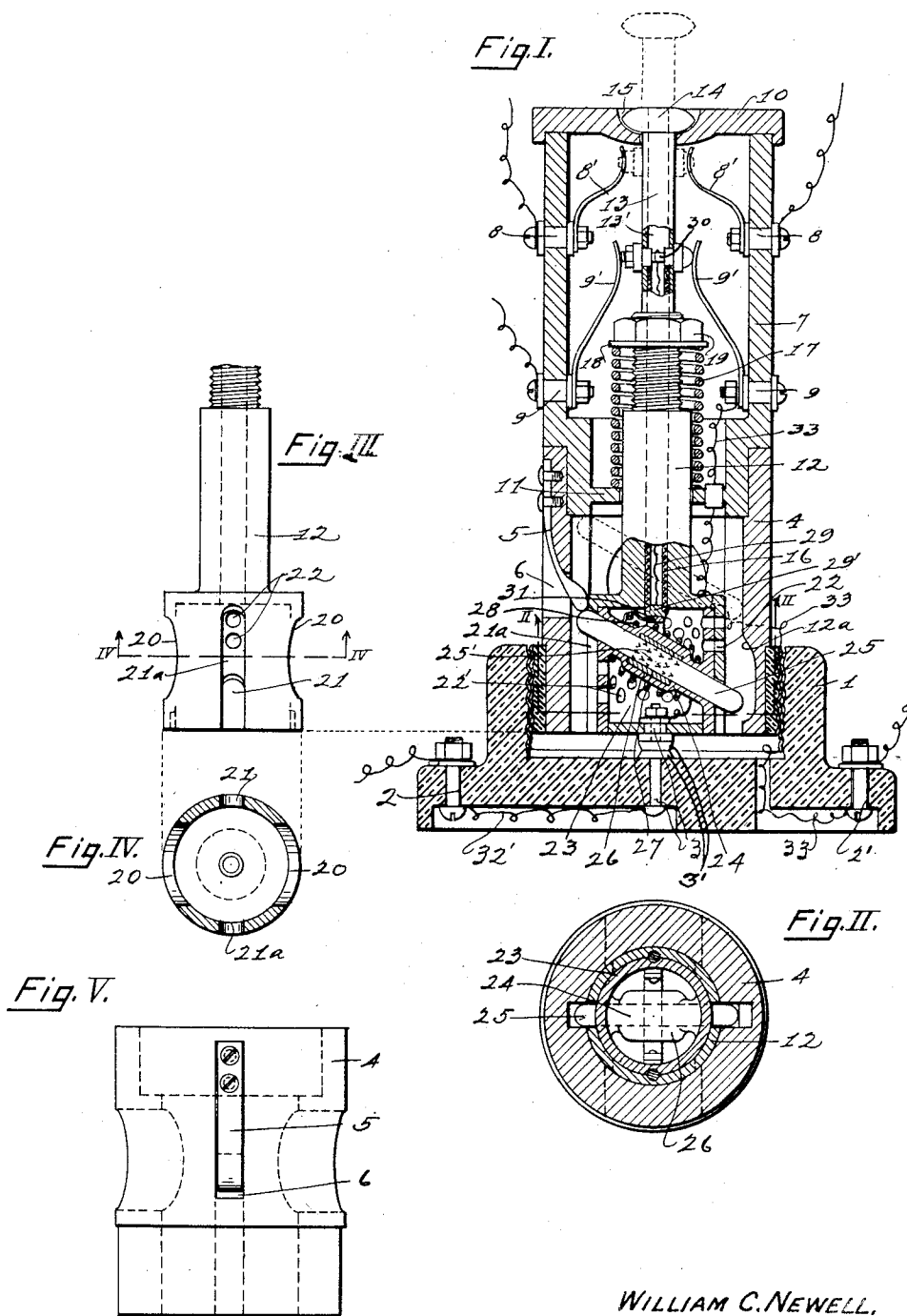


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1,439,707.

W. C. NEWELL.
AUTOMATIC HEAT CONTROLLED CUT-OUT.
FILED JULY 10, 1919.



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By

UNITED STATES PATENT OFFICE.

WILLIAM C. NEWELL, OF PORTLAND, OREGON.

AUTOMATIC HEAT-CONTROLLED CUT-OUT.

Application filed July 10, 1919. Serial No. 311,669.

To all whom it may concern:

Be it known that I, WILLIAM C. NEWELL, a citizen of the United States, residing in the city of Portland, county of Multnomah, and State of Oregon, have invented certain new and useful Improvements in Automatic Heat-Controlled Cut-Outs, of which the following is a specification.

My invention relates to automatic heat-controlled cut-outs, and has among its salient objects, to provide an improved, heat-controlled cut-out mechanism, which will operate automatically under the influence of excess heat to cut out an electric circuit; and to provide a device of the character referred to which is easily adapted to operate under different temperatures, thus providing a device which can be used for various purposes.

This invention is a further improvement of the device disclosed in my United States Patent No. 1,309,908 issued July 15, 1919.

I have illustrated my improved device on the accompanying sheet of drawings, in which:

Fig. I is a vertical sectional view thereof;

Fig. II is a horizontal sectional view thereof, taken on the line II—II of Fig. I;

Fig. III is a side elevation of a detail;

Fig. IV is a sectional view thereof taken on line IV—IV, of Fig. III; and,

Fig. V is a side elevation of a detail.

Referring now more in detail to the drawings, 1, designates a suitable base, having the terminal posts 2—2', with a central two-part terminal post at 3 the adjacent ends of which have contact heads, 3'. Secured in said base 1, is a body 4, shown in side elevation in Fig. V. Mounted in said body 4, is a spring latch 5, which projects through an opening 6, in said body 4, as clearly indicated in Figs. I and V. Mounted in the top of the body 4, is an extension 7, having upper terminal posts 8—8, and lower terminal posts 9—9, properly insulated from said extension 7. Spring contact members 8'—8', are connected with the posts 8—8, within the extension 7, and spring contact members 9'—9', are connected with the terminal posts 9—9, within said extension, as shown. Said extension 7, is provided with a cap 10, and a floor-like member 11, having an opening therein through which moves a plunger member 12, shown in side elevation in Fig. III. Said plunger member 12, has a stem

portion 13, provided with a head 14, said stem being adapted to move through the cap 10, which is provided in its upper side with a recess 15, to receive the head 14, when depressed. Said plunger member 12, and said stem 13, have a longitudinal opening 13' therethrough, with an insulating tube 16 therein. Around said plunger 12, is a coiled spring 17, the lower end of which bears on the floor-like member 11, while the upper end bears against the under side of a washer 18, adjustably secured to said plunger by means of a nut 19, said spring tending to normally lift said plunger into a raised position, indicated by the dotted line position of the stem 13. The lower end of said plunger 12, is of enlarged form, with openings 20—20, and 21—21^a, therethrough. Smaller ventilating openings 22, are also provided. Mounted in the lower end of said plunger member 12, is a pocket member 23, of cylindrical form, having small openings 22' which register with the openings 22, and also having an inclined tubular portion 24, through which extends a latch pin 25. Said portion 24, has an annular enlargement 26, around said latch pin 25, within which enlargement is placed a fusing metal 27, around said pin. Said pin is roughened around its area enclosed by said fusing metal, as indicated at 25'. Around the outside of said tubular member 24, is a resistance coil 28, electrically connected with the terminal post 3, and at its opposite end connected by wire 29, up through the tube 16, with a terminal bolt 30, through the stem 13, and insulated therefrom, adapted to engage with the spring members 9'—9', when said plunger is in its down position, and to engage with the spring members 8'—8', when said plunger member 12 is in its raised position, as indicated in dotted lines. The lower end of said wire 29, is provided with a contact plug 29', adapted to contact with a contact plate 31, forming a terminal for the resistance coil 28, around the tubular member 24.

Thus, a circuit is established from terminal post 2, through the wire 32, the terminal post 3, the resistance coil 28, the wire 29, the contact post 30, the spring 9', to terminal post 9, also from terminal post 30, through the spring 9', at the right-hand side of Fig. I, terminal 9, wire 33, to the terminal post 2'.

Another circuit is established between ter- 110

terminal posts, 8—8, and the spring contact members 8'—8', when the plunger is in its raised position, so that the terminal 30, connects said spring contact members 8'—8'.

5 With the parts in the position shown in Fig. I, of the drawings, the latch pin 25, is held in its position as shown by the fusing metal 27, around the same, within the member 24. In this position, the upper end of
10 said pin 25, engages under the end of the latch spring 5, as shown, thus holding the plunger 12 in its down position with the contact springs 9'—9', in contact with the terminal bolt 30. Increased heat in the circuit for the resistance coil 28, around the member 24, causes the fusing metal to fuse or become soft, and a cam action takes place between the pin 25, and the spring latch 5, which causes the pin
15 25 to be moved downwardly sufficiently for its upper end to move past the end of said spring 5, thus allowing the plunger 12, to be raised by the action of its spring 17. This moves the contact post 30 out of contact with the contact springs 9'—9', and, in the form shown, moves it into contact with the spring contact members 8'—8', as indicated in dotted lines. As said plunger rises, the lower end of the pin 25 engages the cam
20 shoulder 12^a, formed on the inside of the body 4, as shown, and moves said pin 25, upwardly longitudinally, to its normal position, as indicated in dotted lines, before the fusing metal has time to harden.

25 In order to re-establish the circuit, it is only necessary to press the plunger down by hand to the position shown in full lines. The spring latch 5 yields sufficiently to allow the upper end of the pin 25, to pass the same and catch under the end thereof, as shown.
30 Attention is called to the fact that the pocket member 23, which carries the pin 25, and the resistance coil 28, can be removed from the lower end of the plunger 12, and
35 another with a different resistance coil can be substituted as the use requires.

40 While I have shown one embodiment of my invention capable of various uses and applications, I am aware that changes can be made therein without departing from the spirit thereof, and I do not, therefore, limit the invention to the form and details here shown, excepting as I may be limited by the hereto appended claims.

45 I claim:
50 1. In a device of the character referred to, a fixed member and a movable member, a yielding latch member carried by said fixed member, a latch pin carried by said movable member and adapted to have latching engagement with said yielding latch member, a fusing metal around said latch pin for holding it against movement relative to said
55 movable member, and a resistance coil in

60 said movable member adjacent said fusing metal, whereby increased heat through said resistance coil causes said metal to become soft to permit said latch pin to move to release said movable member.
65 2. In a device of the character referred to, a fixed body member, a movable member therein, circuit making and breaking devices controlled by the movement of one of said members relative to the other, a yielding latch member on one of said parts, a latch pin on the other of said parts and adapted to have latching engagement with said yielding latch member for holding said movable member in one position, a fusing metal for holding said latch pin in operating position for engagement with said yielding latch member, and electrical means in said movable member for heating said fusible member for releasing said latch pin under increased heat.
70 3. In a device of the character referred to, a body member, a movable member therein, circuit making and breaking devices controlled thereby, latch mechanism for holding said movable member in one position, and electric means around one of the latch members for releasing said latch mechanism, said means being adapted to operate under increased current.
75 4. In a device of the character referred to, a body, a movable member therein, circuit making and breaking devices controlled thereby, cooperating latch members for holding said movable member in one position, a fusing metal around one of said latch members for holding it, and a resistance element around said latch member and said fusing metal, said resistance element being adapted to be traversed by an electric current, whereby increased current through said resistance element causes said fusing metal to soften and release said latch member.
80 5. In a device of the character referred to, a body member, a movable member therein, a latch member on the body member, a latch member on the movable member adapted to have holding engagement with the latch member on said body, means for holding the latch member on said movable member, said means having a pocket provided with a fusing metal around said latch member, and a resistance coil around said member and said pocket, whereby excess current through said resistance coil will cause said fusing metal to soften and release said latch member.
85 6. In a circuit controlling device, a latch member movable in opposite directions, a member carrying the same, a fusible material around said latch member for holding it against movement relative to the carrying member, a resistance element adjacent said fusible material with circuit connections therethrough, and yielding means positioned to be engaged by said latch member, and to

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be moved thereby when said latch carrying member is moved adjacent thereto.

7. In a device of the character referred to, two elements movable adjacent to each other, means normally acting to move one of said elements, a latch member projecting through one of said elements into latching engagement with the other of said elements, a fusible material around said latch member in the element through which it projects, holding it against movement in said element, whereby when said fusible material fuses, said latch member is released to move bodily through the element carrying the same and out of engagement with the other element, and electric means around said latch member and said fusible material for heating said fusible material to release said latch member.

8. In a circuit controlling device, a casing, a latch carrying member therein, a latch member carried thereby and movable relative thereto, a fusible material for holding the said latch member against movement relative to the latch carrying member, a yielding member positioned to be engaged by said latch member to move the latter as said latch carrying member is moved adjacent thereto when said fusible material fuses, a resistance element around said latch mem-

ber and said fusible material for heating said fusible material under increased current, and means for engaging and moving said latch member to its normal position in said latch carrying member as the latter moves upwardly, substantially as described.

9. In a device of the character referred to, a movable member, a pocket member detachably secured thereto, a latch pin through said pocket member, fusible material in said pocket member around said latch pin for holding the same, and electric means in said pocket member adapted to fuse said fusible material under increased current.

10. In a device of the character referred to, a pocket member with pocket therein, a latch pin through said pocket, fusible material in said pocket around said latch pin, a resistance coil around said pocket in said pocket member, and means for connecting electric current to said resistance coil.

Signed at Portland, in the county of Multnomah, and State of Oregon, this 23 day of June, 1919.

WILLIAM C. NEWELL.

In presence of—

LAWRENCE C. PHILLIPS,
A. J. PRESTON.