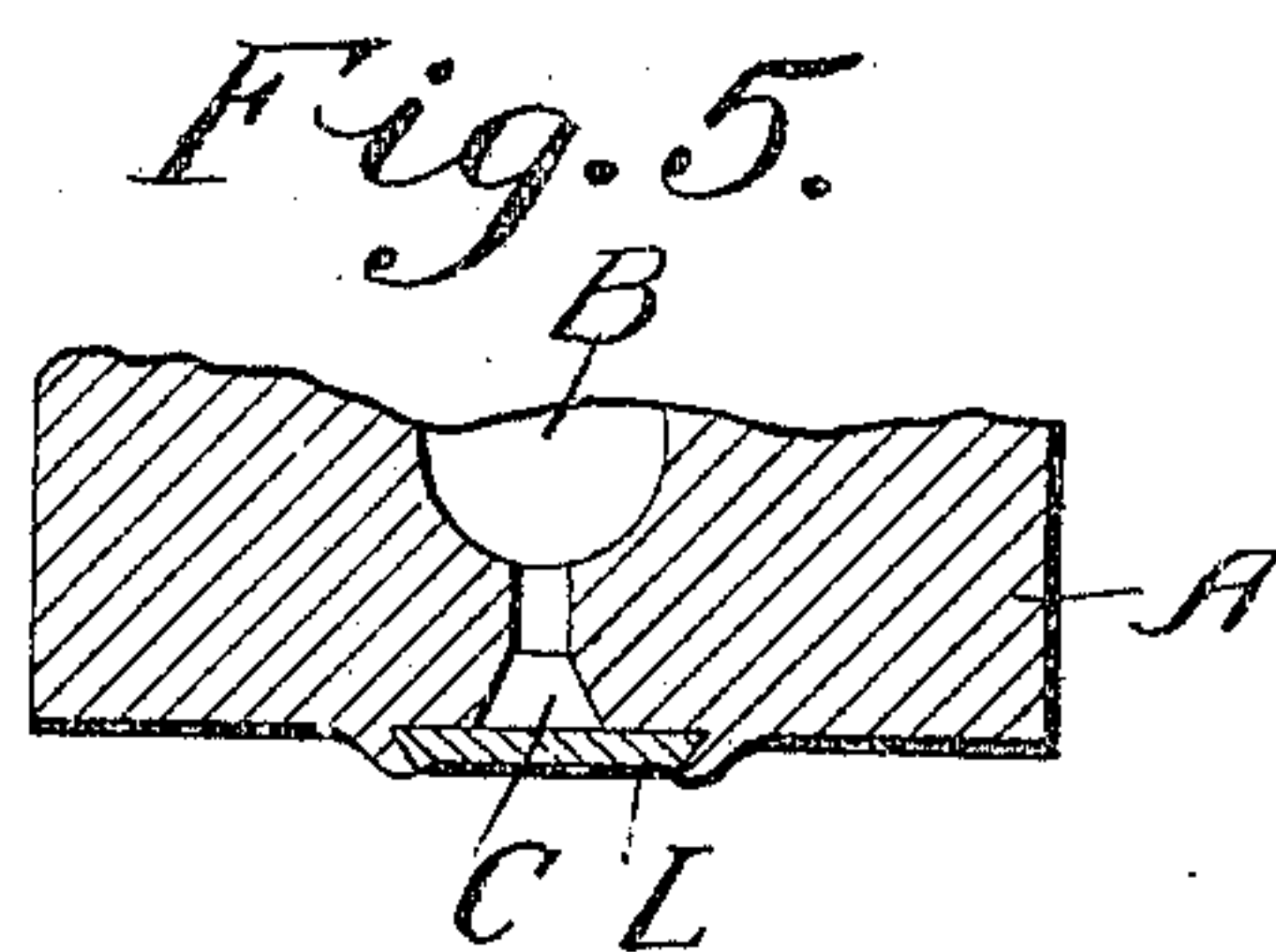
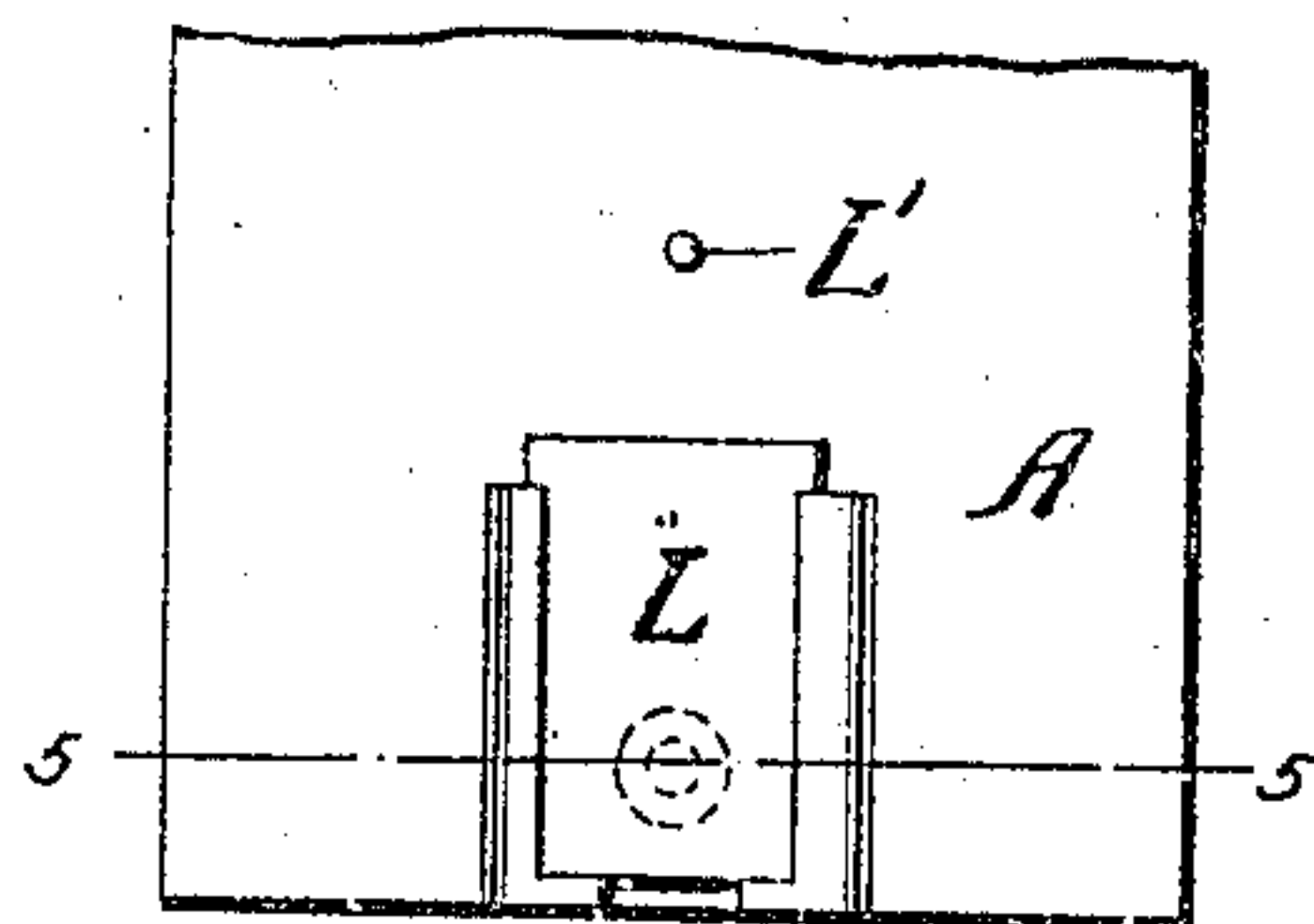
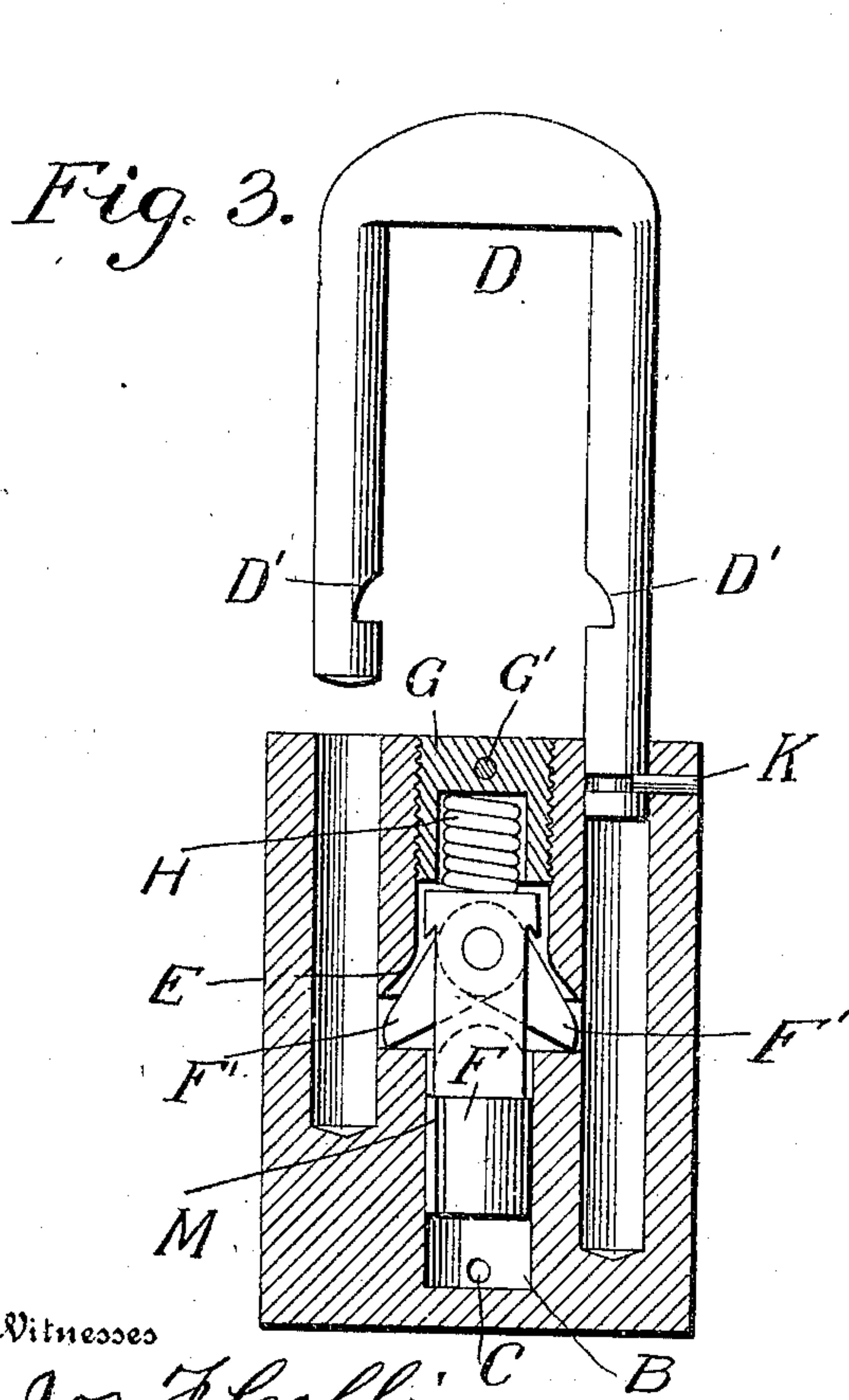
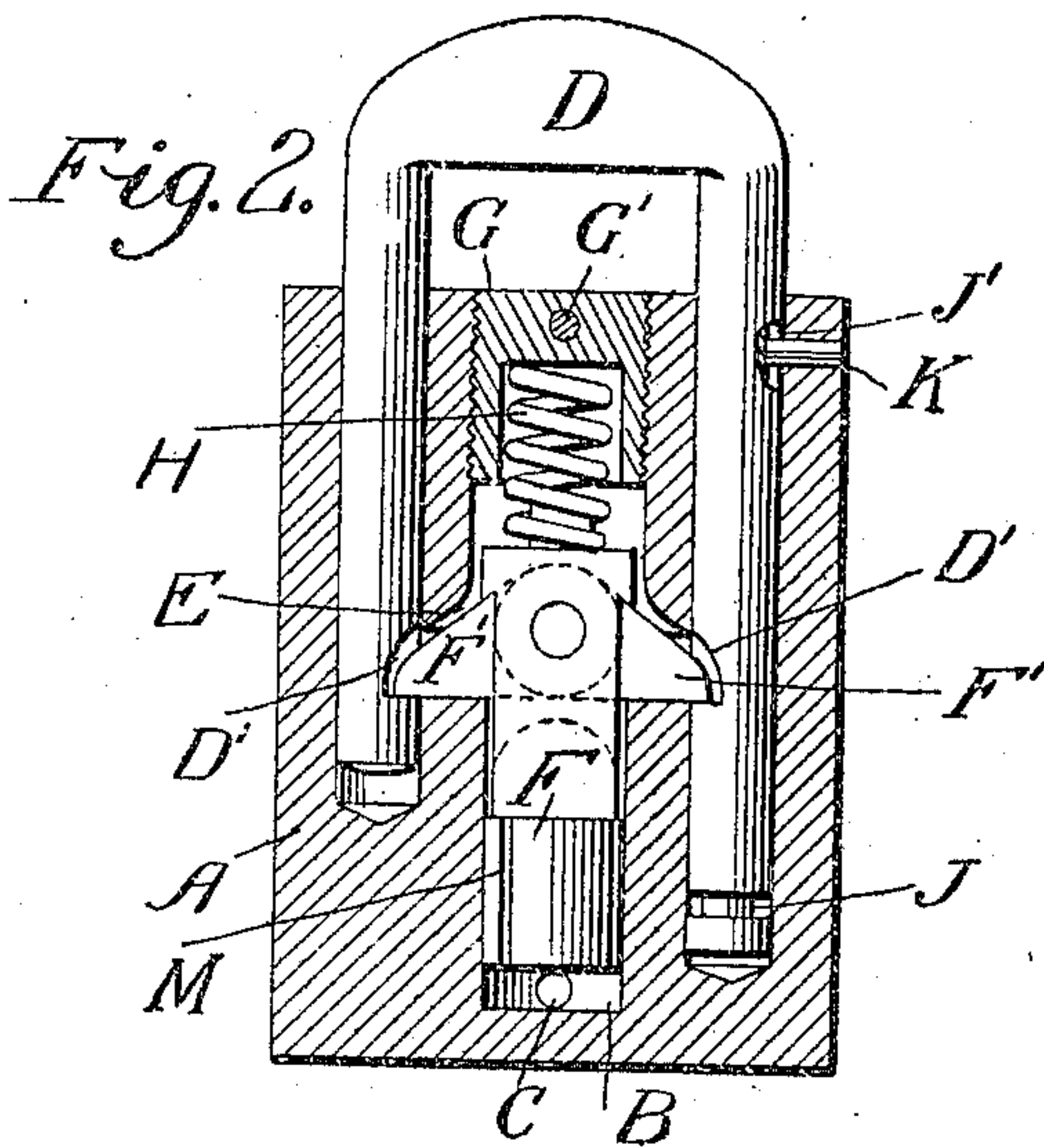
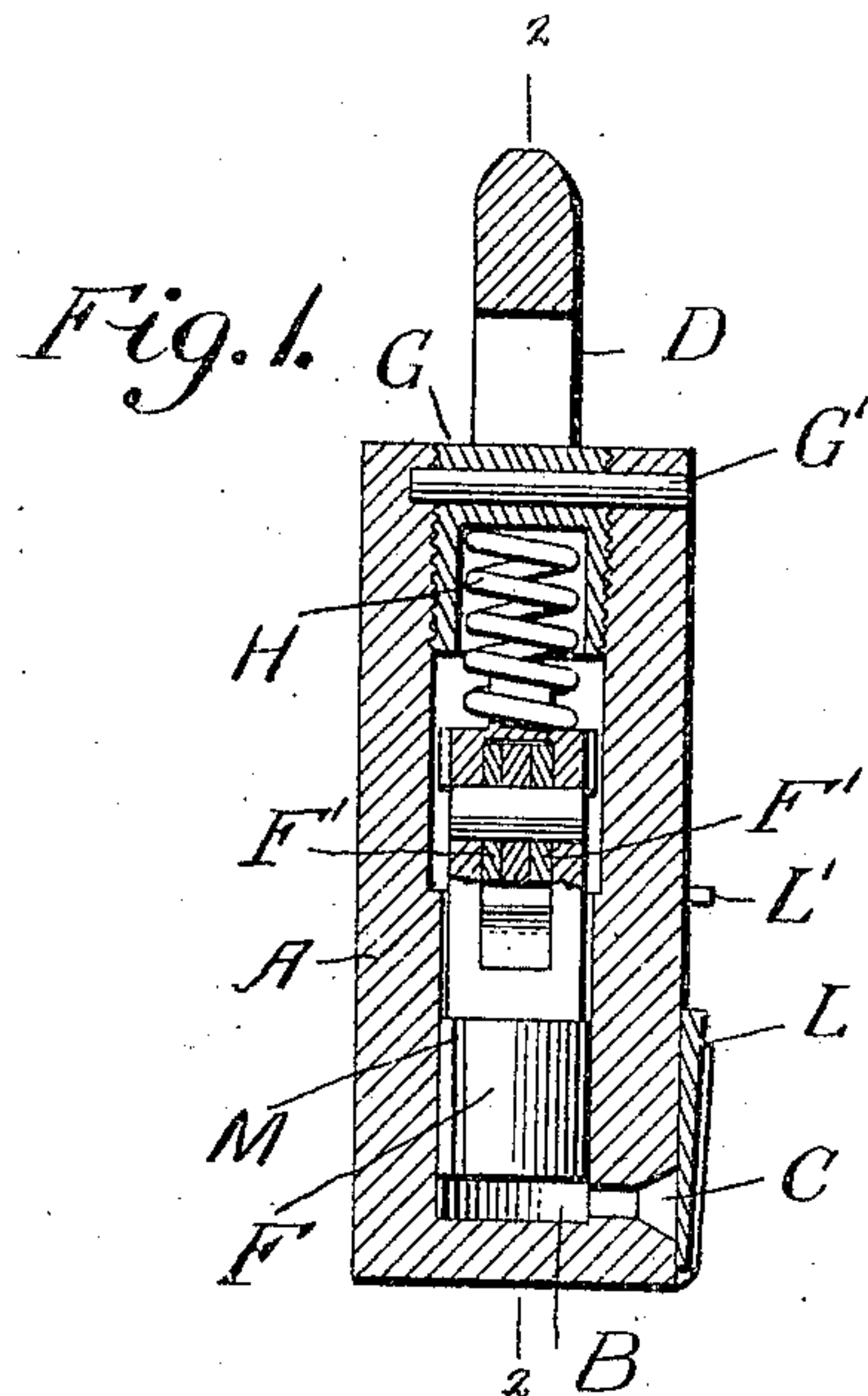


948,853.

Patented Feb. 8, 1910.



Witnesses

Jos. F. Collins.
 R. Craig Greene

Inventor

Frank J. Gilbreay

 \mathfrak{F}_y

Wallace Bruce,
Attorney

UNITED STATES PATENT OFFICE.

FRANK J. GILROY, OF BUFFALO, NEW YORK.

PNEUMATIC PADLOCK.

948,853.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed May 25, 1908. Serial No. 434,716.

To all whom it may concern:

Be it known that I, FRANK J. GILROY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Pneumatic Padlocks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to keyless locks adapted to be unlocked by means of fluid under high pressure, such locks being especially adapted for use upon cars which need not be unlocked except at points where plants capable of supplying a large volume of fluid under the necessary pressure have been provided.

In spite of various locks and seals now in use, thefts from cars in transit or standing in yards cause a serious loss, much of which might be saved if the fastening devices were such that they cannot be successfully attacked while the car is in transit or at stations, without a great probability of attracting attention.

For illustration, I have shown the invention as embodied in a lock of the padlock type, or one provided with a shackle to be passed through a staple-like fastening upon the door which is to be secured or upon the parts surrounding such door.

In the accompanying drawings, Figure 1 is a medial section of the novel lock, the parts being in locking position. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a view similar to Fig. 2 showing the shackle of the lock freed from the devices which prevent its outward movement. Fig. 4 is a detail view showing a slide for closing a certain fluid inlet. Fig. 5 is a section on the line 5—5, Fig. 4.

In these figures, A represents the body or casing of the lock, which is preferably a single block of manganese steel having a central cavity B to serve as a fluid pressure cylinder. The body is also provided with a lateral opening C for admitting fluid to the lower part of the cylinder B, and also with two parallel cylindrical recesses to receive the arms of a lock shackle D. The metal between the lower portions of these recesses and the cylinder is cut away at E for purposes that will appear.

In the cylinder is placed a piston F the upper part of which is provided with opposite pivoted arms F' which when extended

as in Fig. 2 substantially fit the passages leading from the cylinder to the recesses for the shackle and engage notches D' in the latter to prevent its outward movement. 60 The cylinder is closed by a piece G which is made as nearly non-removable as possible, for example, by brazing, or by a transverse rivet-like pin of chilled steel G'. Within the cylinder is a strong spring H which re- 65 sists the upward movement of the piston from the position indicated in Fig. 2. If, however, fluid under high pressure is admitted to the space beneath the piston through the small opening C, the piston is 70 raised to the position shown in Fig. 3, and as it rises carrying the arms F' with it, the latter are swung inward and withdrawn from the notches in the shackle by the impinging of their inclined upper sides upon 75 the correspondingly inclined upper walls of the passages in which they lie, and the lock is free to slide downward with respect to the shackle which is usually so held in a staple that it cannot itself move upward. 80

One arm of the shackle is preferably made longer than the other and provided with a circumferential groove J near its lower end and with a longitudinal groove J' extending upward from the groove J to receive 85 a projection K from the wall of the passage in which the arm lies. If the lock be moved downward, with respect to the shackle, until the projection K lies in the circumferential groove, the shorter arm of the shackle will 90 be above the body of the lock and the lock may be turned upon the longer arm, and the shackle may then be readily removed from the staple or the like in which it is inserted when in use. Preferably, the upper portion 95 of the shackle is made non-cylindrical in cross section to fit a correspondingly formed passage in the staple and prevent the lock from swinging out to horizontal position when in use. 100

The aperture C is preferably conical at its outer end to receive the conical end of a flexible, fluid-carrying pipe, not shown, and is normally covered by a vertical slide L, of downwardly decreasing thickness, 105 working in a way on the side of the casing and having a wedging action therein. The slide is raised when it is desired to admit fluid for opening the lock, and its detachment and loss are prevented by a projection 110 L' limiting its upward movement. When fluid is admitted, a part of it is allowed to

escape constantly through a suitable passage, shown as a groove M in the piston itself, and by this means the raising of the piston by a small supply of fluid, from a hand pump, for example, is prevented. In order that this should be effective, it is necessary that the diameter of the cylinder should be much greater than that of the passage C.

What I claim is:

1. The combination with a lock casing and a shackle extending into the same, of normally engaged shackle locking mechanism, within the casing, adapted to be disengaged by fluid under pressure, means for introducing into the casing fluid under pressure to disengage said mechanism, and a spring within the casing opposing disengaging movement of said mechanism.

2. The combination with a lock casing, of a piston in the casing, means for admitting fluid under pressure to one side of the piston, a spring resisting the moving of the piston by fluid so admitted, a shackle extending into the casing, and a shackle locking device within the casing arranged to be thrown into and out of engagement by the opposite movements, respectively, of the piston.

3. The combination with a lock casing provided with parallel ways for two shackle arms, with an intermediate fluid pressure cylinder, with a fluid admitting passage leading into one end portion of the cylinder, and with openings leading, respectively from the cylinder into said ways, of a shackle arranged to slide in said ways, a piston working in said cylinder, shackle locking arms pivoted to the piston, normally in position to lock the shackle, and arranged to move out of such position when the piston is moved by admitted fluid, and a spring

arranged to resist such movement of the piston.

4. The combination with a lock casing having a passage for admitting fluid under pressure and an external way for a sliding plate for closing said passage, of fluid operated shackle locking devices within the casing, and a plate sliding in said way and adapted to close said passage by wedging action.

5. The combination with a lock casing consisting of a one-piece block bored inward from its end to a suitable distance to form ways for a shackle and a cylinder for a piston and provided with a passage for admitting fluid under pressure to one end of the cylinder and with openings at some distance from that end leading from the cylinder to said ways, respectively, of a piston in said cylinder, a spring resisting the movement of the piston away from said end, a closure fixed in the outer end of the cylinder, shackle locking arms pivoted to the piston, projecting into said openings, respectively, and having their upper sides normally inclined with respect to the upper walls of the openings, and a shackle sliding in said ways and having its longer arm provided with a groove extending longitudinally and then at the free end of the arm circumferentially about the same, the corresponding way being provided with a projection extending into said groove, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK J. GILROY.

Witnesses:

WALLACE GREENE,
R. CRAIG GREENE.