

No. 854,846.

PATENTED MAY 28, 1907.

A. C. SAVAGE.
FUSE BOX OF MOLDED INSULATION.
APPLICATION FILED JUNE 12, 1905.

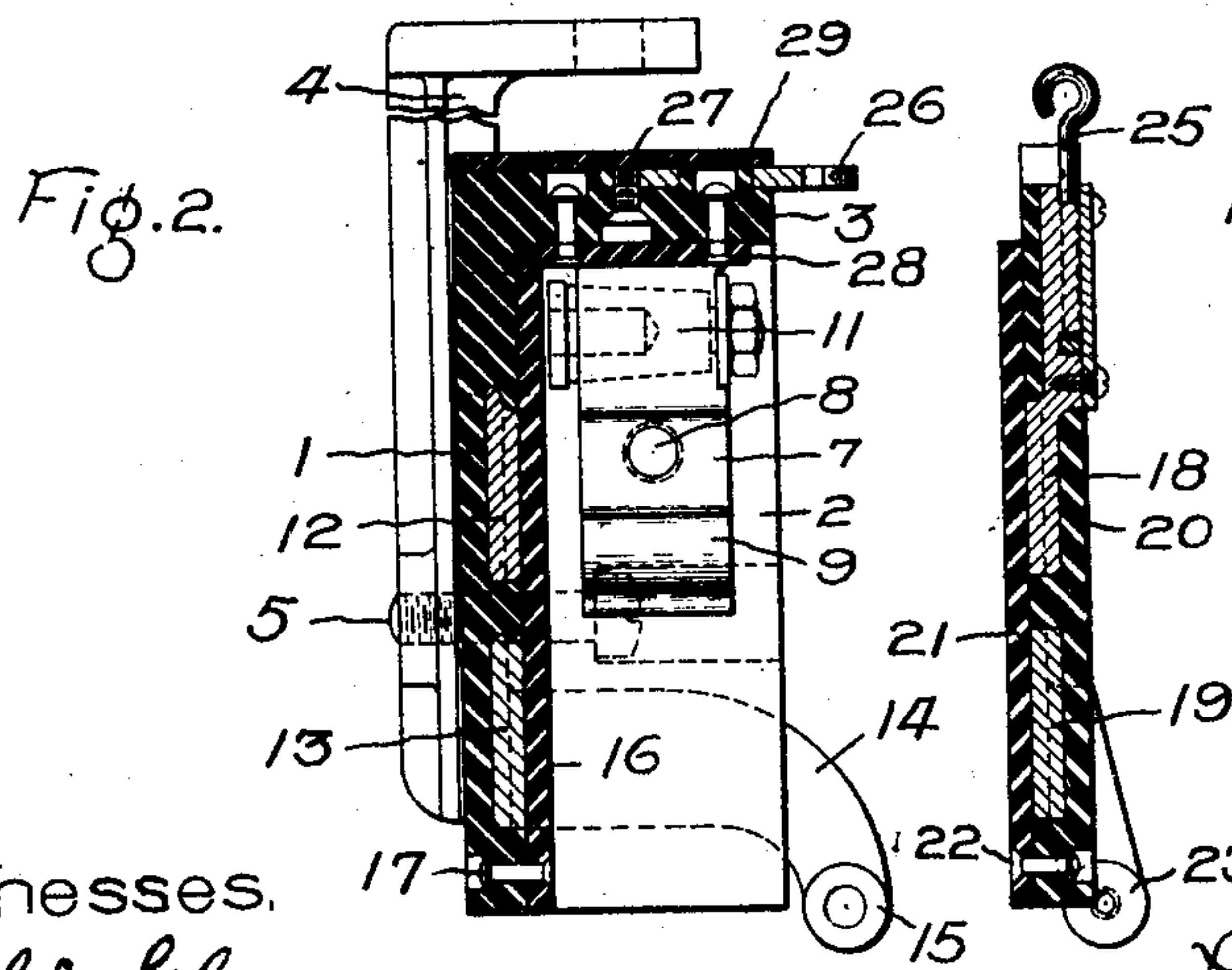
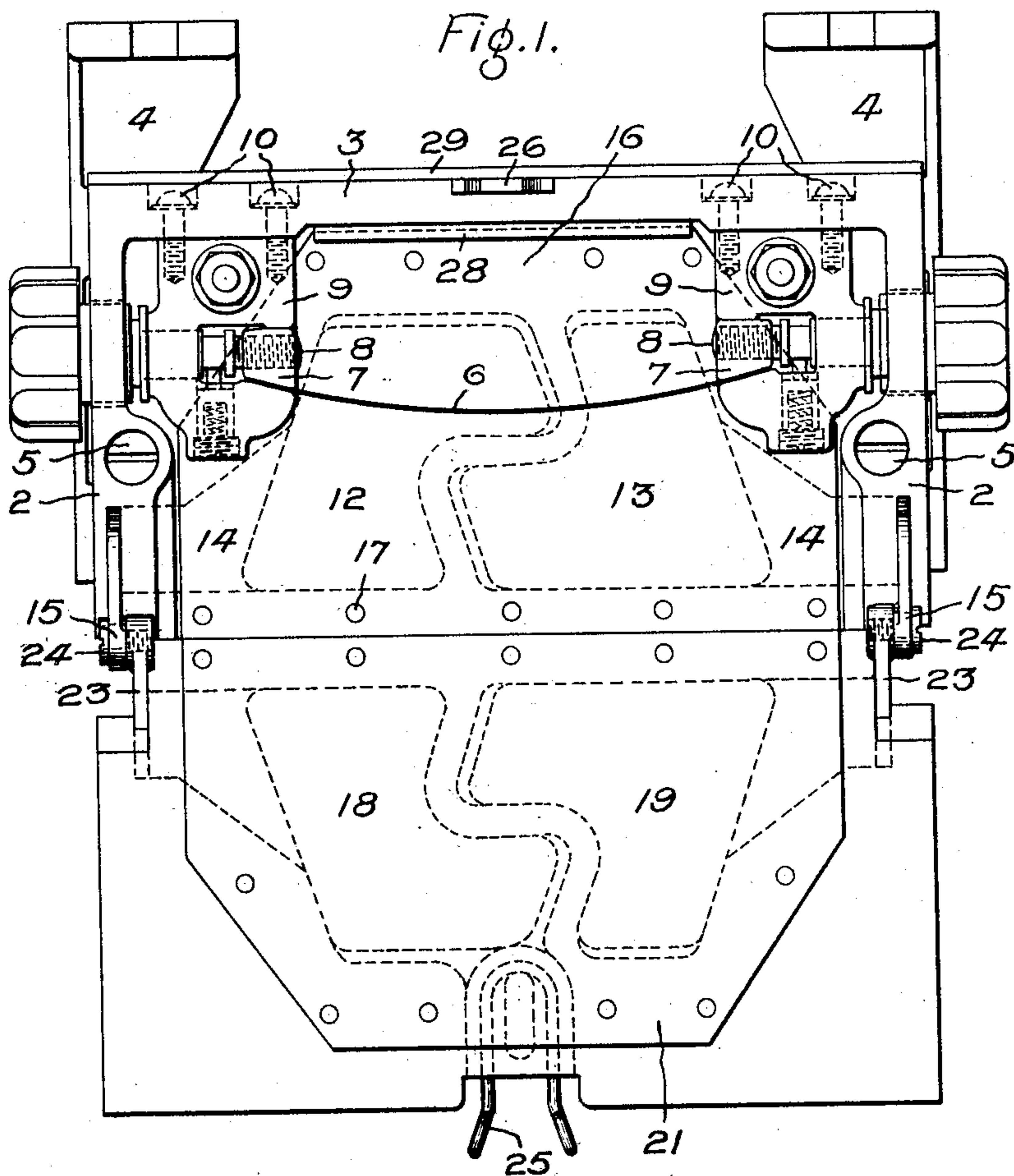
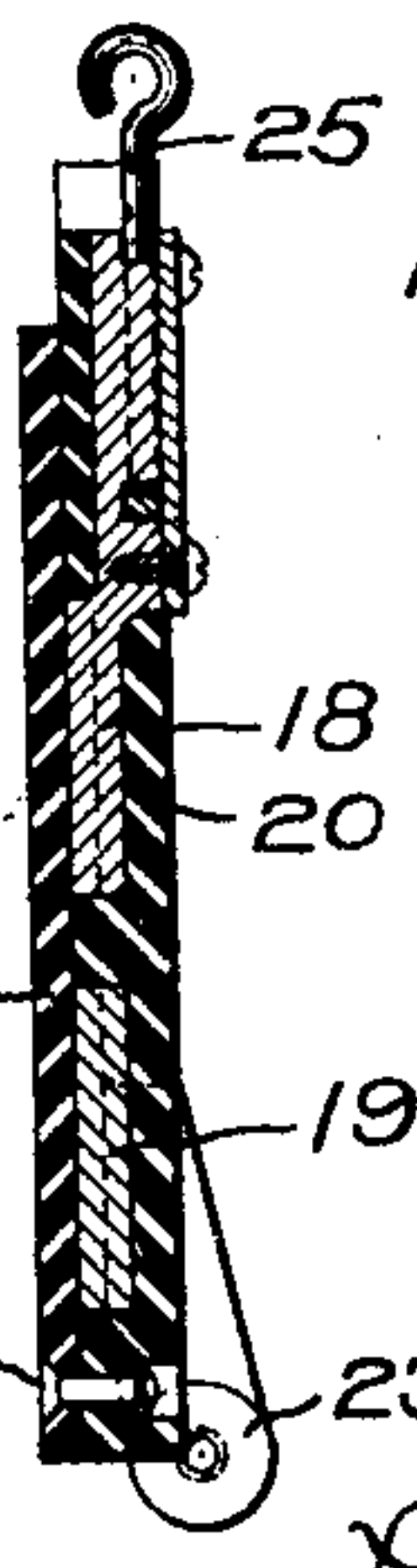


Fig. 3.



Witnesses.
J. Ellis Glen.
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Inventor:
Arthur C. Savage.
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Att'y.

UNITED STATES PATENT OFFICE.

ARTHUR C. SAVAGE, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FUSE-BOX OF MOLDED INSULATION.

No. 854,846.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed June 12, 1905. Serial No. 264,819.

To all whom it may concern:

Be it known that I, ARTHUR C. SAVAGE, a citizen of the United States residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Fuse-Boxes of Molded Insulation, of which the following is a specification.

This invention relates to thermal cut-outs, and especially to fuse boxes of the automatic blow-out type patented to F. B. Corey, April 26, 1904, No. 758,172. The box therein shown consists of a stationary back and ends, with a hinged front and an open bottom. At each end is a clamp to hold one end of a fuse strip, which is stretched across the upper portion of an arc chute of insulation, having an open bottom. On each side of the arc chute is a plate of iron, and the ends of said plates are connected by heavy studs of iron which short circuit the magnetic flux below the fuse when a current is flowing therein so that the field of force developed by the current is concentrated above the fuse, in a position to push the arc down and out of the chute when the fuse blows.

The present invention aims to improve the structural details of this kind of a fuse box, and to that end the entire box is made of molded insulating material, the back, top and ends being preferably molded in one piece, though they may be built up of separate pieces if desired. The front is a sheet of insulating material, and the bottom is left open. The box itself thus forms the arc chute. In the back and also in the front are embedded plates of iron to induce the magnetic field which blows out the arc. These plates are each composed of two portions separated by a suitable distance to prevent the formation of a short circuit should one side of the box become accidentally connected with a source of current. The plates are also continued out through the ends of the front and back and fashioned into hinge knuckles which are suitably pivoted together and enable the front to be turned down when a new fuse is to be inserted. These hinge portions take the place of the connecting studs which in the Corey patent short circuit the magnetic flux below the fuse.

In the accompanying drawing, Figure 1 is a front elevation of my improved fuse box, with the front turned down; Fig. 2 is a cross-

section of the same without the cover; and Fig. 3 is a similar section of the cover.

The box proper has a back 1, ends 2 and a top 3 all made of insulating material, and preferably molded in one piece. Hangers 4 are secured to the back of the box by the screws 5. Fastened in the upper corners of the box near each end are the clamps for holding the ends of the fuse 6. The clamps may be of any suitable construction, though I prefer those shown and described in my Patent No. 815,746, granted Mar. 20, 1906, in which a jaw 7 can be drawn by a screw 8 into a seat in a block 9, firmly clamping the end of the fuse between said jaw and seat. The block is secured to the top of the box by the screws 10, and each block has a socket 11 to receive and hold the end of a lead.

Embedded in the back of the box are two iron plates 12 13, one being preferably L-shaped and the other like an inverted L. They are so placed as to overlap in the manner shown, but with a certain gap between them, which is filled with insulation. The main portions of the plates stand above the fuse and are double the thickness of the lower end portions 14, the latter extending to the ends of the box and then turning at a right angle and passing out through said ends to and beyond the edge of the box to form the knuckles 15 of hinges. The plates are embedded in the box in any suitable manner; but I prefer to set them into shallow recesses in the back and then cover them with a sheet 16 of insulation, which is secured in place by rivets 17 or otherwise.

Two similar L-shaped plates 18 19 are embedded in the front 20, which is made of insulating material; the plates being set into shallow recesses in the inside of said cover and then covered with a sheet 21 of insulation, secured by rivets 22. The end portions of the plates are extended at right angles to form the knuckles 23 which cooperate with the knuckles 15 and are pivoted thereto by the screws or pins 24. When the front is swung up to close the box, it is fastened by a catch consisting preferably of a U-shaped wire 25 held loosely in a pocket in an extension of one of the plates, and adapted to engage with a stationary catch-plate 26 fastened to the top of the box by screws 27. The heads of the screws may be covered by a strip 28 of insulation riveted to the top of

the box; and the catch-plate is covered on top by a slab 29 of insulation which also covers the screws 10.

The structure is strong and compact, and by reason of the gap between the two portions of the plates 12 13 and 18 19 there is no danger of a short-circuit if one of the plates becomes alive.

When an electric current traverses the fuse 6 or springs across the space occupied thereby in the form of an arc the magnetic lines of force, which are invariably associated with an electric current and normally having circular paths thereabout in perpendicular planes, seek the passages of least resistance and accordingly flow through the iron plates 12, 13 and 18, 19 from top to bottom jumping the air space at above the conductor or arc and passing through the hinged joints between the plates 12, 18 and 13, 19 so that a magnetic field of force is produced at the upper side only of the current. When an arc exists in the place of the fuse 6 the field of force at the upper side thereof acts in a well known manner to force the arc downwardly until it breaks automatically.

I do not desire to restrict myself to the particular form or arrangement of parts herein shown and described, since it is apparent that they may be changed and modified without departing from my invention.

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

1. A thermal cut-out having an arc chute, and a pole-piece mounted at the side thereof and composed of portions separated by a gap.
2. A thermal cut-out comprising an arc

chute having a divided pole-piece embedded in it.

3. A thermal cut-out comprising an arc chute having a pole-piece embedded in it and extended to form a hinge knuckle.

4. A thermal cut-out comprising a box having a pole-piece embedded in it, and a cover having a pole-piece embedded in it, said pole-pieces being hinged together.

5. The combination with a fuse box, of a cover therefor, and pole-pieces secured to said box and cover and hinged together.

6. The combination with a fuse box, of a cover therefor, and pole-pieces secured to said box and cover and hinged together, each pole-piece being composed of two portions separated by a gap.

7. The combination with a fuse box of insulating material, of a pole-piece embedded therein, and having end portions extending at right angles thereto beyond the edge of said box.

8. The combination with a fuse box of insulating material, of a pole-piece embedded therein having its main portion thicker than the end portions.

9. The combination with a fuse box, of a fuse therein, and pole-pieces extending above said fuse on each side thereof and hinged together below said fuse.

In witness whereof, I have hereunto set my hand this 9th day of June, 1905.

ARTHUR C. SAVAGE.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.