

No. 700,410.

C. J. DORSEY.

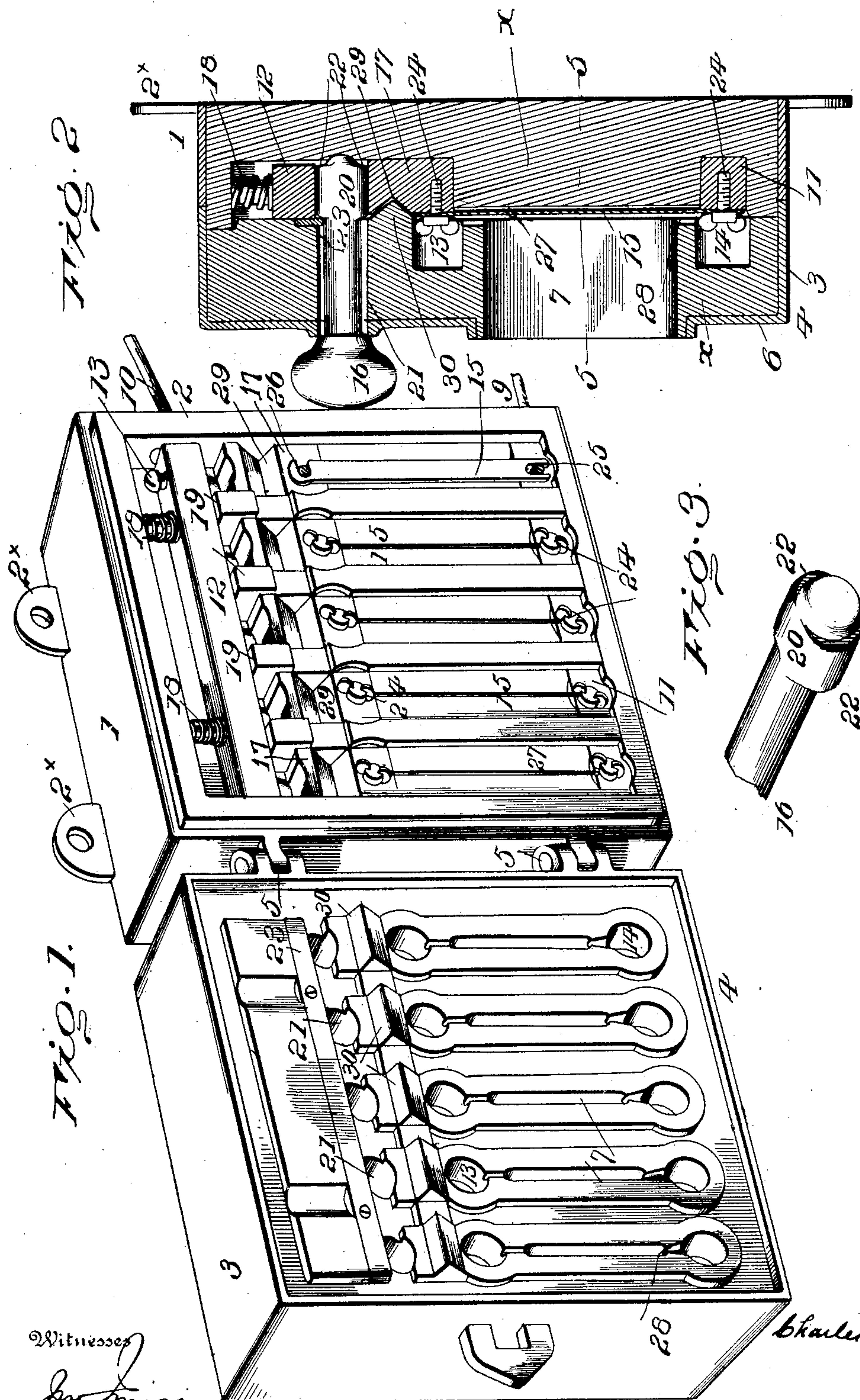
Patented May 20, 1902.

PLURAL FUSE CUT-OUT.

(Application filed Oct. 12, 1900. Renewed Oct. 16, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
John Miller
A. H. Matur.

334

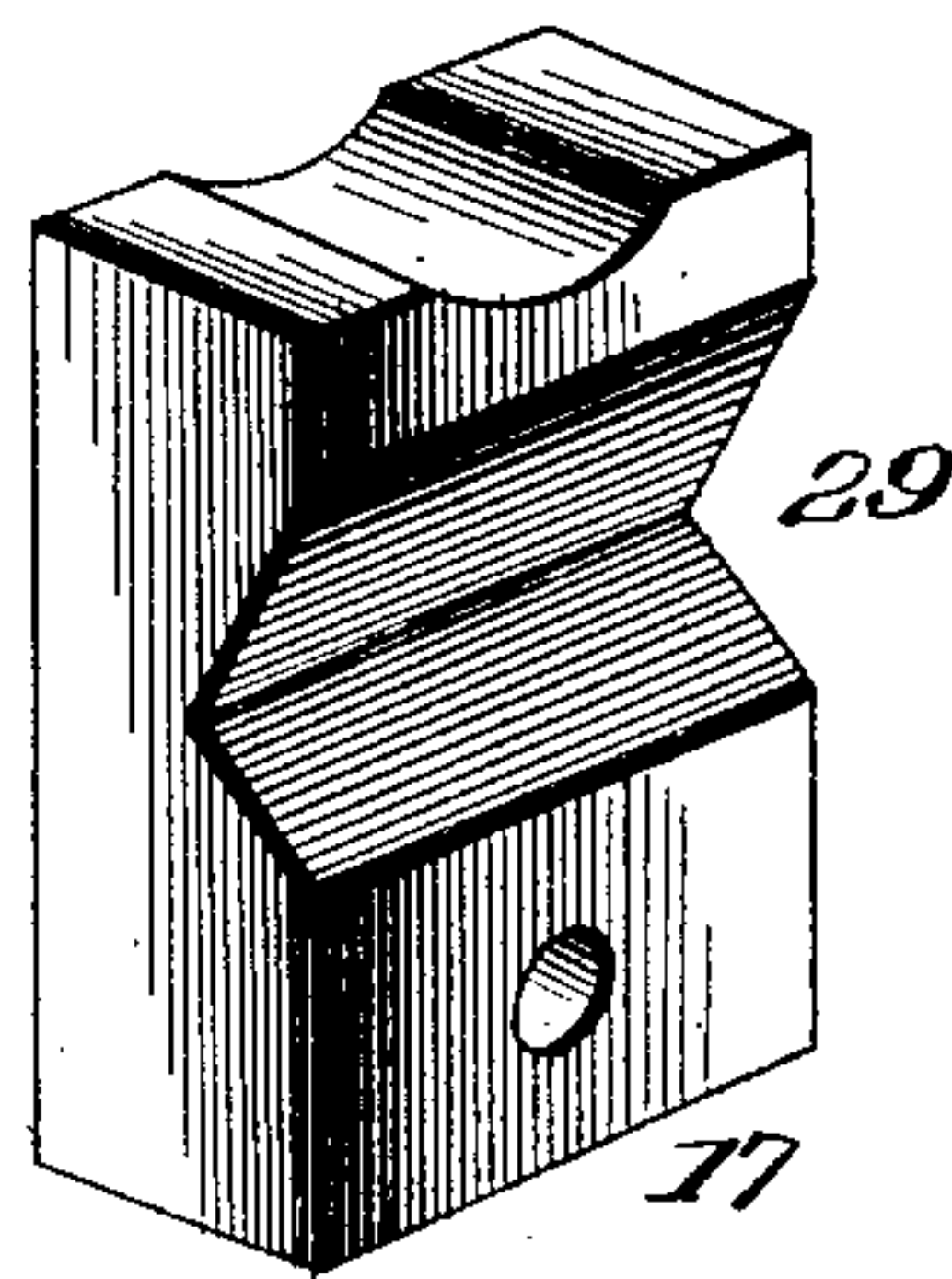
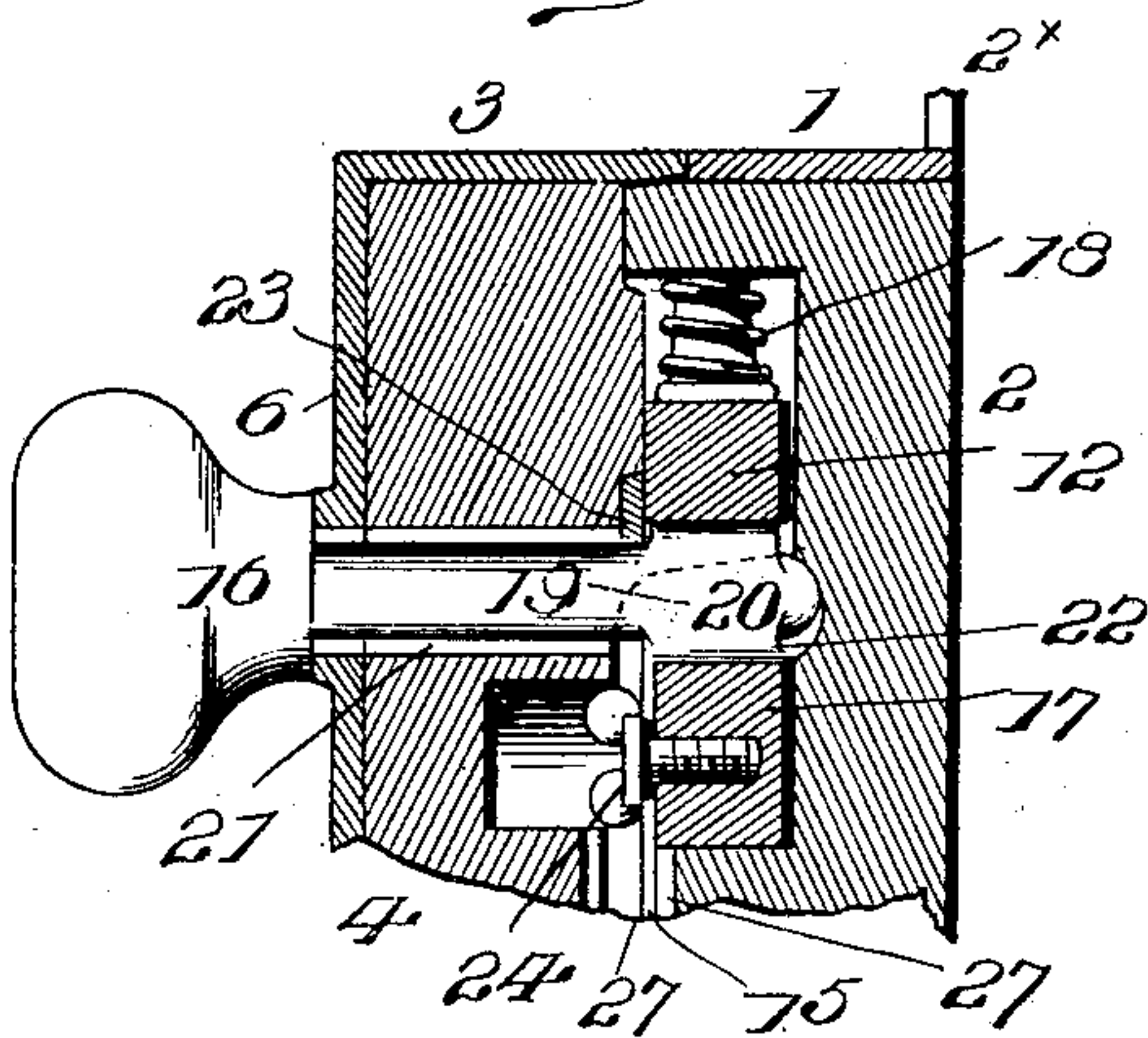
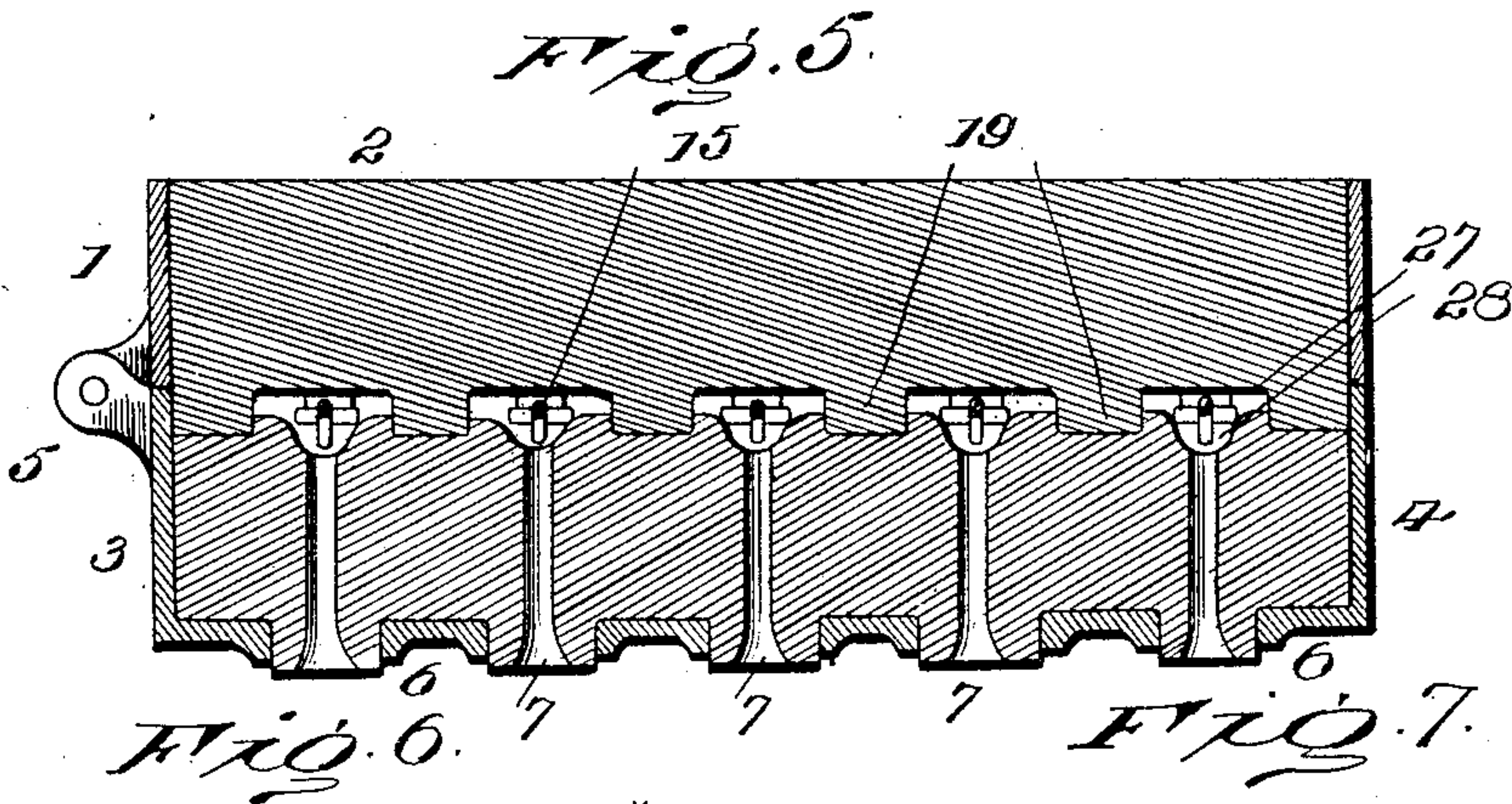
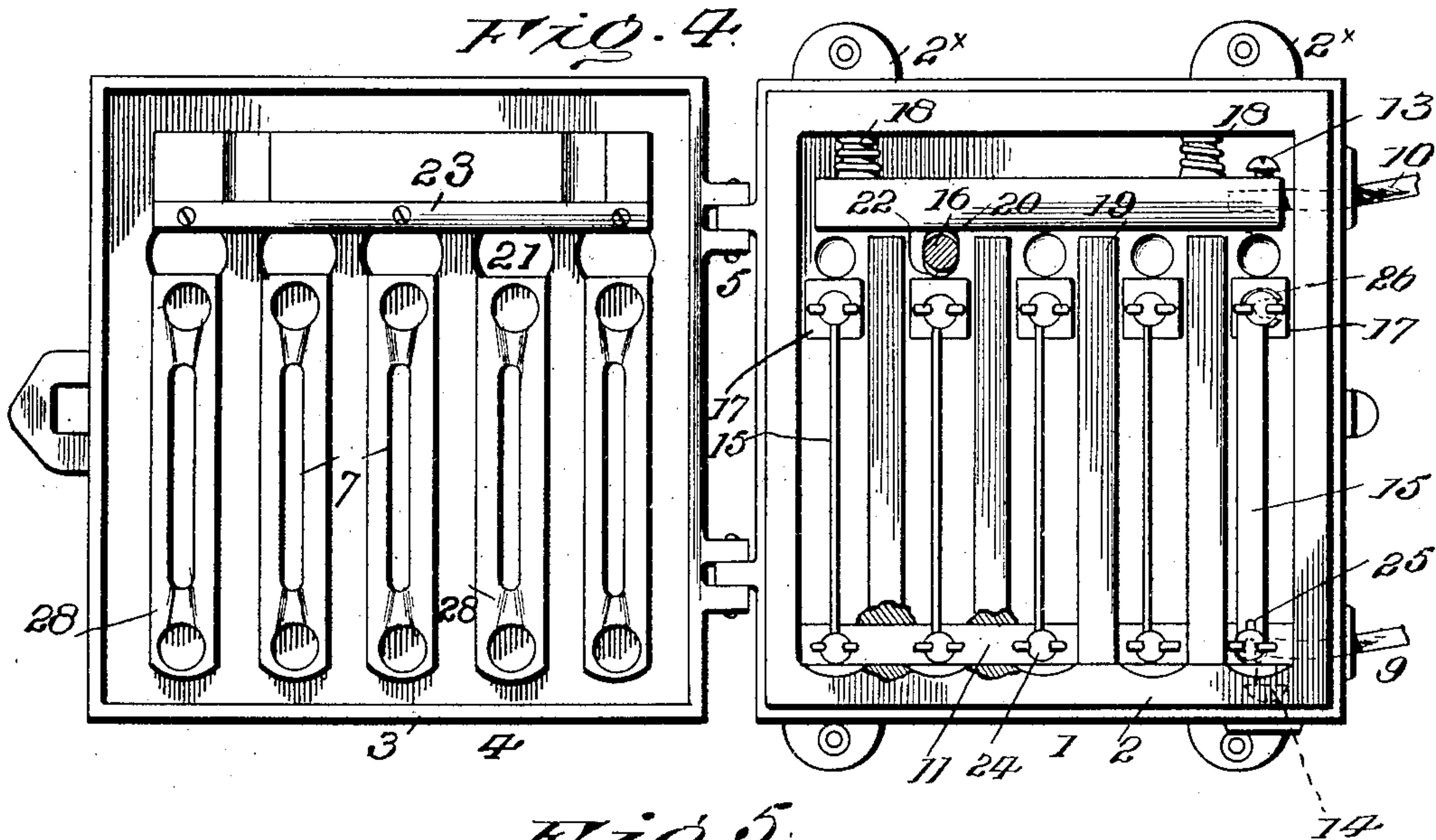
Charles J. Dorsey
Ray R. Carter Attorney

C. J. DORSEY.
PLURAL FUSE CUT-OUT.

(Application filed Oct. 12, 1900. Renewed Oct. 18, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
Mr. Irvine
A. H. Matur.

Inventor
Charles J. Dorsey

By *Benj. R. Badin* Attorney

UNITED STATES PATENT OFFICE.

CHARLES J. DORSEY, OF BALTIMORE, MARYLAND.

PLURAL-FUSE CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 700,410, dated May 20, 1902.

Application filed October 12, 1900. Renewed October 16, 1901. Serial No. 78,848. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. DORSEY, a resident of Baltimore, in the State of Maryland, have invented certain new and useful
5 Improvements in Plural-Fuse Cut-Outs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

10 The invention relates to plural-fuse cut-outs and cut-out boxes for electric circuits, and has for its objects to insure certainty and efficiency in action whereby the circuit is broken and ease and certainty in the renewal
15 of a broken circuit.

The invention consists in the construction herein described and pointed out.

In the accompanying drawings, Figure 1 is a perspective of the device opened, two thumb-
20 nuts for securing a fusible section of an electric conductor being omitted. Fig. 2 is a section of the device on a line lengthwise the fusible section, the device being closed and a circuit-making key supplied in operative sit-
25 uation. Fig. 3 is a partial perspective of a key. Fig. 4 is a plan of the device in modified form and open. Fig. 5 is a section on line 5 5 of Fig. 2. Fig. 6 is a partial section of the modified form, showing a key in opera-
30 tive situation. Fig. 7 is a perspective of a detail of the preferred form.

Numerals 1 denotes the frame of a fuse-box of any convenient or desirable form and material to contain metal electric connections
35 and insulating material *a*. Preferably the frame is provided with brackets 2^x for securing it to a car or other structure.

3 denotes a frame to hold a cover 4, and 5 denotes hinges connecting the frames to pro-
40 vide that the box may be opened. If desired, the frame 3 may have a casing-plate 6.

7 denotes ventilating-apertures in the cover and its casing-plate. The form and number of these openings is not material and may be
45 varied at pleasure, or they may be dispensed with without defeating the other parts of the invention.

9 and 10 denote wires of an electric circuit secured, respectively, to metal bars 11 and 12
50 by binding-screws 13 and 14.

15 denotes short fusible conductors connect-

ing the bar 11 with blocks 17, made of conducting material, and 16 is a key or part for completing the circuit between the block connected with any particular fusible conductor
55 15 and the bar 12. The bar 12 is forced toward the blocks 17 by springs 18, and 19 are abutments or portions of the non-conducting inclosure, that hold the bar a suitable distance from blocks 17. The blocks and bars
60 may be provided with shallow concave seats to receive the key when turned to an operative situation.

The key 16 has a non-conducting handle, preferably molded on the metallic or conduct-
65 ing part 20, which may be made oblong in cross-section, with its shortest diameter a little less than the distance between the bar 12 and the blocks 17. The electrical circuit is completed by inserting the key through one
70 of the openings 21 in the inclosure or cover and turning it so as to bring the longest diameter of the key part 20 transverse to the bar 12. This puts the springs under tension and insures a good electrical contact.
75

22 denotes shoulders on the key, one of which, when the key is inserted and turned, as just stated, engages under a bar or flange
23, whereby the key is held in place.

The fuses 15 may be of any suitable form
80 and material. 24 denotes binding-screws to provide for conveniently replacing the fuses melted out. A suitable form is illustrated.

25 denotes a fork to engage one of a pair of binding-screws, and 26 a hook to engage an-
85 other.

The improvement contemplates all suitable forms of fuses, including those made of plate metal, wire, and also fuses inclosed in tubes.

Preferably the blocks 17, the fuse-recep-
90 tacles 27, and the bar 11 will be fixed or formed, as the case may be, in the body of non-conducting material by molding said material in a plastic state and subsequently harden-
95 ing it. The part of the cover having receptacles 28 which coacts to inclose the fuses can also be formed by molding and ventilating-openings of any suitable shape provided therein, if desired.

While it is practicable to make the box of
100 two parts molded from a non-conducting material or composition, other forms built up of

separate pieces are not excluded. The frames that surround the non-conducting material are convenient and suitable, but not essential in all cases, and the two parts of the box or inclosure may be connected in any practicable manner, provided they can be practically separated, as by turning the cover.

Referring to Figs. 1 and 2, a special guard to prevent fused metal being carried by an excessive current from the blocks 17 toward bar 12 and welding the parts together is produced by a suitable groove or depression 29, formed in the blocks. This groove is made to receive a rib 30, formed on the body of non-conducting material in the cover, and said rib, situated as indicated, is adapted to interrupt the transportation of metal which otherwise might cause the injurious effect mentioned. Obviously the form and dimensions of the groove and rib may be varied, and it is further obvious that the means herein set forth for obviating the objectionable effects of excessive electrical currents are adapted to provide that fuse-boxes of comparatively small size and weight may be used with safety.

Heretofore the fuse connections made of spring plate and constituting movable circuit-closers have been liable to be partially melted and have also been liable to be welded to the coating electrodes by the metal blown from a suddenly-melted fuse, and in practice particles of the fuse have also been liable to be deposited and hardened on adjacent connections, so that when such adjacent connections were subsequently put in circuit such particles prevented thorough completion of the circuit, with the result that they were remelted and welded the parts together.

By my construction the use of a spring or sheet metal circuit-closer is obviated, and a key is used of sufficient thickness to prevent fusion. Further, this key has a wide bearing on the contiguous parts of the circuit, and connection is maintained by spring-pressure in such a way that its functions cannot be disturbed by particles of a melted fuse. If such particles are lodged on the key, it will not be on its bearing portions, and the rotation of the key against spring-pressure insures a thorough electrical contact when it is moved to complete the circuit through a new fuse.

The ease with which the fuses can be supplied in the box and the ease and certainty with which they can be put in circuit are important advantages. It is also an advantage that the conductors and their connections are fixed in integral blocks of non-conducting material and that such blocks can be made to inclose the fuses and constitute a box therefor. The provision for ventilation permits the ready escape of suddenly-expanded air, vapor, and gases without injury to the electrical connections when a fuse is suddenly melted or "blown." The receptacles for the fuses are such as to permit the

use of various kinds without inconvenience. The parts are of such form and arrangement and are so combined that small metal pieces other than the fuses are avoided. This and other objections to the rotary fuse cut-outs heretofore proposed are obviated. It will be understood that any suitable materials can be employed and that the mechanical modifications above mentioned and other like changes may be made, provided the substantial principles of operation and construction are not departed from.

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

1. In an electric cut-out, a series of fuses, a bar normally connected to each fuse, a second bar adapted to be connected with any fuse at will, a key for effecting said connection, a case provided with a series of key-holes, conducting-blocks adjacent the key-holes for the attachment of the fuses, non-conducting ribs situated in a direct line between the ends of the fuses and said holes, said conducting-blocks being provided with grooves to receive the ribs, and non-conducting material separating the blocks.

2. In an electric cut-out, a fuse-box comprising separable parts to hold the operative devices, a series of fuses, means for putting said fuses in circuit successively, a rib situated in one part and adapted to prevent transportation of metal upon the burning out of a fuse, and a groove corresponding to the rib situated in the other part of the box, the rib being seated in the groove when the parts are closed.

3. In an electric cut-out, a series of fuses, a bar normally connected to each fuse, a second bar adapted to be connected with any fuse at will, a key for effecting said connection, conducting blocks or parts adjacent the key-holes for the attachment of the fuses, non-conducting ribs between said blocks and said holes, and non-conducting abutments between said blocks.

4. In an electric cut-out, a series of fuses, a bar normally connected to each fuse, a second bar adapted to be connected with any fuse at will, a key for effecting said connection, conducting blocks or parts adjacent the keyholes having each a fuse connected thereto, non-conducting ribs between the blocks and said holes, and non-conducting abutments between said blocks, said abutments extending from one of the bars to the other.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES J. DORSEY.

Witnesses:

JAS. B. HUBBARD,
THOS. C. BAILEY.