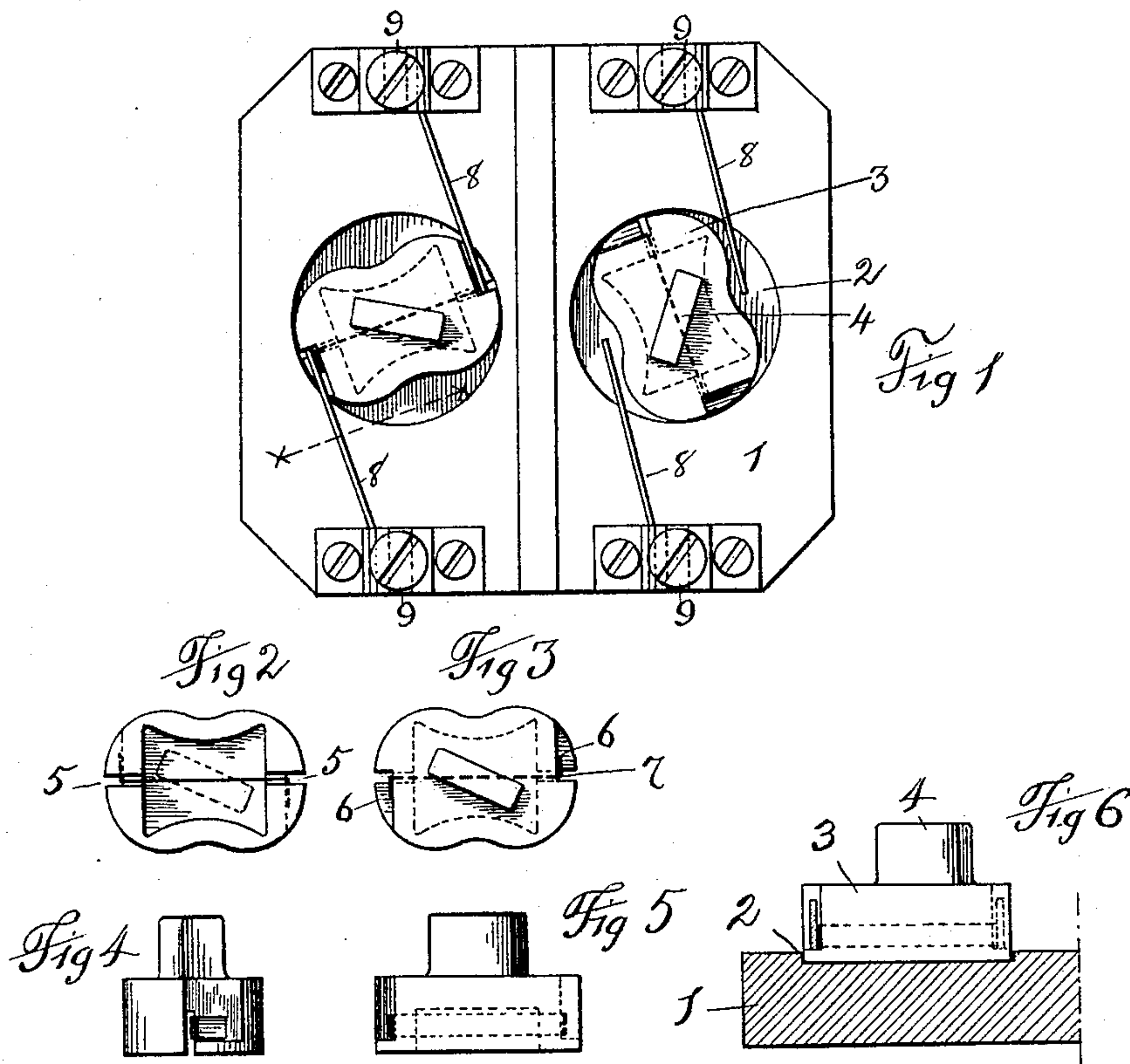


(No Model.)

G. H. WHITTINGHAM.
THERMAL CUT-OUT.

No. 452,152.

Patented May 12, 1891.



WITNESSES:
M. Turner
H. Mac Carthy

George Herbert Whittingham
INVENTOR

BY *Price & Stewart*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE HERBERT WHITTINGHAM, OF BALTIMORE, MARYLAND.

THERMAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 452,152, dated May 12, 1891.

Application filed October 18, 1890. Serial No. 368,538. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HERBERT WHITTINGHAM, a citizen of the United States, and a resident of Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Thermal Cut-Outs, of which the following is a specification.

My invention relates to fuse cut-outs for incandescent lamps and other purposes where it is desired to introduce a fuse into an electrical circuit.

In wiring for electrical lighting for incandescent lamps it is necessary to protect the lamp from being destroyed by a current of great intensity by introducing into the circuit a fuse which will be melted by said current and the circuit destroyed. Many such devices have been designed; but the object of the invention which is the subject of this application is to cheapen construction by simplifying the structure, as well as to make a cut-out device which can be quickly replaced when the fuse has been burned by any one without the exercise of skill in electric wiring and without the use of any instrument, not even a screw-driver.

In the drawings, Figure 1 represents a plan of my fuse, showing two fuse devices in the two positions of the apparatus, one with the fuse in the circuit and the other with the fuse-holder at right angles to its former position. Fig. 2 is a view of the bottom side of the fuse-holder, showing the fuse in position. Fig. 3 is a view of the top side of the same, showing the fuse in position. Fig. 4 is an end elevation of the same, showing fuse in position. Fig. 5 is a side elevation of the same, showing fuse in position. Fig. 6 is a side elevation of the device, with one of the contact-brushes and the bed in section through the line *xx*, Fig. 1.

Referring to Figs. 1 and 6, 1 is a bed made, preferably, of porcelain, in the center of which is a circular indentation or socket 2 of slight depth, in which the fuse-holder rests and revolves. The fuse-holder 3 is a cup, of porcelain or other refractory material, provided with handle 4 on the top. The cup is shaped in the form of two circles, which intersect one another, so as to cause the ends of the cup to be convex and the sides concave where the circles intersect one another. The long

diameter of the cup is the same as the diameter of the socket 2, so when the cup rests in said socket it will revolve therein and fit snugly. The sides of the cup are provided with the concave indentations for the purpose of making points which will never be touched by the contact-brushes, thereby avoiding the possibility of coating the exterior of the cup with metal rubbed from the brushes, and thereby forming a conductor from one brush to the other around the fuse. The edges of the cup are provided with a slot 5, which is in the line of the greater diameter of the cup, and which extends about two-thirds of the depth of the sides of the cup. Upon the exterior of the cup at its ends and on opposite sides of the slot 5 the surface of the cup is cut away at right angles with the slot 5 from the top of the cup toward its rim, leaving, however, a thin edge of the rim, which is of the full contour of the cup, forming the notches 6 6 on opposite ends of the cup and on opposite sides of the slot 5. This structure is shown plainly in Figs. 4 and 6.

7 is a section of fuse-ribbon, which is placed in the slot 5 across the cup, and the projecting ends are bent in opposite direction into the notches 6 6, by which it is held in place.

8 8 are contact-brushes secured to binding-posts 9 9, to which the circuit wires are connected. The contact-brushes 8 8 extend from the binding-posts toward one another, their extremities standing over the socket 2 at such a distance apart that the cup 3 may be inserted between them when turned in the position shown on the right of Fig. 1, in which the shorter diameter of the cup is between the brushes, and they do not touch it on either side. The brushes are made of metal having some elasticity, so that when the cup is turned between them by the handle 4 they will be pressed apart by the ends of the cup and will exert a pressure upon said ends. When the cup is turned so as to place the longer diameter of the cup between the extremities of the brushes, they will fall into the notches 6 6 and upon the ends of the fuse 7, which lie in said notches, thereby establishing a circuit between said brushes or contact-strips through the fuse 7. If now the fuse is burned by an excessive current, the circuit will be broken. A quarter-turn of the

cup from the position shown on the left of Fig. 1 to the position shown on the right of Fig. 1 will release the cup from the hold of the brushes, and it may be taken from its socket and a fresh piece of fuse inserted into the slot 5, the ends being bent, as before described, in opposite directions into the notches 6 6. The cup is then replaced into the socket 2 in the position shown on the right of Fig. 1 and given a quarter-turn by its handle into the position shown on the left of Fig. 1, in which position, as before stated, the brushes 8 8 will be in contact with the turned-over ends of fuse 7; but the circuit will be re-established without injury to the socket or without taking the apparatus apart otherwise than to remove the cup. The brushes 8 8 rest upon the bed 1 and stand over the socket 2. The rim of the cup below the notches 6 6 is of such a width that when the cup is inserted in the socket the upper side of said rim will be on the level of the surface of the bed 1. Thus when the cup is turned from the position shown on the right of Fig. 1 to the position shown on the left of Fig. 1, and the brushes fall into the notches 6 6, the ends of said brushes will stand upon the rim and hold the cup firmly in the socket.

The bed and cup being made of porcelain, it is unnecessary to provide the device with any supplemental cover, because the fuse is inclosed within the cup and is surrounded on all sides by porcelain; or other similar material may be used, if preferred.

Having thus described my invention, what I desire to claim by Letters Patent is—

1. In a thermal cut-out, the combination of a cup of refractory material, the edge of which is slotted, with a base of similar material having a socket circular in form and of the same diameter as the cup, into which the cup when inverted fits and may revolve, a section of fuse-ribbon inserted in the slot of the cup, the projecting ends thereof being bent over in contact with the exterior of the cup, and strips or brushes connected to the terminals of an electric circuit, which, when the cup is pressed between them, will make contact with the turned-over ends of the fuse and complete the circuit through said fuse, substantially as described.

2. In a thermal cut-out, the combination of a cup of refractory material of greater diameter in length than width and having indentations in the sides thereof, and the edge of the cup slotted in the line of its longer di-

ameter, with a base of similar material having a circular socket of the same diameter as the longer diameter of the cup, in which the cup, when inverted, fits and may revolve, a section of fuse-ribbon inserted in said slot in the cup-rim and having its projecting ends turned over in contact with the exterior of the cup, and contact strips or brushes connected to the terminals of an electric circuit, which, when the longer diameter of the cup is pressed between them, will make contact with the turned-over ends of the fuse and complete the circuit through said fuse.

3. In a thermal cut-out, the combination of a cup of refractory material of greater diameter in length than width and having its rim slotted in the line of its greater diameter, with a fuse-ribbon inserted in said slot, the projecting ends thereof being bent over in contact with the exterior of the cup, and contact-strips connected to the terminals of an electric circuit, so located that the distance between their extremities will be less than the greater diameter of the cup, but greater than the shorter diameter, so that when the cup is revolved between them they will come into contact with the ends of the cup and the extremities of the fuse which projects therefrom, but will not touch the sides when they are turned toward said contact-strips, substantially as described.

4. In a thermal cut-out, the combination of a cup of refractory material of greater diameter in length than width and having its rim slotted in the line of its greater diameter, and provided on the exterior at its ends and on opposite sides of the slot with notches which are below the rim, with a fuse-ribbon inserted in said slot and having its projecting ends turned over in opposite directions into the notches, and contact-strips connected to the terminals of an electric circuit, so located that the distance between their extremities will be less than the greater diameter of the cup, but greater than the shorter diameter, so that when the cup is revolved between them they will come into contact with the ends of the cup and fall into the notches therein and upon the extremities of the fuse which lie in said notches, but will not touch the sides when they are turned toward said contact-strips, substantially as described.

GEORGE HERBERT WHITTINGHAM.

Witnesses:

M. TURNER,

II. MACCARTHY.