

No. 696,693.

Patented Apr. 1, 1902.

P. OLSEN.

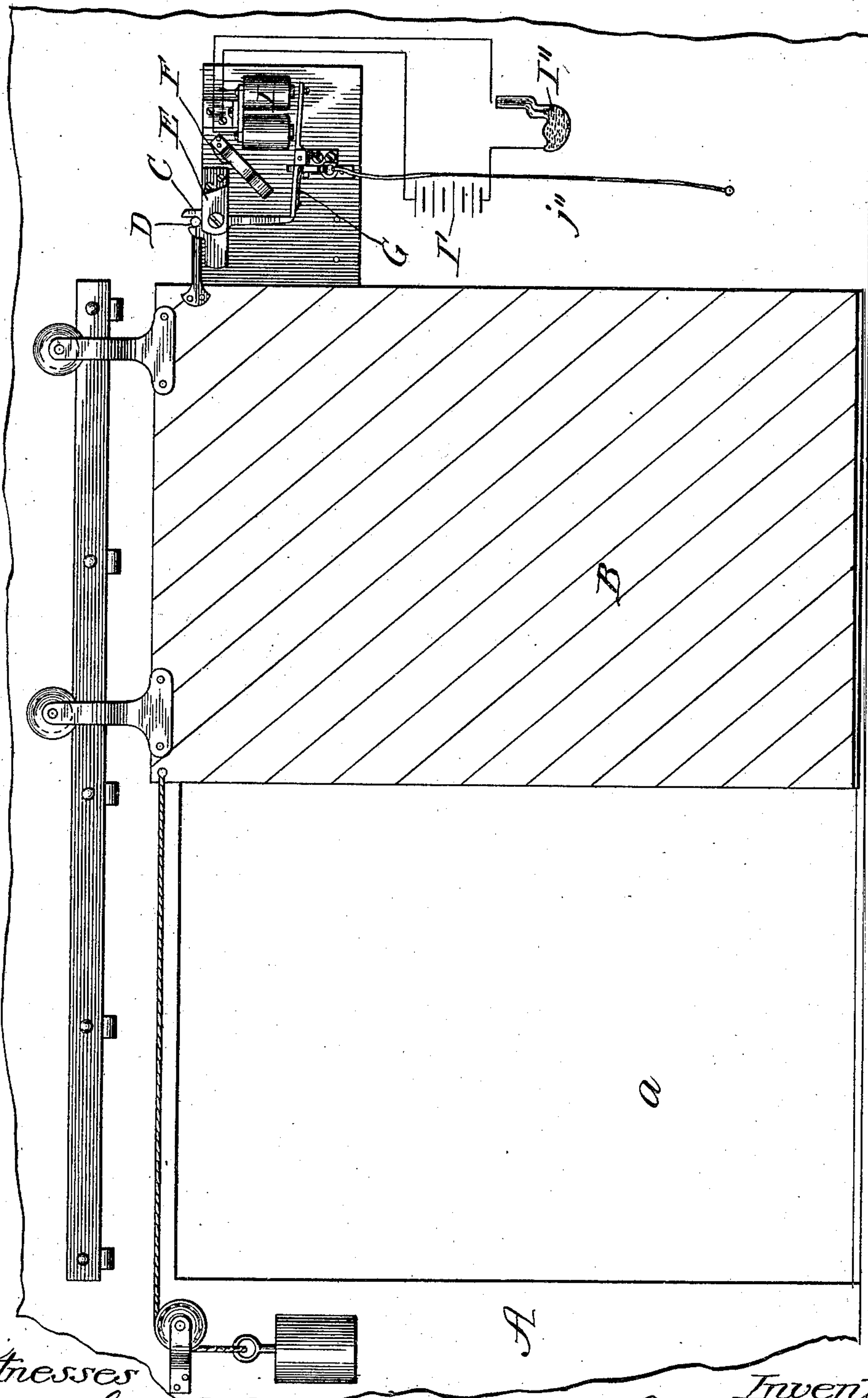
DEVICE FOR HOLDING AND RELEASING FIRE DOORS.

(Application filed June 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



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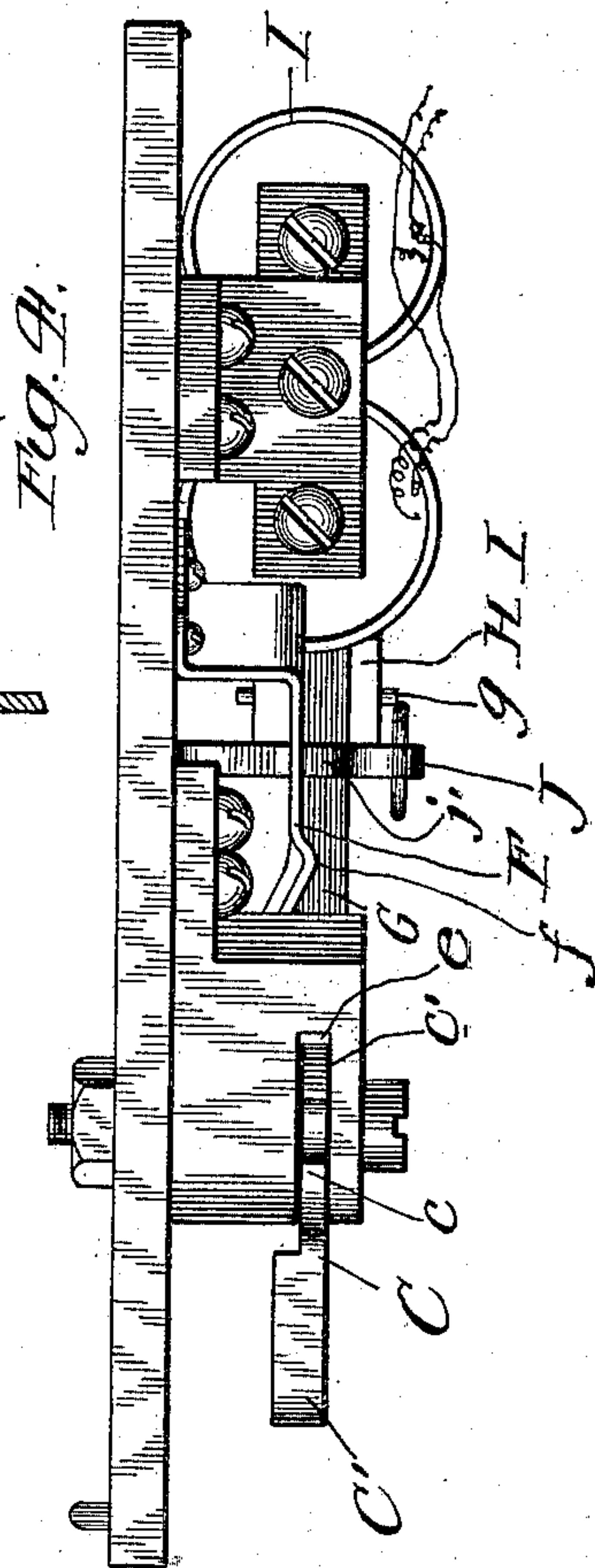
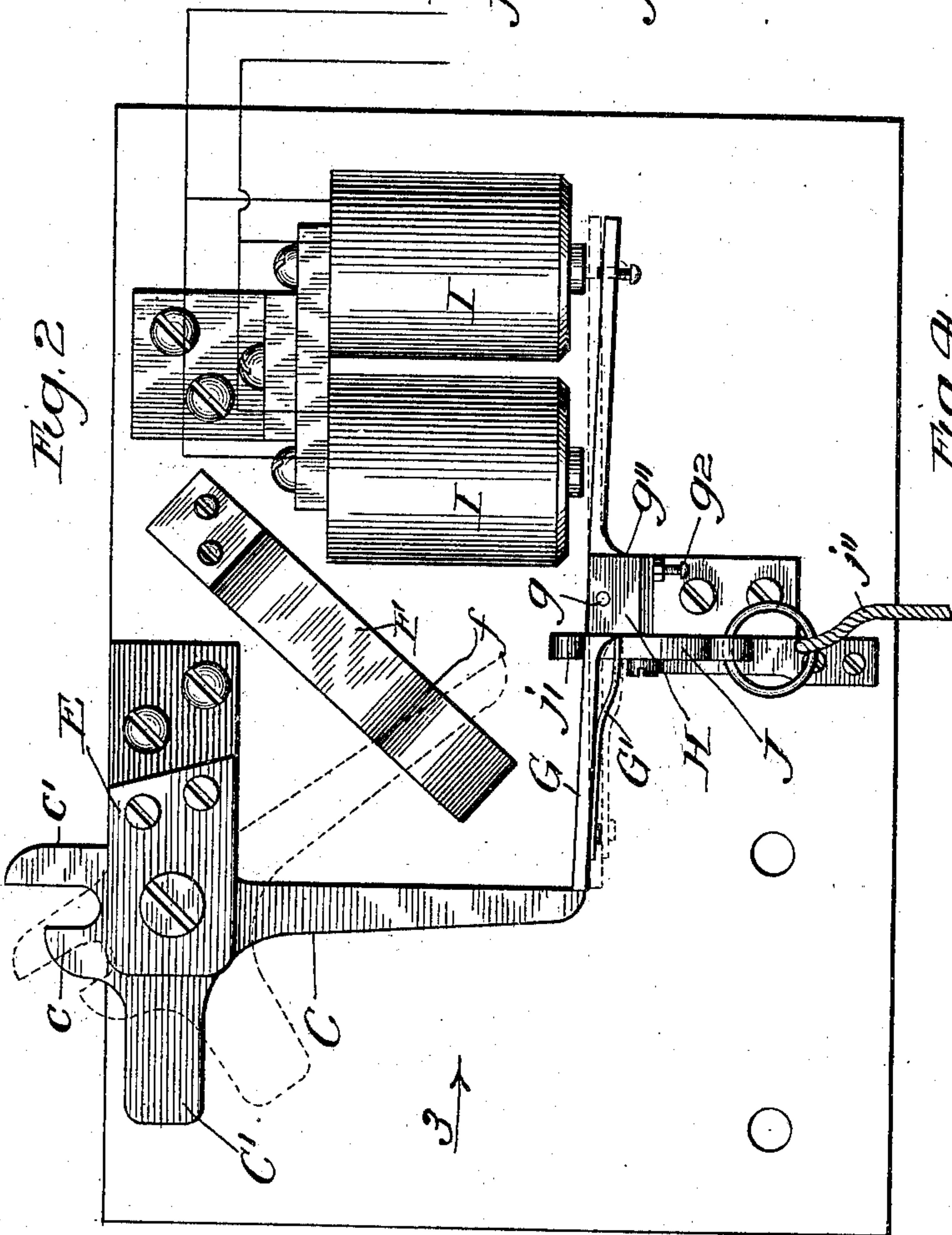
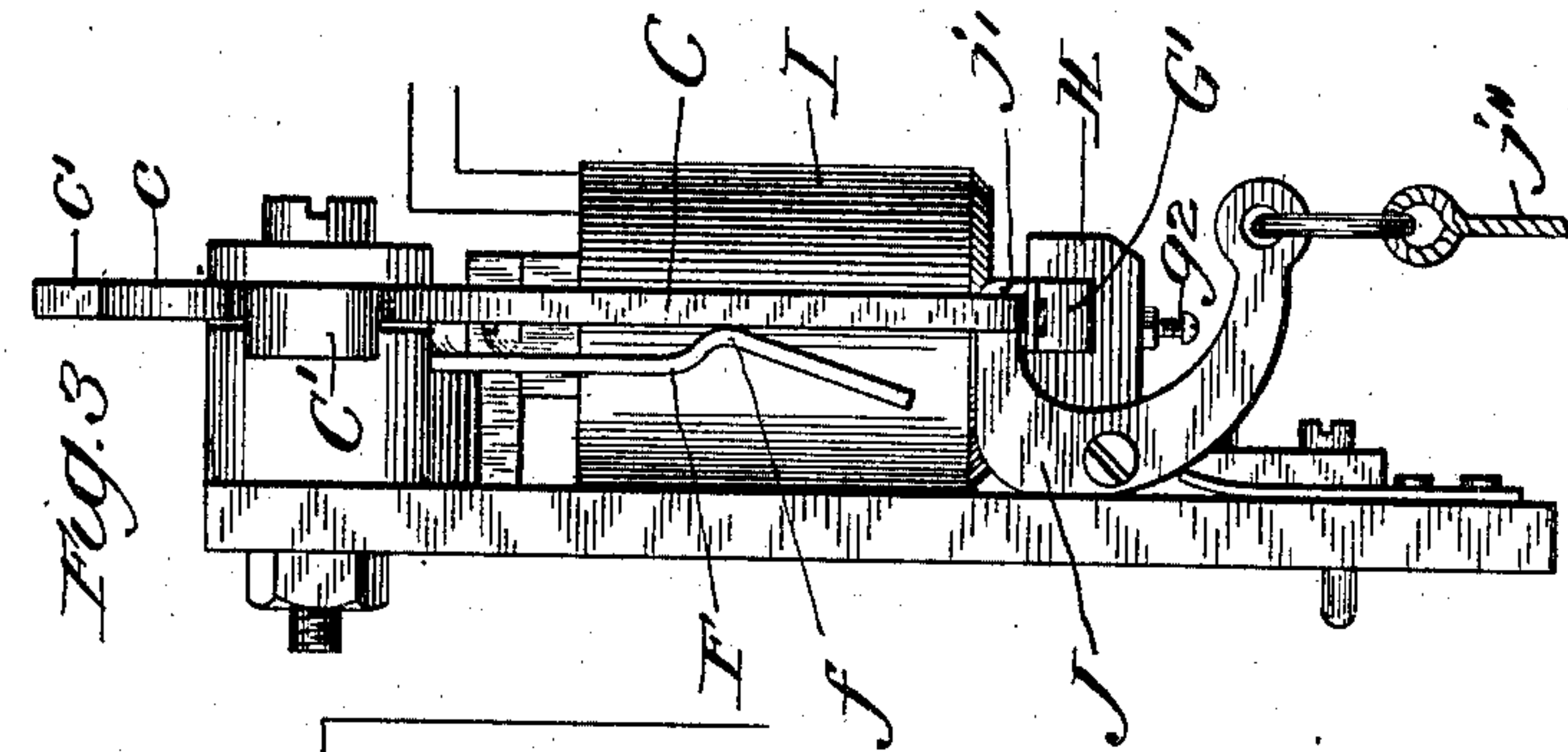
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DEVICE FOR HOLDING AND RELEASING FIRE DOORS.

(Application filed June 14, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR HOLDING AND RELEASING FIRE-DOORS.

SPECIFICATION forming part of Letters Patent No. 696,693, dated April 1, 1902.

Application filed June 14, 1901. Serial No. 64,588. (No model.)

To all whom it may concern:

Be it known that I, PEDER OLSEN, a citizen of Norway, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Devices for Holding and Releasing Fire-Doors, of which the following is a specification.

In the art of protecting buildings against damage by fire what are known as "fire-doors" are used for the purpose of automatically closing openings through walls, partitions, &c., and thereby preventing fire from spreading from one building to another or from one room to another. These fire-doors are held normally open by a device of such construction that it can be tripped, either manually or automatically, for permitting the door to close or be closed. It is to devices of this class that the invention belongs; and its object is to improve their construction.

The invention consists in the features of novelty that are hereinafter described with reference to the accompanying drawings, which are made a part of this specification, and in which—

Figure 1 is an elevation of a fire-door equipped with a holding and releasing device embodying the invention. Fig. 2 is an enlarged elevation of said device. Fig. 3 is an enlarged elevation thereof viewed in the direction of the arrow 3 in Fig. 2. Fig. 4 is a plan view thereof.

A is a portion of a wall having through it an opening *a*, adapted to be closed by a door B, suitably mounted and under the influence of gravity, a weight, or a spring, so that when free to close it will do so automatically. The present invention is not, however, concerned with the manner of mounting said door or the means for closing it, but only with the device for normally holding it open and for releasing it when tripped, either manually or automatically, as hereinafter described.

C represents a latch-lever having the jaws *c c'* of unequal length and adapted to receive between them a pin D, carried by the door, said latch-lever being pivoted to a bracket E of suitable construction. Preferably the bracket consists of a block having a slot for providing a pair of jaws adapted to receive

the latch-lever between them, the bottom of the slot *e* serving as a stop for limiting the movement of said lever in one direction. The latch-lever is so disposed with respect to the pin D that as the door moves to its closed position the pin D will engage the jaw *c* and bring the latch-lever to the position indicated by dotted lines, where it is held, either by gravity or by a spring, or by both, in readiness to receive the pin D again as the door is moved open, whereby the lever is again returned to the position shown by full lines. For the purpose of holding the latch-lever in this position to engage the pin D automatically the lever is provided with a weight C', and in addition to this a spring F is placed in the path of the heel of the latch-lever, said spring being provided with a shoulder *f*, which the latch-lever passes in moving to the dotted position and by which the latch-lever is held.

In the path of the heel of the latch-lever is arranged a trip-lever G, which is fulcrumed at *g* to a bracket H and is extended beyond the fulcrum in both directions, in one direction to engage the latch-lever and in the other to serve as the armature of an electromagnet I, which is included in a circuit including a battery I' and a mercurial contact I'' or some other device of such construction that when it is subjected to a predetermined degree of heat it will close the circuit and thereby cause the magnet to be energized. This energizing of the magnet attracts the armature and moves the trip-lever out of the path of the latch-lever, as indicated by dotted lines, thus permitting the latch-lever to move to the dotted position, as already described, and allowing the door to close. If desired, the trip-lever G may be so disposed with respect to its fulcrum *g* that the side constituting the armature will preponderate, thus giving it a normal tendency to move to the engaging position, as shown by full lines. A spring G' may, however, be used in addition to gravity for holding the trip-lever in engaging position. The trip-lever is provided with a shoulder *g''*, which is adapted to engage the bracket H, and thereby form a stop for limiting the movement of the armature away from the magnet, and in addition to this a set-screw *g*²

may be used for the same purpose, the advantage of a set-screw being that it provides for an adjustment, whereas the shoulder *g''* does not.

5 For the purpose of manually moving the trip-lever out of engagement with the latch-lever a trigger in the form of a lever J is fulcrumed to the side of the bracket H and provided with an arm *j''*, overhanging the trip-lever, a cord or some other device *j'''* being attached to an eye of the lever J and continued
10 downward to within convenient reach, the lever J being under the influence of a spring, which normally holds it out of contact with
15 the trip-lever.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the class described the combination of a latch-lever having a pair of
20 jaws adapted to receive between them a part carried by the door, a trip-lever adapted to engage the latch-lever, thermo-electric devices for releasing the trip-lever when subjected to

a predetermined temperature and a trigger adapted to engage the trip-lever for tripping
25 it manually substantially as described.

2. In a device of the class described the combination of a latch-lever having a pair of jaws adapted to receive between them a part
30 carried by the door, one of said jaws being arranged in and the other out of the path of said part when the door is closed, a spring arranged in the path of the latch-lever for holding it in the position last described so that as
35 the door opens said part carried by it will engage one jaw of the latch-lever and thereby shift it bringing the other jaw into the path of said part, a trip-lever adapted to automatically engage the latch-lever, a thermo-electric appliance for automatically tripping the
40 trip-lever when subjected to a predetermined temperature substantially as described.

— PEDER OLSEN.

Witnesses:

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