

R. FEOLA.

LOCK.

APPLICATION FILED MAR. 5, 1909.

924,331.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

Fig. 1

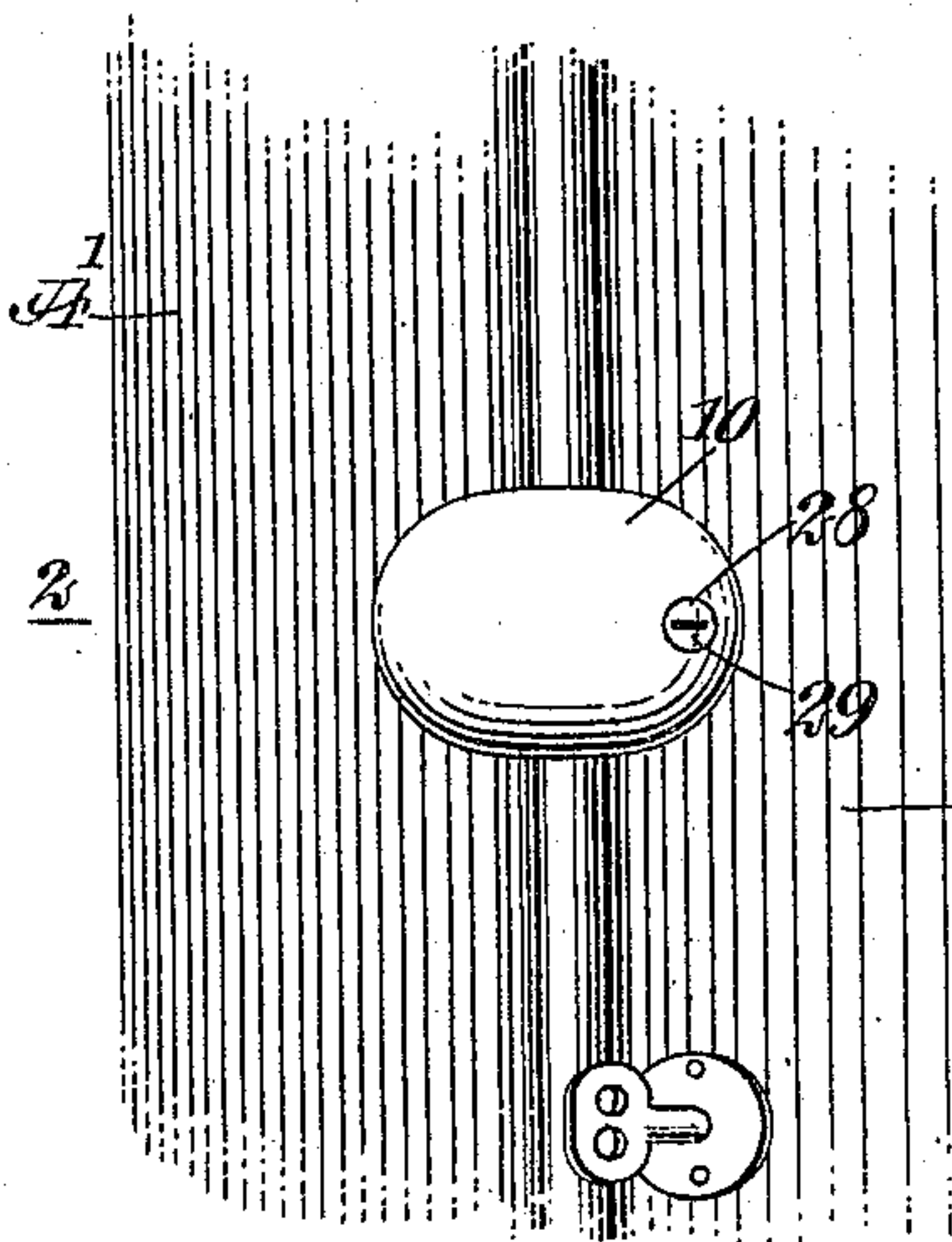


Fig. 2

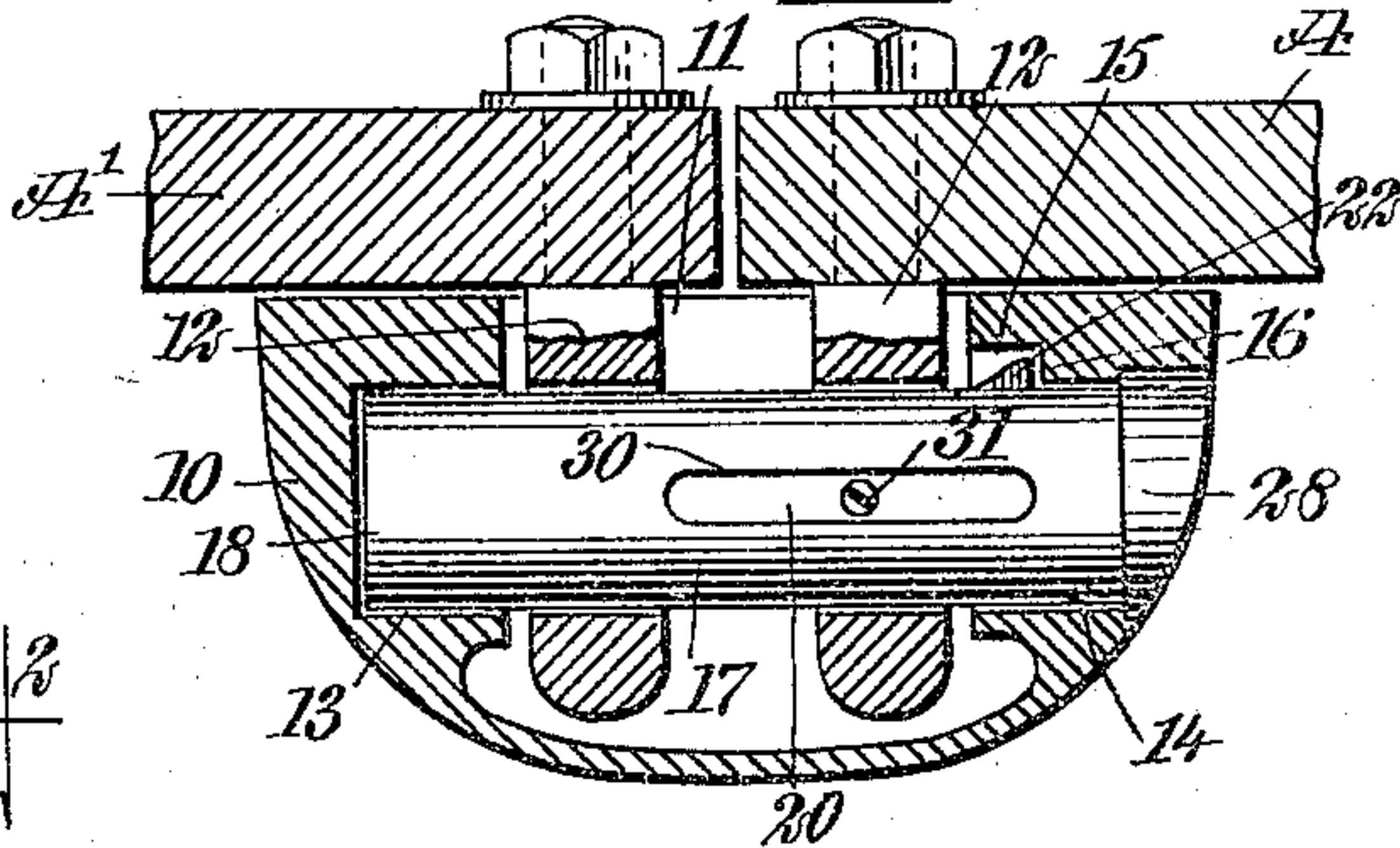


Fig. 4

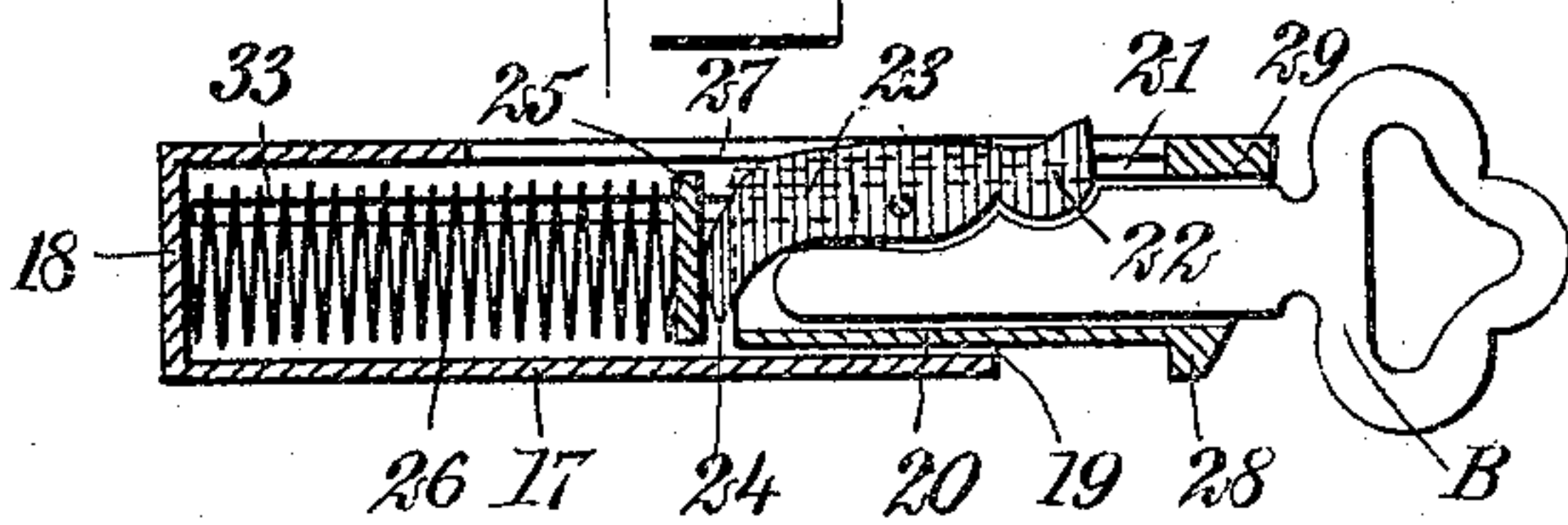


Fig. 3

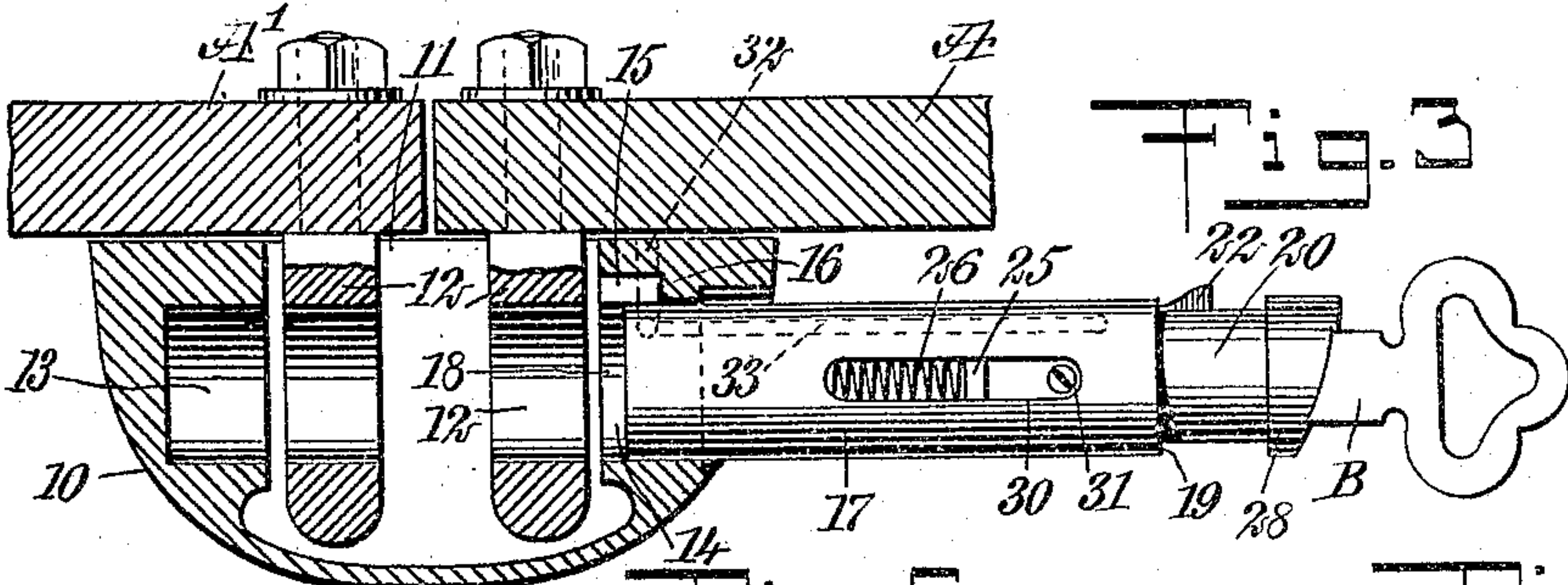


Fig. 5

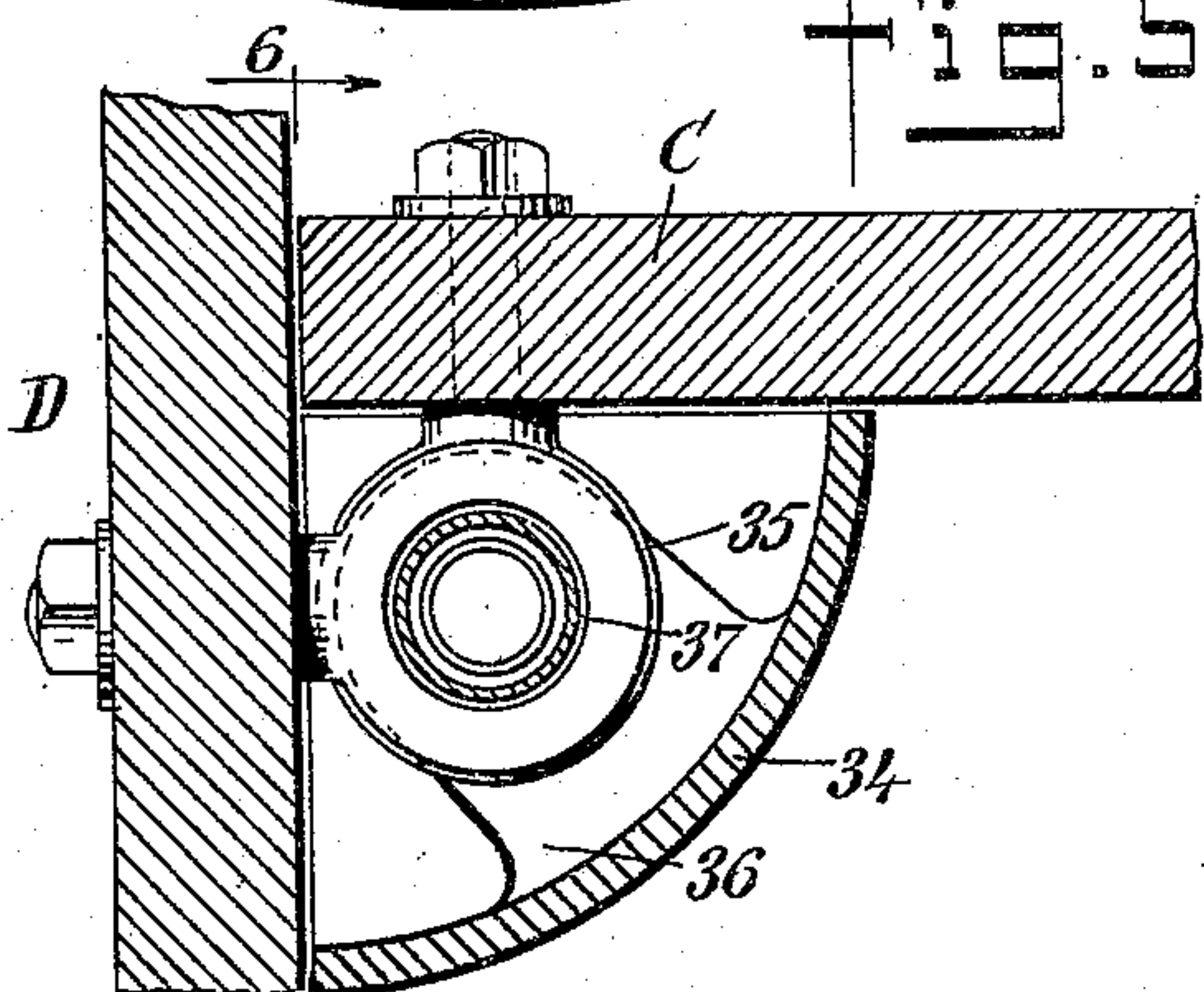
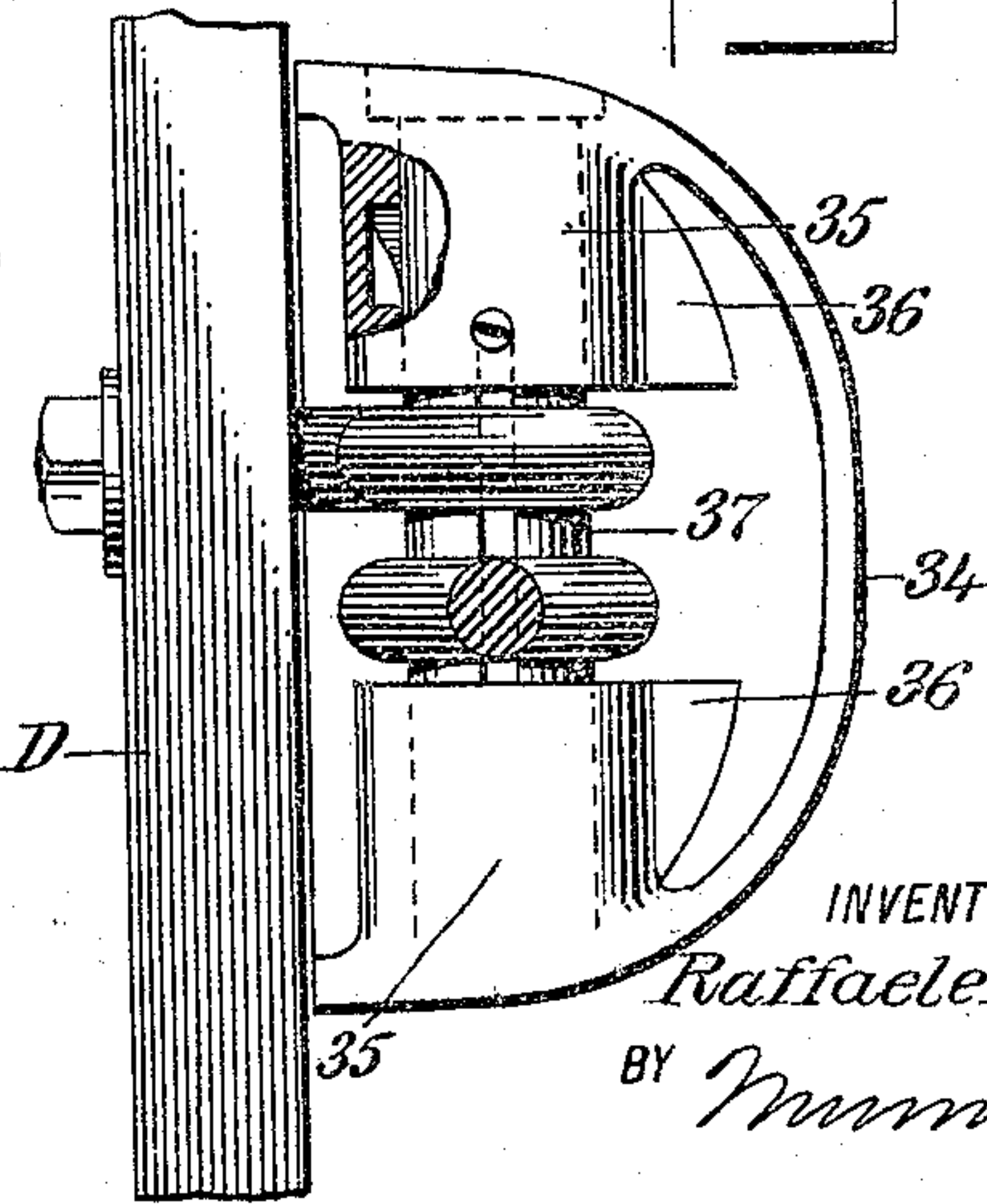


Fig. 6



WITNESSES

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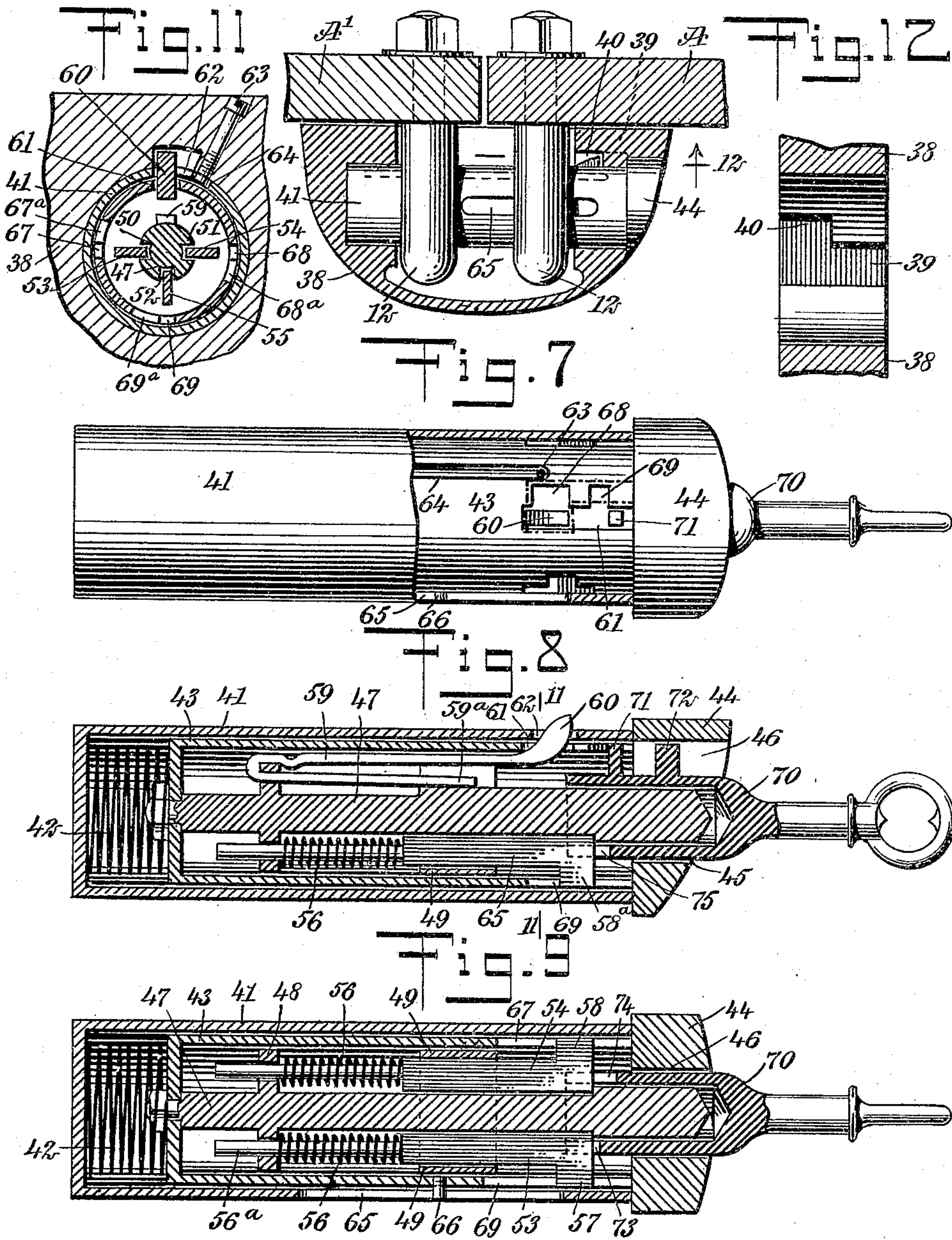
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

RAFFAELE FEOLA, OF NEW YORK, N. Y.

LOCK.

No. 924,331.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed March 5, 1909. Serial No. 481,383.

To all whom it may concern:

Be it known that I, RAFFAELE FEOLA, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Lock, of which the following is a full, clear, and exact description.

This invention relates to locks, and more particularly to a lock serving the purposes of a pad-lock but having the casing so constructed that it fits closely around the staples or eyes which receive the pad-lock bolt, and fits closely against the door or other support carrying the staples, the bolt of the lock lying normally completely within the casing and having key-controllable means for releasing the bolt so that it can be projected from the casing and drawn out of engagement with the staples.

The object of the invention is to provide a simple, inexpensive and durable lock which serves the purposes of a pad-lock, which when in position prevents the staples or eye-bolts from being filed or cut, and renders difficult other unauthorized methods of opening the lock.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a perspective view showing part of a double door having an embodiment of my invention applied thereto; Fig. 2 is a longitudinal section on the line 2—2 of Fig. 1; Fig. 3 is a similar view showing certain of the parts in different positions; Fig. 4 is a longitudinal section of the bolt, showing a key in position to release the bolt; Fig. 5 is a transverse section of part of a door and a door frame showing a lock of modified form; Fig. 6 is a longitudinal section on the line 6—6 of Fig. 5; Fig. 7 is a sectional view somewhat similar to Fig. 2, and showing a different form of my improved lock; Fig. 8 is an enlarged view partly in plan and partly in section showing a slightly different form of lock than that shown in Figs. 1 to 7 inclusive; Fig. 9 is a substantially central vertical section through the lock shown in Fig. 7; Fig. 10

is a substantially horizontal section through the device shown in Fig. 7; Fig. 11 is a fragmentary vertical cross section upon the broken line indicated in Fig 9; and Fig. 12 is a detail showing in fragmentary form an inverted plan or bottom view of a bayonet slot used for accommodating the lock bolt.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood that the casing as well as the other parts of the lock, can be fashioned from any suitable material, and if so desired, the casing of the lock can be ornamented in various ways. Preferably, the outside of the lock casing is rounded and entirely smooth, so that it affords very little grip for the use of a tool, in an attempt to force the lock. The lock can be used with the ordinary staples generally employed, which receive the bolt of a pad-lock, or it can be used with specially formed eye-bolts which permit the lock casing to fit snugly against the door, and which are of just the proper size to receive the bolt. The bolt itself, is extensible and has a sleeve which, when the key is inserted in the end of the bolt, is released and is resiliently projected from the casing so that the bolt itself can be withdrawn from the staples to permit the lock to be opened. The end of the bolt when it is in an operative position within the casing, is preferably flush with the outer surface of the casing.

Referring more particularly to the drawings, I provide a lock casing 10 which is preferably in the form of a semiovoid, which is hollow and has an opening 11 at the flat side to receive the staples or eye-bolts 12. At one end, the casing has therein a recess 13, and at the opposite end an opening 14, registering with the recess 13 and extending to the outside of the casing. At one side, the opening 14 has a cut-away part 15 forming a shoulder 16, for a purpose which will appear more clearly hereinafter.

In Figs. 1, 2 and 3 is shown the form of lock which is preferably employed with double doors A and A', each of which carries one of the eye-bolts 12. When the lock is in position over the eye-bolts, the doors are of course held together and are locked in a closed position, as will be seen more clearly hereinafter.

The lock bolt 17 is substantially cylindrical and has one end 18 closed, the opposite end 19 being open to receive slidably a sleeve or extension 20. The bolt is movably mounted

in the opening 14 and in a closed position has the end 18 seating in the recess 13 as is shown most clearly in Fig. 2. The sleeve 20 has at one side, a slot 21 through which projects the nose 22 of a dog 23 pivoted within the extension. The end 24 of the dog remote from the nose 22, projects from the open, inner end of the sleeve and is engaged by a member 25 forced against the dog by a spring 26 located within the bolt and abutting against the closed end of the same. The spring tends normally to force the dog into a position such that the nose projects operatively from the slot 21 and through a registering slot 27 of the bolt. When the dog is projected in this way it is adapted to engage at the inner side of the shoulder 16 to lock the bolt in position. At the same time the sleeve 20 is in a retracted position within the bolt, the head 28 of the sleeve engaging at the open end 19 of the bolt.

The head 28 has the outer surface curved to conform to the curvature of the lock casing, so that when the bolt is within the casing, the surface of the lock is substantially smooth and unbroken, with the exception of the key-hole 29 formed in the end of the sleeve.

The bolt has a further slot 30 which receives a stud 31 carried by the extension sleeve, so that the movement of the latter with respect to the bolt is limited. A screw stud 32 extends inwardly of the casing, and is received by a slot 33 of the bolt which constitutes a guideway, and limits the projection of the bolt from the lock.

The dog 23 has the inner edge so formed that a special type of key B alone, can be used to displace the dog into an inoperative position. As is shown in Fig. 4, when the key B is introduced into the sleeve a part of the key engages a corresponding part of the dog to displace the same, so that the nose 22 can move into an inoperative position, the key being suitably cut away to permit this movement of the dog. Needless to say, dogs and keys of many different forms can be employed so that each key will open one lock only. The key need not be turned; the thrusting of the key into the key-hole displaces the dog.

In the type of lock shown in Figs. 5 and 6 the casing is wedge-shaped and of sectoral cross section, so that it is adapted to fit snugly in the angle formed by a door C and a part of the frame D. The casing 34 has sockets 35 therein, preferably connected with the casing by means of integral webs 36 and movably receiving the bolt 37. One of the sockets has an opening through the casing so that the bolt can be projected from the same as in the other form of the lock. The bolt 37 is similar in construction and mode of operation to the bolt 17.

In the form of my device shown in Figs.

7 to 12, inclusive, the double doors A, A' and the staples 12 are identical with those already described. The lock casing 38 is almost identical with the lock casing 10. As may be seen from Figs. 7 and 12, the lock casing 38 is provided with a slot 39 having a widened portion 40, being thus, because of its shape, a so-called bayonet slot. Slidably mounted within the lock casing 10 and staples 12 is a lock bolt 41 of tubular form, and mounted in one end of the latter is a spring 42. Disposed within the tubular lock bolt 41 and engaging the spring 42 is a cylindrical barrel 43. A head 44 is provided for the cylindrical bolt 41 and this head is provided with a key-hole 45 which includes a slot 46 extending upwardly, as indicated in Fig. 9. A stem 47 is connected with the bottom of the barrel 43 and integral with this stem is a flange 48.

Encircling the stem 47 is a band 49 serving as a guide. The stem 47 is provided with slots 50, 51, 52, and slidably mounted within these slots are tumblers 53, 54, 55. These tumblers engage spiral springs 56, and for this purpose are provided with pins 56^a integral with the tumblers and extending through the spiral springs. Each pin 56^a also extends through the flange 48 which thus serves as a guide for the same.

The tumblers 53, 54, 55 are provided with outwardly extending portions 57, 58, 58^a serving as dogs or bolts. A leaf spring 59 is provided with a portion 59^a which is secured to the stem 47. The leaf spring 59 is provided with a dog 60 integral with it and serving the purpose of a bolt which extends through a slot 61 in the barrel 43, and another slot 62 in the lock bolt 41.

A screw 63 extends into the lock casing 38 and projects through a slot 64 in the lock bolt 41, so as to prevent rotation of the lock bolt relatively to the lock casing and to serve as a guide for the latter. The barrel 43 is provided with a pin 66 which extends outwardly through a slot 65 in the lock bolt 41, as will be understood from Fig. 8. This prevents the barrel 43 from turning relatively to the lock bolt 41. The barrel 43 is also provided with slots 67, 68, 69 having laterally extending portions 67^a, 68^a, 69^a, the slots and their extending portions together constituting so-called bayonet slots.

At 70 is shown the key which is separate from the lock and is of tubular form. This key is provided with a dog 71 and with a guide 72 which fits into the portion 46 of the key-hole 45, as will be understood from Fig. 9. The key 70 is provided with slots 73, 74, 75 of different depths for the purpose of receiving the tumblers 57, 58, 59, as will be understood from Figs. 9 and 10.

The operation of my device is as follows: Supposing that the parts are in their normal positions, as indicated in Fig. 7—that is, the

doors are locked—the tubular bolt 41 and parts associated therewith now occupy the positions indicated in this figure. In order to unlock the doors, the operator inserts the

5 key 70 in the key-hole 45, the guide 72 entering the portion 46 of the key-hole. The dog 71 now enters the slot 61 occupying a position slightly to the left of the head 44, as will be understood from Fig. 8.

10 The operator by exerting pressure upon the key causes first the bottom of the slot 73 (see Fig. 10) to engage the tumbler 57; next the bottom of the slot 75 (see Fig. 9) to engage the tumbler 55, and lastly the bot-

15 tom of the slot 74 (Fig. 10) to engage the tumbler 54. In doing this the tumblers, which are normally out of alinement with the laterally extending portions 67^a, 68^a, 69^a of the slots 67, 68, 69, are brought into aline-

20 ment with these portions, the result being that the barrel 43 may now be turned by the key. This being done, the bolt 60, which normally lodges in the portion 40 of the slot 39 (see Figs. 11 and 12) is turned a little,

25 and no longer prevents the removal of the bolt 41 from the lock casing 38. Hence, the key 70, being turned slightly, the operator pulls upon it and the lock bolt is withdrawn so that the doors may be opened.

30 Although I show my lock as applied to doors, I do not limit myself thereby for the reason that either form of the lock may be used in almost any relation where a lock is desired for any purpose. Neither do I limit

35 myself to the particular details of construction here set forth, as reasonable variations therein may be made without departing from the spirit of my invention.

40 Having thus described my invention, I claim as new, and desire to secure by Letters Patent:

1. A lock, comprising a casing adapted to receive a staple, and a bolt movably carried by said casing and adapted to engage the

45 staple, said bolt lying within said casing when the lock is closed, and being releasable whereby it can be projected from said casing to release the staple.

2. A lock, comprising a casing adapted to receive a staple, and an extensible bolt carried within said casing and adapted to be projected therefrom, said bolt having key-

50 controllable means for releasing it.

3. A lock, comprising a casing adapted to receive a staple, and a bolt arranged within said casing and adapted to be projected therefrom, said bolt having therewithin

55 key-controllable locking mechanism for securing it in position within the casing.

4. A lock, comprising a casing adapted to receive a staple, and a bolt movably mounted within said casing, said bolt being exten-

60 sible, and having therein a dog adapted to secure said bolt within said casing and in engagement with the staple, said bolt being

formed to receive a key for releasing said dog.

5. A lock, comprising a casing adapted to receive a staple, and a bolt movably arranged within said casing and adapted to be pro-

70 jected therefrom, said bolt having an extensible part adapted to be released whereby said extensible part projects from said casing so that said bolt can be withdrawn from a position within said casing to re-

75 lease the staple.

6. A lock, comprising a casing adapted to receive a staple, a bolt slidably mounted within said casing and adapted to be projected therefrom to release the staple, said

80 bolt having a limited movement, and an extension slidable with respect to said bolt and having a dog adapted to engage said casing whereby said bolt and said extension are secured in locking positions, said dog

85 being releasable by means of a key.

7. A lock, comprising a casing recessed to receive a staple, a bolt having a limited slidable movement within said casing, and adapted to be projected therefrom, said bolt serv-

90 ing to engage the staple to effect the locking action, said bolt carrying a slidable extension having a limited movement, a spring tending normally to project said extension, and a dog within said extension and adapted

95 to engage at the inside of said casing to hold said bolt and said extension in closed positions, said extension when in a closed position having the end flush with the outer surface of said casing and being provided

100 with a key-hole for the entrance of a key adapted to displace said dog.

8. A lock, comprising a casing adapted to receive a staple and presenting a smooth

105 surface, a bolt slidably mounted in said casing and adapted to lock the staple, said bolt having a slot, said casing having a stud engaging said slot, whereby the movement of said bolt is limited, a sleeve slidably carried by said bolt and having a limited move-

110 ment with respect thereto, a spring within said bolt and tending to project said sleeve, said casing having a shoulder, said bolt and said sleeve having registering slots, and a dog in said sleeve and adapted to project

115 through said registering slots to engage at said shoulder to hold said bolt and said sleeve retracted within said casing, said spring serving to hold said dog operative, said sleeve having a key-hole adapted to ad-

120 mit a key for displacing said dog.

9. The combination of a lock casing, a bolt movable in relation thereto, mechanism carried by said bolt for securing said bolt within said lock casing, a plurality of tum-

125 blers mounted within said bolt, and mechanism controllable partly by said tumblers and partly by a key in the hands of the operator for securing said bolt within said casing.

130

10. The combination of a lock bolt of
tubular form, a barrel revolubly mounted
therein, a stem for turning said barrel, a
spring mounted bolt carried by said stem
5 and extending outwardly from said barrel
and through said bolt for the purpose of
normally holding said bolt in position rela-
tively to said lock casing, a plurality of
tumblers connected with said stem, springs
10 for holding said tumblers in predetermined

normal positions, and means controllable by
a key for actuating said tumblers in order to
release said stem and said barrel.

In testimony whereof I have signed my
name to this specification, in the presence of 15
two subscribing witnesses.

RAFFAELE FEOLA.

Witnesses:

WALTON HARRISON,
EVERARD B. MARSHALL.