

No. 696,214.

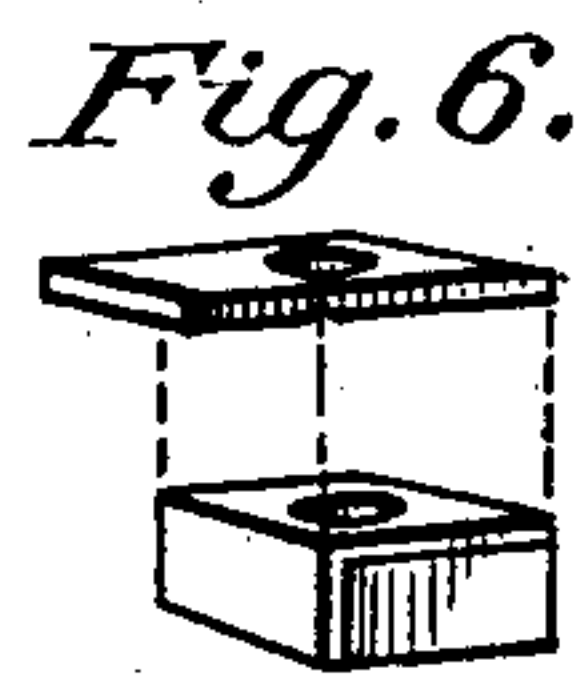
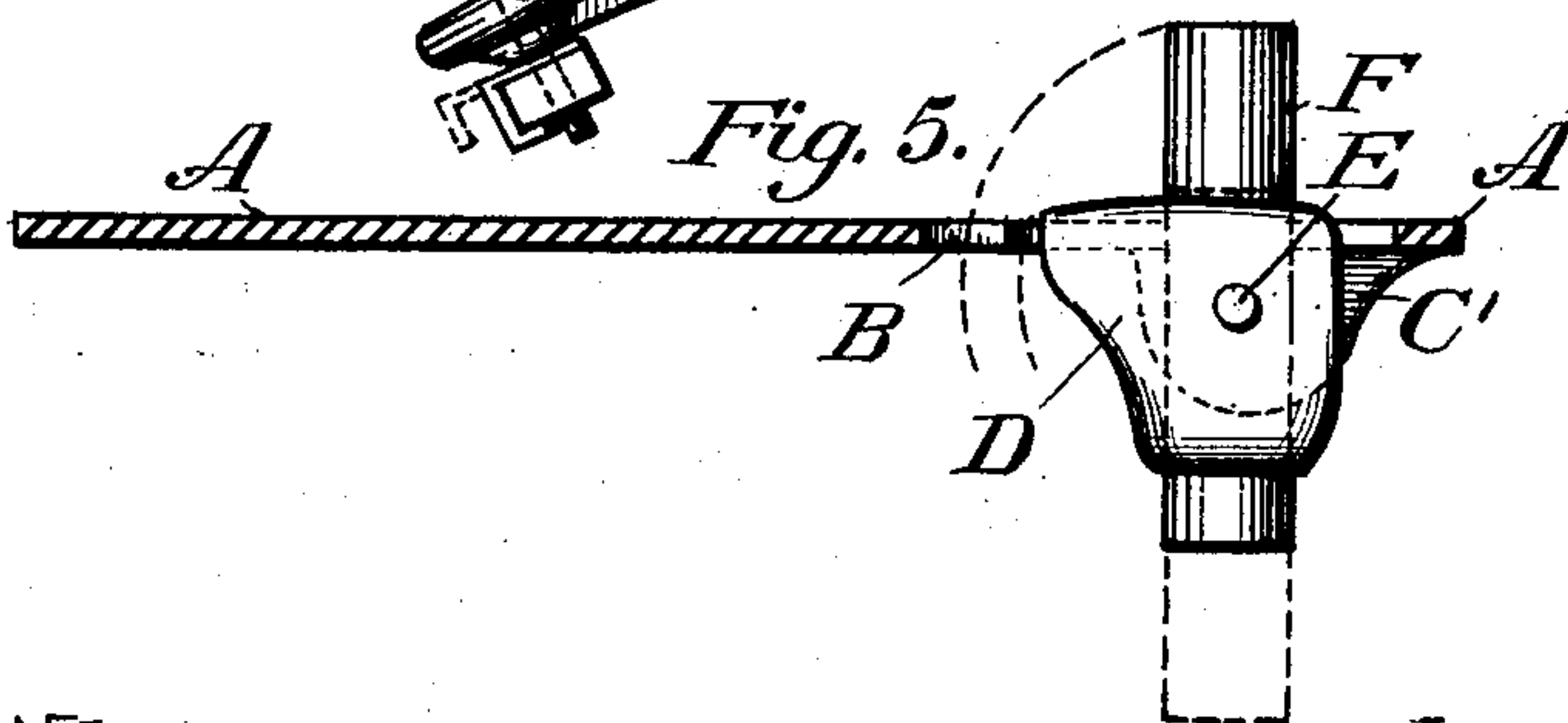
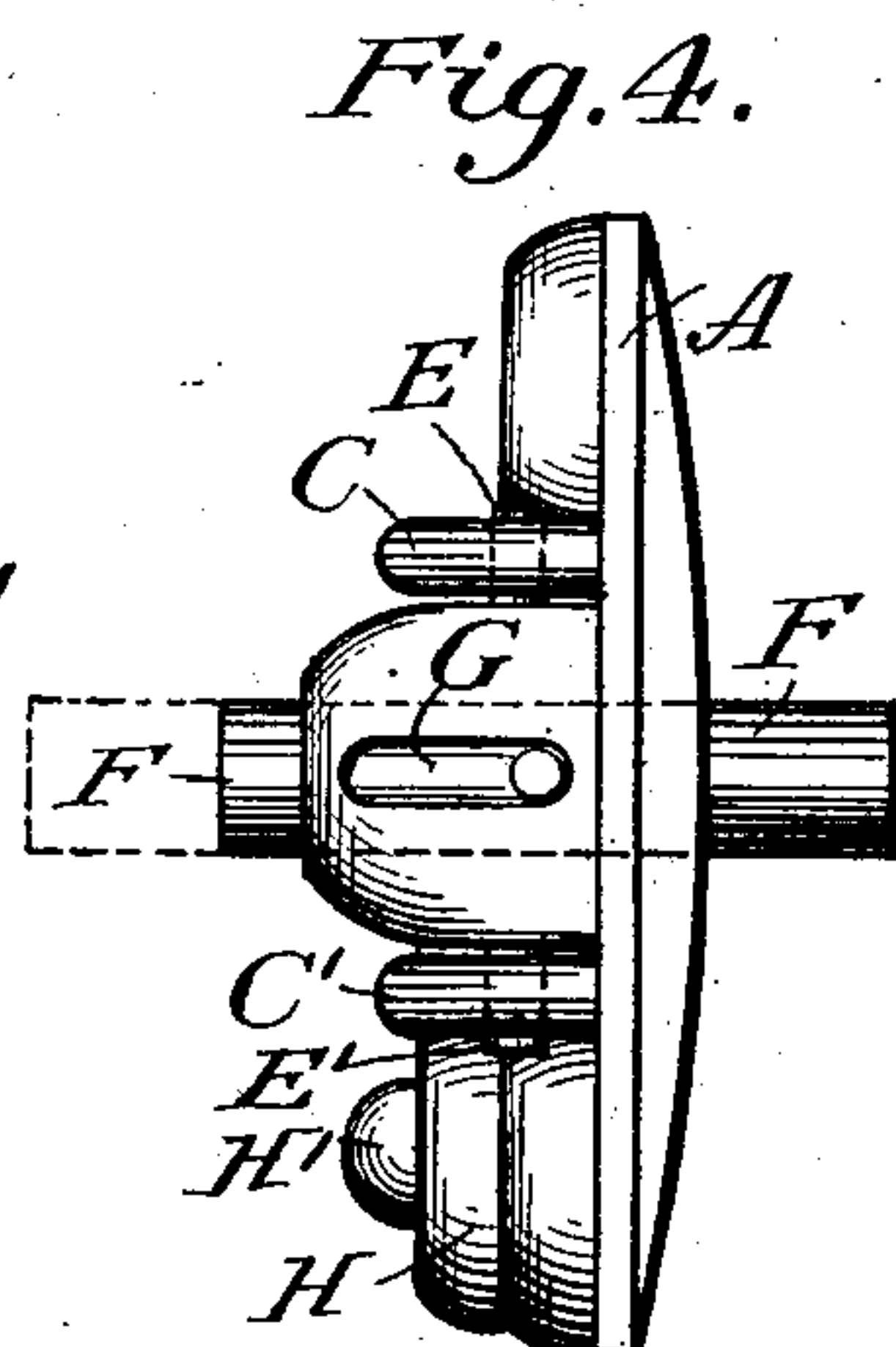
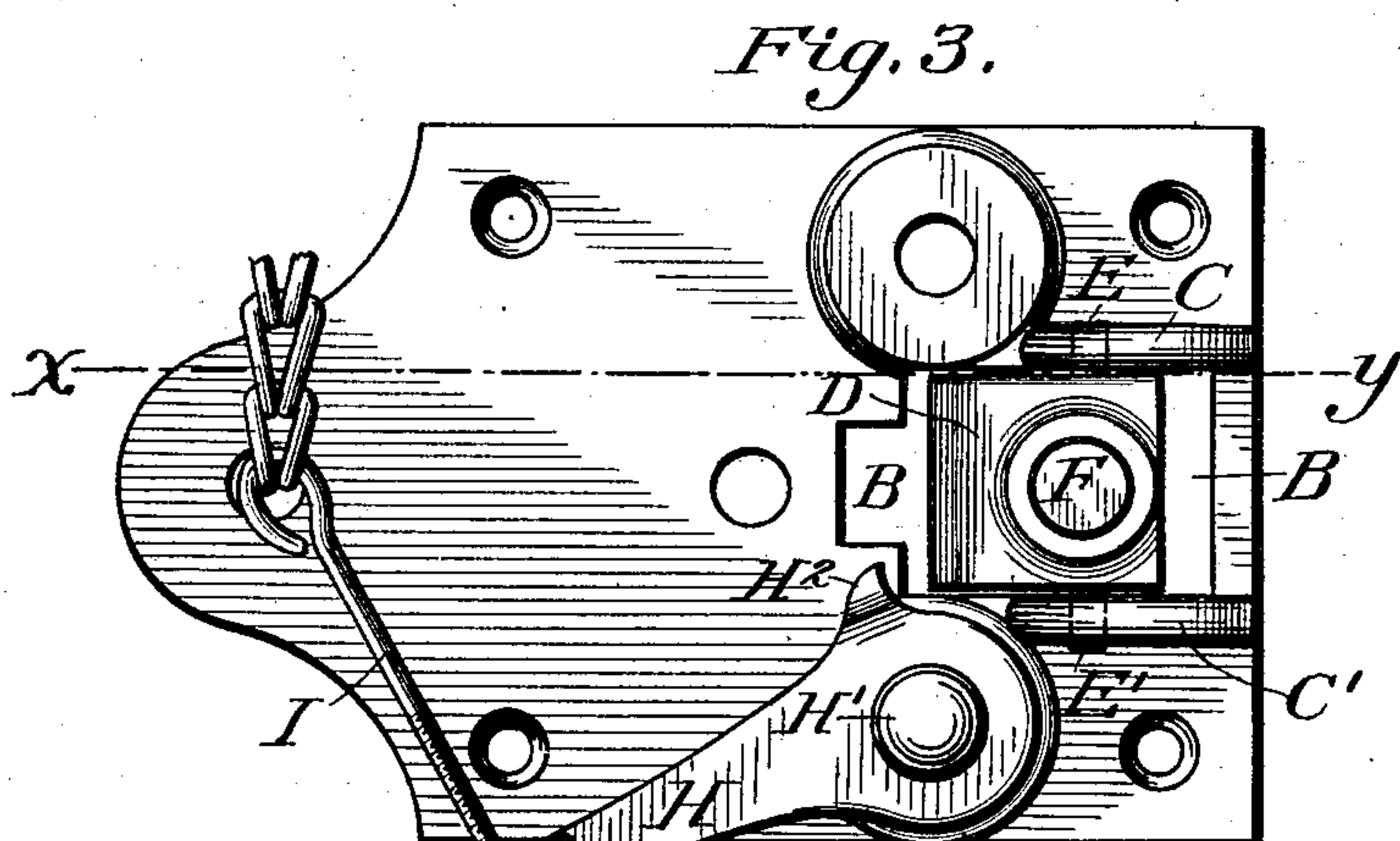
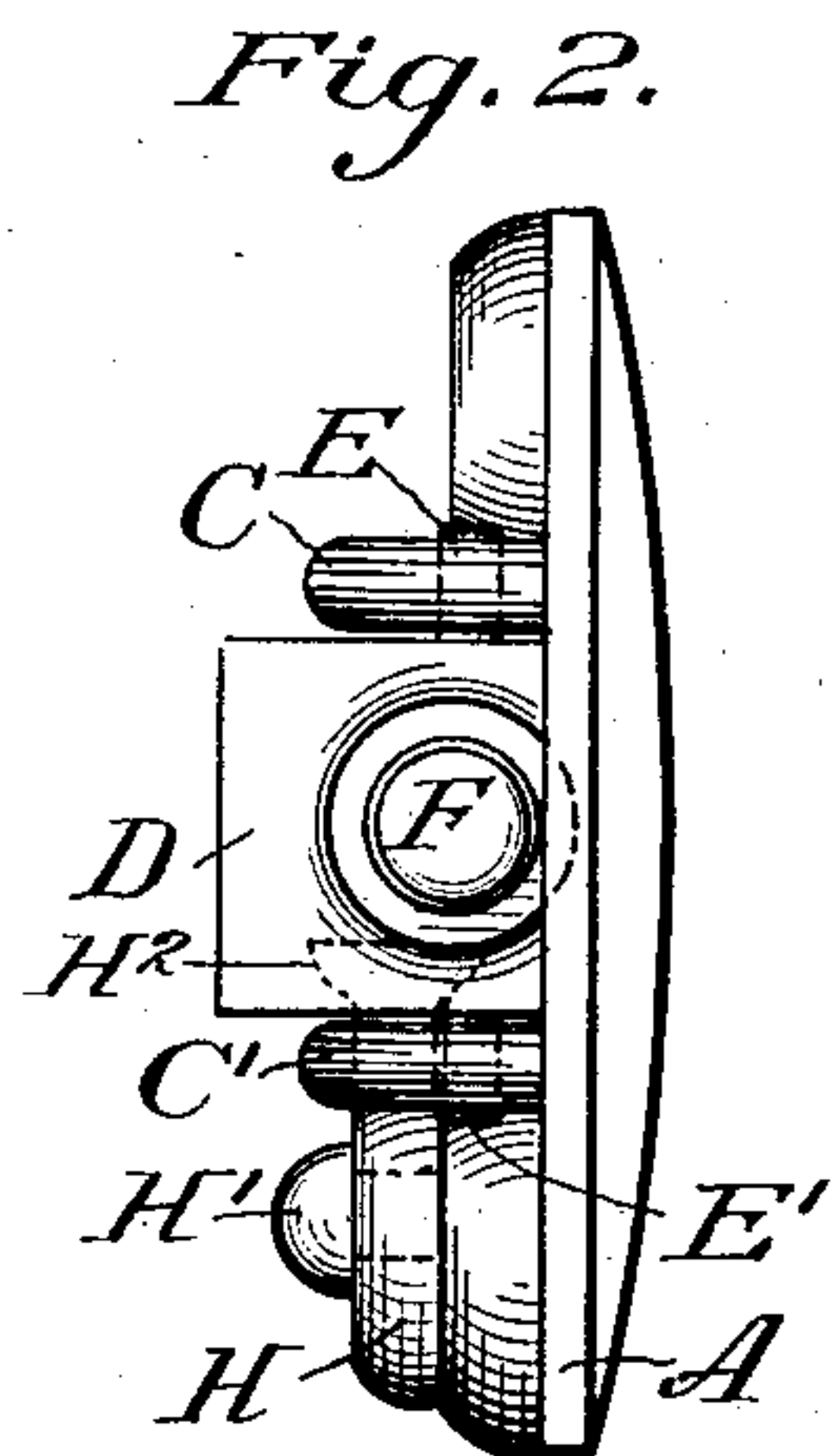
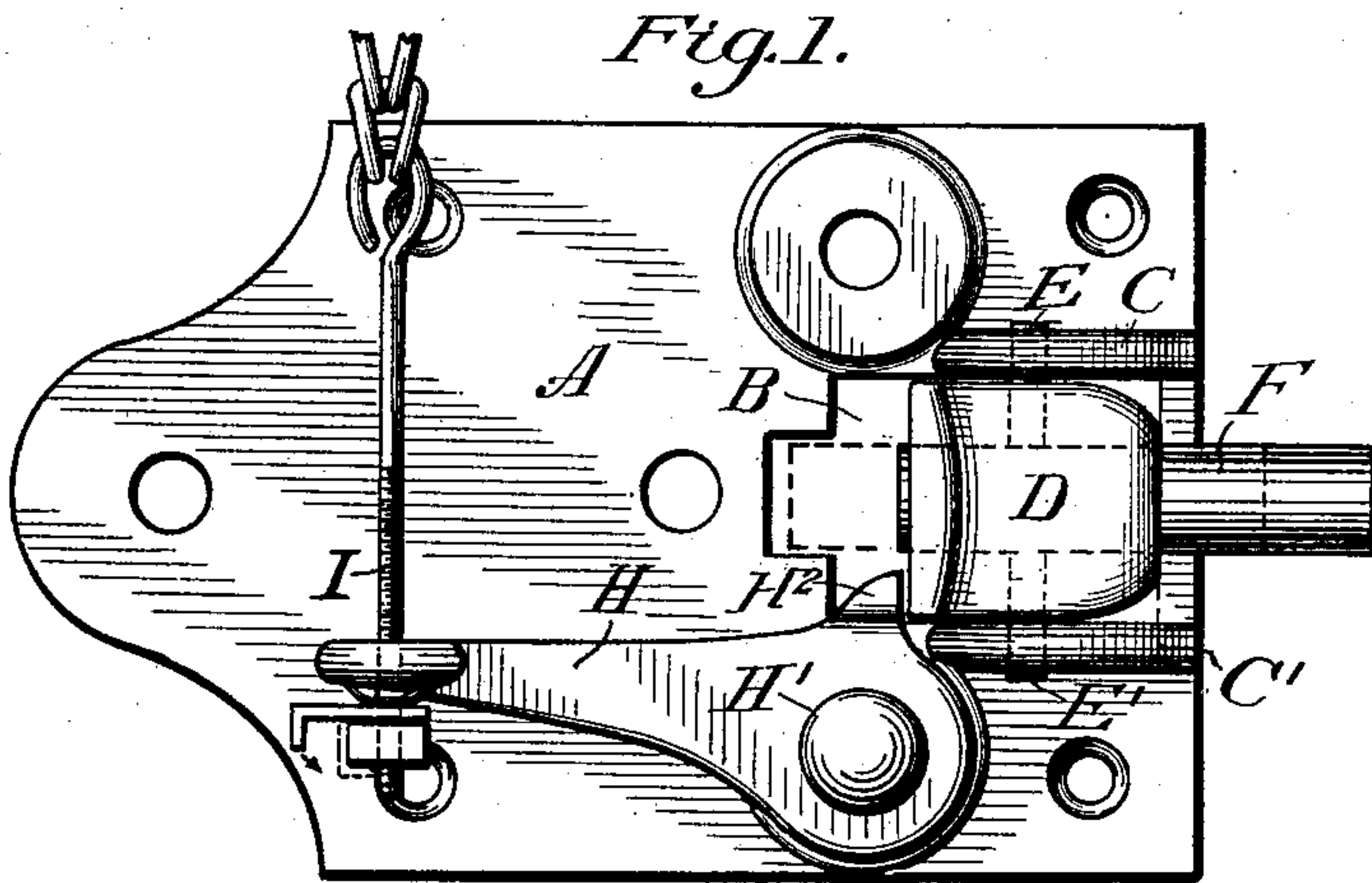
Patented Mar. 25, 1902.

J. W. TRIPP.
CATCH FOR FIRE DOORS.

(Application filed Apr. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

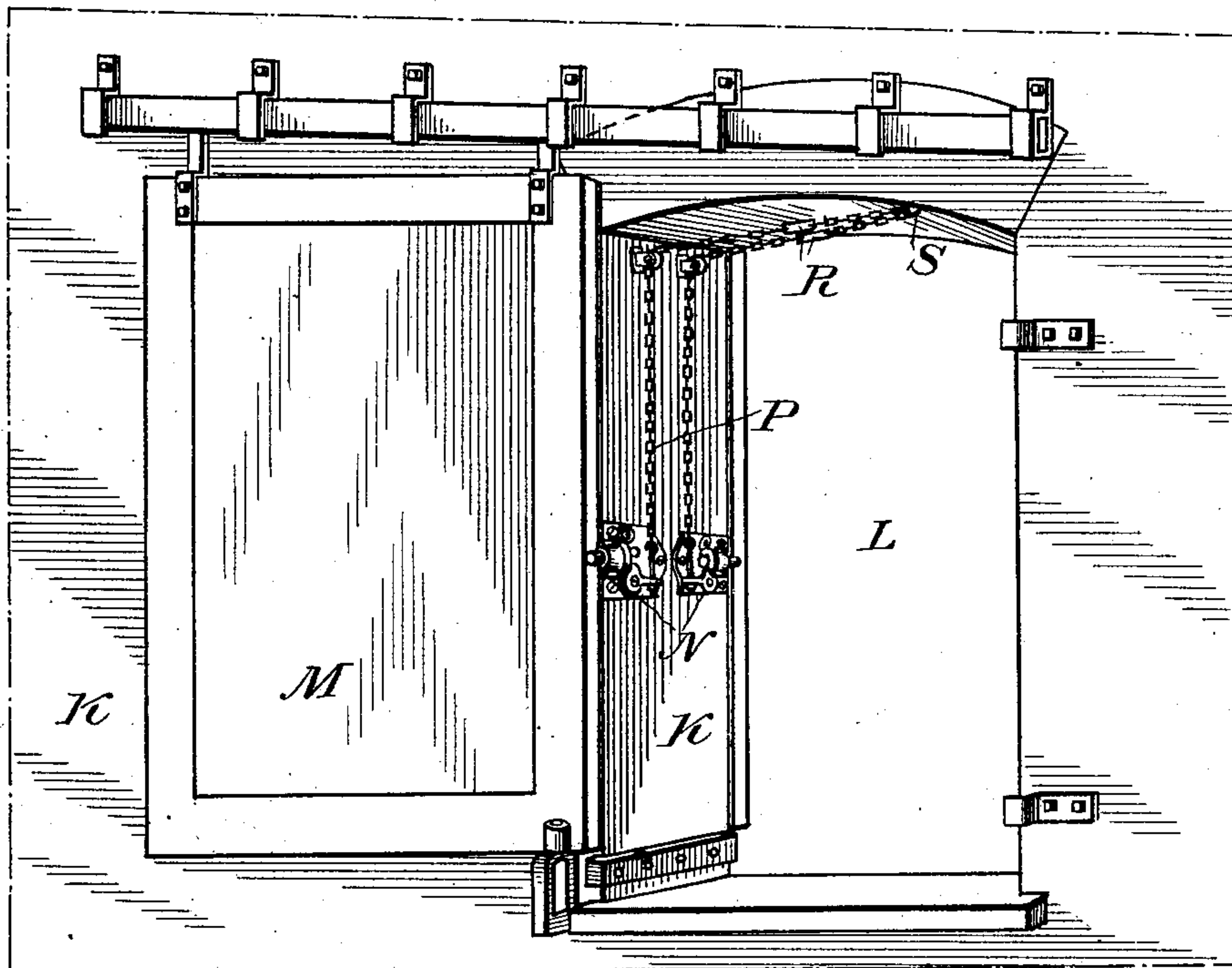


Fig. 7.

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CATCH FOR FIRE-DOORS.

SPECIFICATION forming part of Letters Patent No. 696,214, dated March 25, 1902.

Application filed April 11, 1900. Serial No. 12,425. (No model.)

To all whom it may concern:

Be it known that I, JACOB W. TRIPP, a citizen of the United States, and a resident of New York city, in the county and State of New York, have invented certain new and useful Improvements in Door-Closing Apparatus, of which the following is a specification, taken in connection with the accompanying drawings.

10 The present invention is adapted particularly to automatic apparatus for closing fire-doors, whereby the pressure of the door will assist in releasing the locking mechanism when a thermal device, such as a thermal fuse, acts under an excess of temperature. This invention may, however, be used in connection with other door-closing apparatus.

15 In the drawings, in which the same reference character refers to similar parts in the various figures, Figure 1 is a front view of the lock as used in the door-closing apparatus. Fig. 2 is a side view of the same, the device being shown in locked position. Figs. 3 and 4 are similar views showing the device in released position. Fig. 5 is a sectional view taken on line *xy* of Fig. 3. Fig. 6 shows a detail of the device. Fig. 7 is a perspective view showing two of these locks controlling fire-doors.

20 The general arrangement of the device is shown in Fig. 7, L representing a doorway in a fireproof partition or wall K. This doorway is intended to be closed on the occurrence of fire by suitable fire-doors M of ordinary construction, which are shown mounted upon inclined tracks, so that they tend to slide down in position to cover the doorway L. Suitable retainers and roll-guides of ordinary construction are shown cooperating with these doors. These fire-doors M are releasably held in position by the locks N, mounted upon the wall so as to cooperate with the front edge of the doors. These locks are connected by the chains P, passing over suitable pulleys to the thermal fuses R, which are usually situated at the top of the doorway, so that they will be exposed to the greatest temperature at that point. These fuses as soon as they melt or become so weak as to give way under the pull of the chains release

the locks, and thereby the doors M automatically close the opening or doorway L.

The construction of the lock forming part of this apparatus is shown in detail in Figs. 1 to 6. The lock-plate A is formed, as indicated in Fig. 1, with a number of holes by which it may be fastened in position upon the wall, there being a generally rectangular bolt-slot B formed in the plate near its front edge. The bearing-lugs C C' project from the plate on either side of this bolt-slot B. The bolt-block D is mounted to swing about the bearing-lugs C C' by means of the trunnions E E', attached to the block and turning in suitable holes in the lugs. In this way the bolt-block swings in the bolt-slot, so that a very compact construction is secured, because the bolt-block is mounted within the plate instead of projecting entirely outside of it. The bolt F is slidably mounted in the bolt-block and is retained therein by the bolt-pin secured to the bolt, which moves in the slot G in the bolt-block. (Indicated in Fig. 4.) In this way, as will be readily seen, the bolt may be moved manually through a sufficient distance to engage the door, and at all times the bolt is free to swing, together with the bolt-block, about the trunnions.

The bolt is held in operative position, so as to hold the door open by means of the locking-lever H. The toe H² of this lever engages the heel of the bolt-block and prevents the bolt-block swinging about its trunnions. It will be noted by reference to Fig. 2 that the toe of the locking-lever is formed broad enough to engage the heel of the bolt-block throughout a considerable extent, so as to hold the bolt-block rigidly in proper position. The formation of the heel of the bolt-block is indicated in Fig. 5, the curved or cam surface of the heel of the bolt-block tending to force the end of the locking-lever away from the same under the influence of the self-closing door, which engages the bolt. This locking-lever swings about the lever-stud H', this stud passing loosely through a hole in the bearing-lug formed on the plate A and being fastened to the plate in any desired manner. It will be noted that a similar lever-bearing is formed on the other side of the plate and

symmetrical with respect to the bolt-block, so that, if desired, the locking-lever may be mounted upon this second lever-bearing by the lever-stud, so that the toe of the locking-lever will then engage the heel of the bolt-block on the other side of the bolt. The lever-rod I, which is shown as having screw-threaded engagement with the end of the locking-lever, is attached at its upper end to the chain connecting with the thermal fuse, as has been explained. The end of the locking-lever II has rigidly secured to it the lock-flap, which is adapted to hold the lock-nut upon the rod-lever I in position when bent down to encircle the nut, as shown in Fig. 3. If desired, also the lever-rod I may thus pass through an unthreaded hole in the outer end of the lever II and may be rigidly secured to the lever by the lock-flap engaging the nut on the lever-rod. The weighted enlargement shown in the drawings is formed on the outer end of the locking-lever, and this weight may be made as great as desired, so that the locking-lever as soon as it is freed from the connection with the thermal fuse tends to drop into release position. (Shown in Fig. 3.) If desired, also a suitable weight may be mounted not only on the end of the locking-lever, but also upon the chain adjacent the locking-lever, so that the impact of the chain falling upon the end of the locking-lever may be increased.

In the operation of this device the lock is mounted adjacent the front edge of the door, as indicated in Fig. 7, so that when the bolt F is projected in the bolt-block, as indicated in Fig. 1, the outer end of the bolt will engage the front edge of the door. Then so long as the locking-lever is held rigidly in position by the chain and thermal fuse the broad toe of this lever in engagement with the heel of a block prevents the rotation of the latter about its trunnions and rigidly holds the bolt in the path of the door. If it is desired to close the door, this may readily be done without interfering with the locking-lever or the thermal device connected with the same by manually withdrawing the bolt, throwing the same into the dotted position. (Indicated in Fig. 1.) This withdraws the bolt from the path of the door and allows the door to close under the influence of gravity.

The lock operates automatically upon the breaking or weakening of the thermal fuse, since this at once releases the weighted locking-lever H, and when this lever falls the toe of the lever withdraws from the heel of the bolt-block, assuming the position indicated in Fig. 3, and the bolt and bolt-block are then swung out of the path of the door by the pressure of the door upon the bolt, the bolt-block assuming the position indicated in Figs. 3, 4, and 5.

This lock is very readily adapted for use either as a right or left handed lock, since the locking-lever II is symmetrical and may be mounted by the lever-stud II' upon either le-

ver-bearing, so that it coöperates with the heel of the bolt-block on either side of the bolt. In this way a very convenient and simple form of lock is secured and one which is very effective in practice.

Many modifications may be made in the construction of this door-closing apparatus without departing from the principles of this invention. I do not, therefore, wish to be limited by the disclosure which I have made in this case; but

What I claim as new, and what I wish to secure by Letters Patent, is set forth in the appended claims:

1. In door-closing apparatus, a slotted plate, a bolt-block pivotally mounted on said plate, a sliding bolt in said bolt-block provided with a pin which moves in a slot in said bolt-block, a locking-lever engaging the bolt-block, said locking-lever being weighted at its free end to readily disengage the same from said bolt-block, and a thermal fuse connected with said locking-lever.

2. In door-closing apparatus, a plate provided with a bolt-slot substantially in the center of its front edge, bearing-lugs on said plate on either side of said bolt-slot, a bolt-block provided with trunnions engaging said bearing-lugs so as to rotate about an axis parallel to said plate, a sliding bolt mounted in said bolt-block, a locking-lever having a wide toe to engage the heel of said bolt-block to prevent the rotation of the same, lever-bearings on said plate symmetrical about said bolt-slot and on either side of the same, and a lever-stud to mount said locking-lever on either of said lever-bearings.

3. In door-closing apparatus, a plate provided with a bolt-slot, a bolt-block mounted on said plate to swing in said bolt-slot, said bolt-block being provided with a manually-movable bolt, lever-bearings on said plate symmetrically arranged with reference to said bolt-block on either side of the same, a symmetrical locking-lever and a lever-stud to readily secure said locking-lever upon either of said lever-bearings to engage said bolt-block and hold the same against rotation.

4. In door-closing apparatus, a plate, a bolt-block pivotally mounted on said plate, a bolt slidably mounted in said bolt-block, a symmetrically-arranged locking-lever having a toe to engage the heel of said bolt-block on either side of the same and duplicate lever-bearings on said plate for said locking-lever.

5. In door-closing apparatus, a plate to be secured adjacent a self-closing door, a bolt-block pivoted upon said plate, a sliding bolt mounted in said bolt-block to project into the path of said door, duplicate lever-bearings on said plate on either side of said bolt-block and a symmetrically-formed locking-lever having a toe to engage the heel of said bolt-block and means to mount said locking-lever on either of said lever-bearings to hold said bolt-block against rotation whereby when said locking-lever is released the pressure of said

door against said bolt forces said locking-lever out of engagement with said bolt-block.

6. In a door-closing apparatus, a plate, a bolt-block pivoted upon said plate to swing
5 about an axis parallel to said plate, a manually-movable sliding bolt mounted in said bolt-block to project into the path of a self-closing door, a locking-lever having a toe to engage the heel of said bolt-block pivoted to
10 said plate to move about an axis perpendicular to the same whereby the pressure of said door tends to force said lever out of engagement with said bolt-block.

7. In door-closing apparatus, a plate, a bolt-
15 block mounted on said plate in a bolt-slot formed in the same, a manually-operated bolt mounted in said bolt-block, said bolt-block being formed with a cam-shaped heel on the rear of the same on either side of said bolt,
20 lever-bearings on said plate on either side of said bolt-slot, a symmetrical locking-lever

having a toe to engage the heel of said bolt-block on either side of said bolt and means to mount said lever on either of said lever-bearings.

8. In door-closing apparatus, a plate provided with a bolt-slot, a bolt-block mounted on said plate to swing in said bolt-slot, said bolt-block being provided with a sliding bolt,
25 lever-bearings on said plate symmetrically arranged on either side of said bolt-block, a symmetrical locking-lever, and a lever-stud to readily secure said locking-lever upon
30 either of said lever-bearings, said locking-lever being formed with a toe to impinge against the heel of said bolt-block to hold said block rigid.
35

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