises a metallic head b , adapted to be engaged by the spring 4, and
60 another metallic head b' , adapted to be engaged and held by the catch or engaging portion 6 of the binding-post 2. The metallic part b^2 is integral with the head b' , while the metallic part b^3 is rigid with and insulated from the
65 head b . A heating-coil b^4 is wound upon the body portion between the head b and the portion b^3 . A hinge or other suitable pivoted connection b^5 connects the members b^2 and b^3 . These parts b^2 and b^3 are preferably flat and
70 disk-like in form and are provided peripherally with small projections b^6 and b^7 . As a means for holding these parts b^2 and b^3 tightly together a ring b^8 of solder is slipped over
75 these two projections b^6 and b^7 . This ring serves as a link for binding the separable or relatively swinging parts of the heat-coil tightly together. One terminal of this coil can be connected with the head b , and the other terminal can be connected with the part b^3 . With
80 this arrangement the currents traversing the line-circuit will pass from the binding-post 1 to the spring 4, through the head b , through the said heating-coil, thence through the parts b^3 , b^2 , and b' , and thence through the binding-
85 post 2 and through the conductor leading to the instruments to be protected.

Suppose a current of abnormal character should show its presence in the circuit—as, for example, a current only slightly in excess
90 of normal, sometimes called a “sneak-current,” or a much stronger current, such as would result from contact between the circuit-wires and the conductors of a trolley or electric-light system. In such case the heat generated by the heating-coil b^4 will soften the
95 solder ring b^8 , thereby allowing the two parts b^2 and b^3 to separate or swing apart relatively

to each other. This of course allows the upward and forward thrust of the spring 4 to disengage the lower end of the heat-coil from the portion 6 and to thereby open the circuit.

5 The spring when thus released from its normal position being under tension flies up and engages the stop or contact 5, thus completing or closing the connection from the line side of the break to ground. In this way a
10 path of low resistance is afforded whereby the trespassing current may escape to ground.

What I claim as my invention is—

1. A thermal cut-out comprising a spring, two parts normally subject to the pull of said
15 spring, a removable piece of solder adapted normally to prevent said members from being pulled apart or moved relatively to each other by the pull of said spring, and a heating-coil associated with said piece of solder, said solder
20 being removable independently of all other parts.

2. A thermal cut-out comprising a spring, means including a removable piece of solder adapted to normally resist the pull of said
25 spring, and a heating-coil associated with said solder, said solder being removable independently of all other parts.

3. A thermal cut-out comprising a spring, means secured at one end and engaged at the
30 other end by said spring, said means thereby being adapted to resist the pull of said spring, said means including relatively movable members and a removable piece of solder for holding said members against relative movement
35 and resisting the pull of said spring, and a heating-coil associated with said solder, said solder being removable independently of all other parts.

4. A thermal cut-out comprising a spring,
40 means for resisting the normal pull of said spring, said means including two parts hinged together and a removable ring of solder for normally holding said parts against relative

movement, and a heating-coil associated with said parts and solder.

5. A thermal cut-out comprising a spring, two parts normally subject to the pull of said spring, a removable piece of solder adapted normally to prevent said members from being
50 pulled apart or moved relatively to each other by the pull of said spring, and a heat-concentrating member associated with said piece of solder, said solder being removable independently of all other parts.

6. A thermal cut-out comprising a spring, means including a removable piece of solder adapted to normally resist the pull of said
55 spring, and a heat-concentrating member associated with said solder, said solder being removable independently of all other parts.

7. A thermal cut-out comprising a spring, means secured at one end and engaged at the other end by said spring, said means thereby
60 being adapted to resist the pull of said spring, said means including relatively movable members and a removable piece of solder for holding said members against relative movement and resisting the pull of said spring, and a heat-concentrating member associated with
70 said solder, said solder being removable independently of all other parts.

8. A thermal cut-out comprising a spring, means for resisting the normal pull of said
75 spring, said means including two members hinged together and a removable ring of solder for normally holding said members against relative movement, and a heat-concentrating member associated with said members and solder.

Signed by me at Chicago, Cook county, Illinois, this 30th day of July, 1903.

MICHAEL SETTER.

Witnesses:

A. F. DURAND,
WM. A. HARDERS.