

No. 768,528.

PATENTED AUG. 23, 1904.

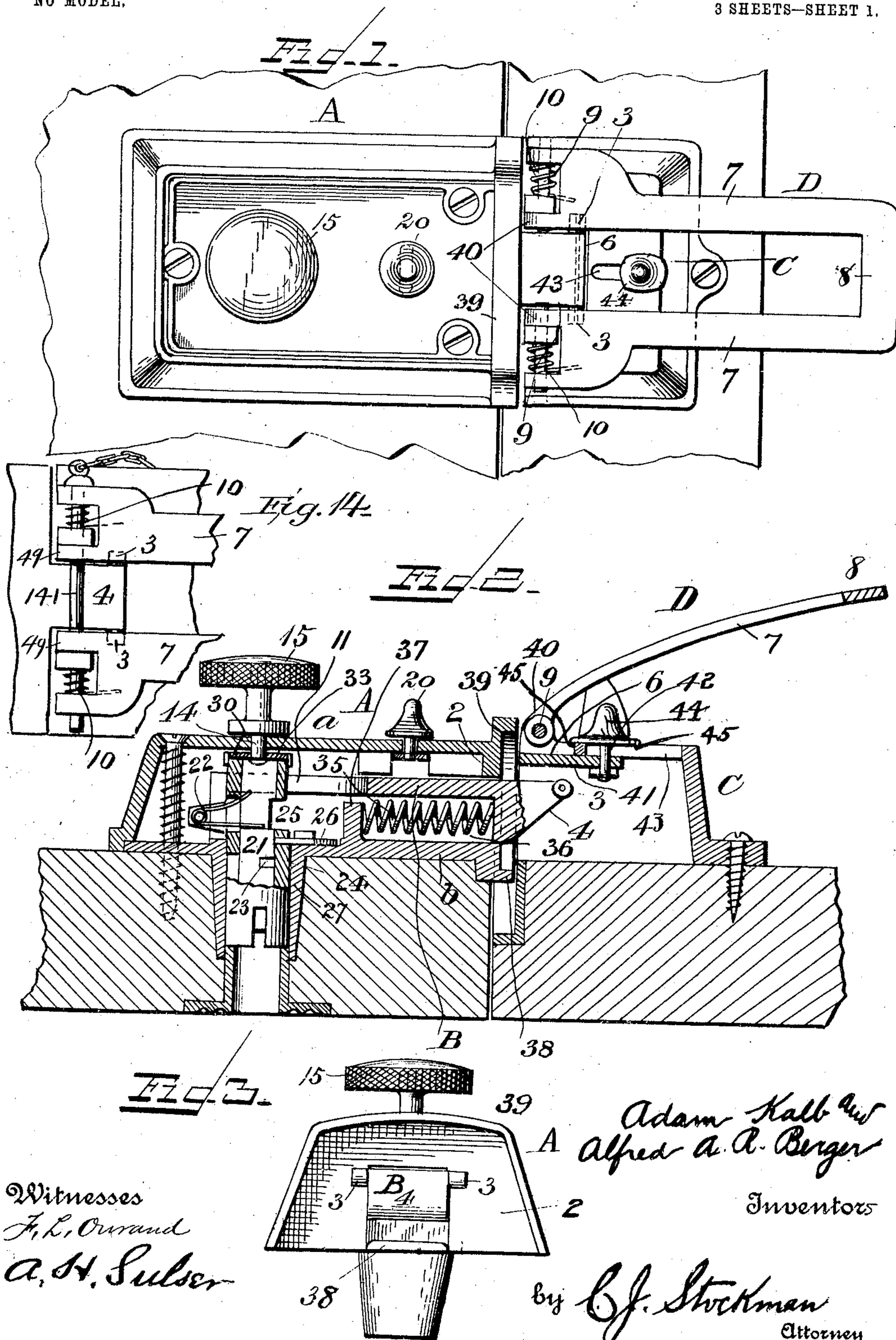
A. KALB & A. A. R. BERGER.

DOOR CHECK AND LOCK.

APPLICATION FILED JULY 13, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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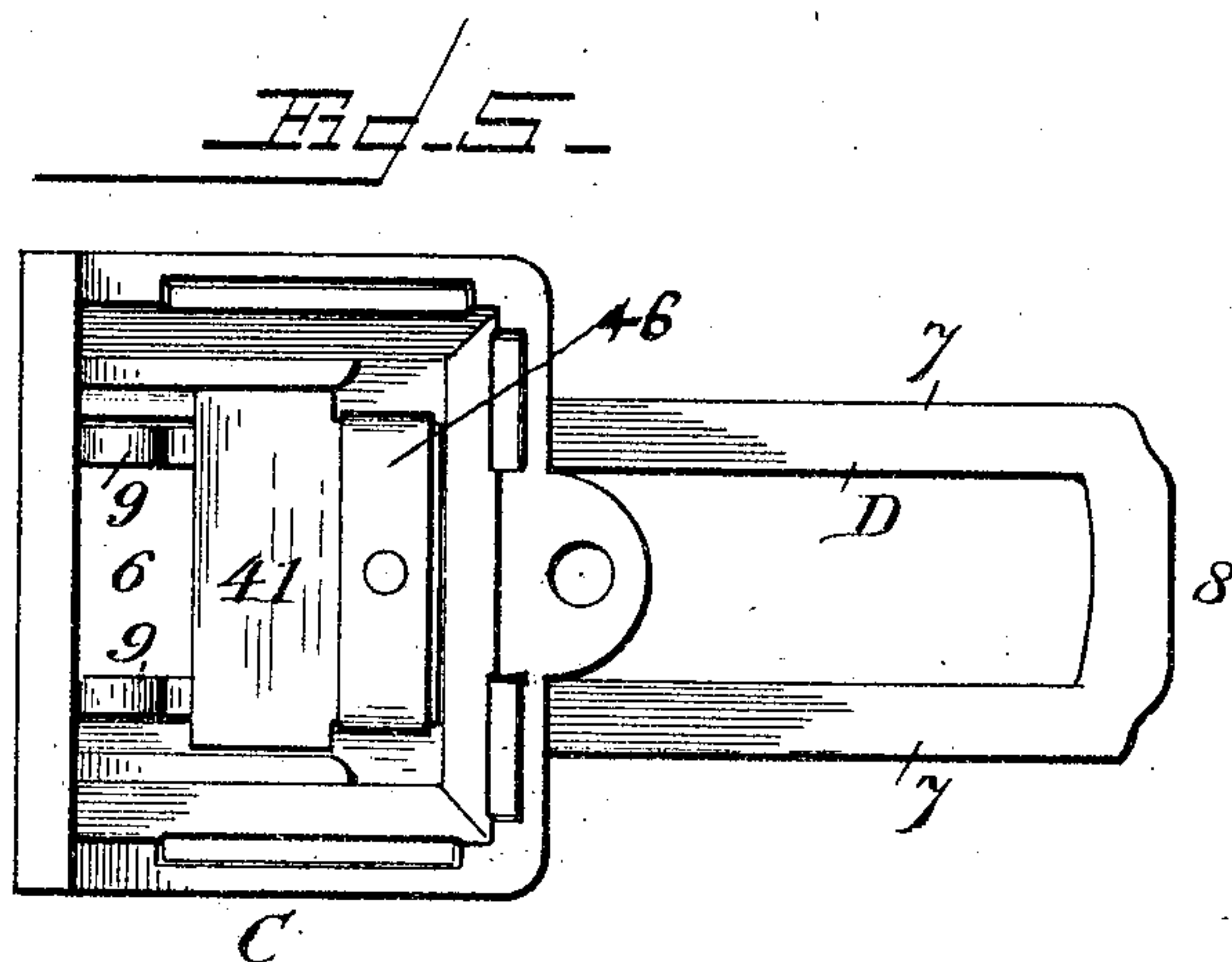
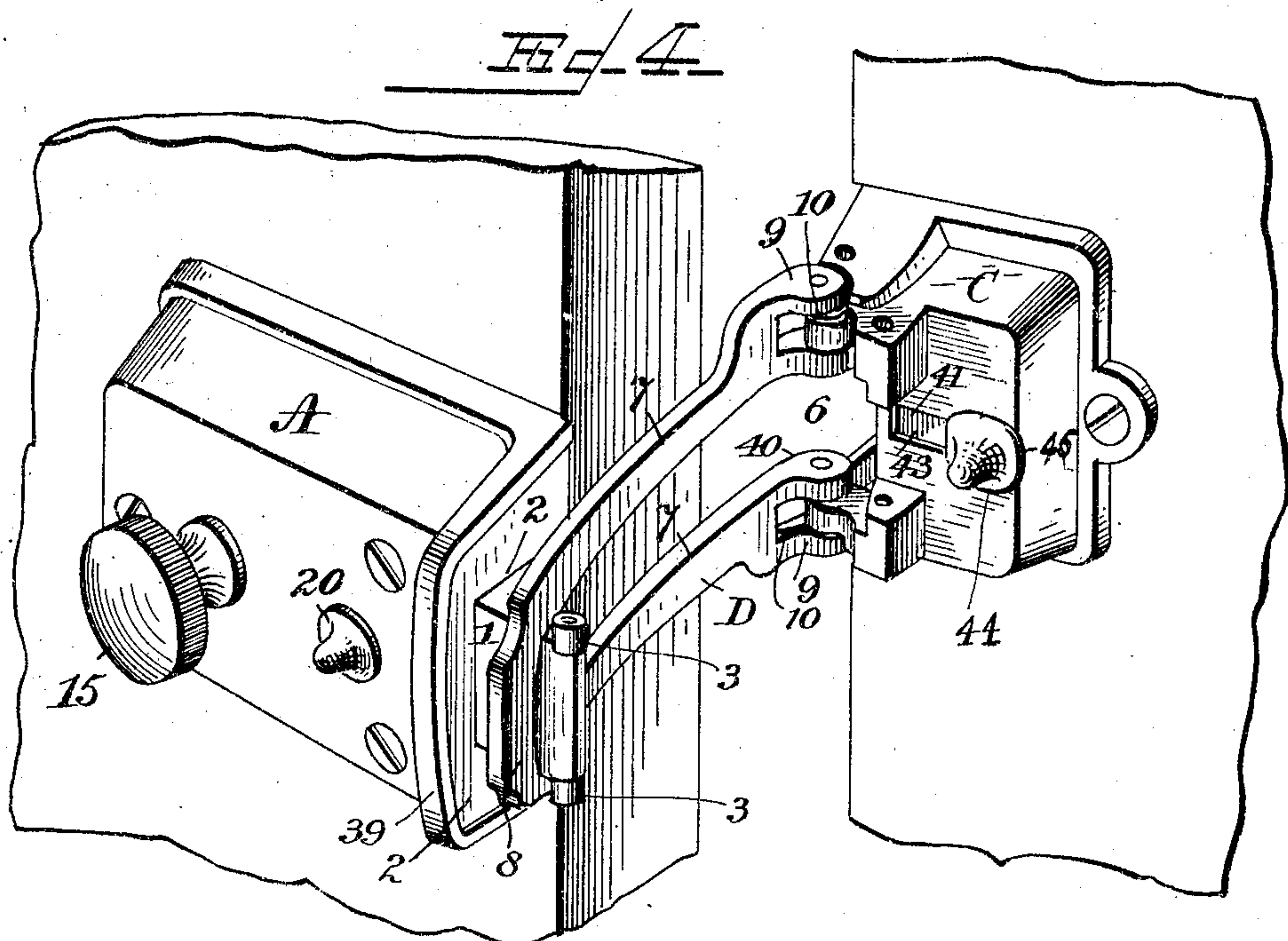
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3

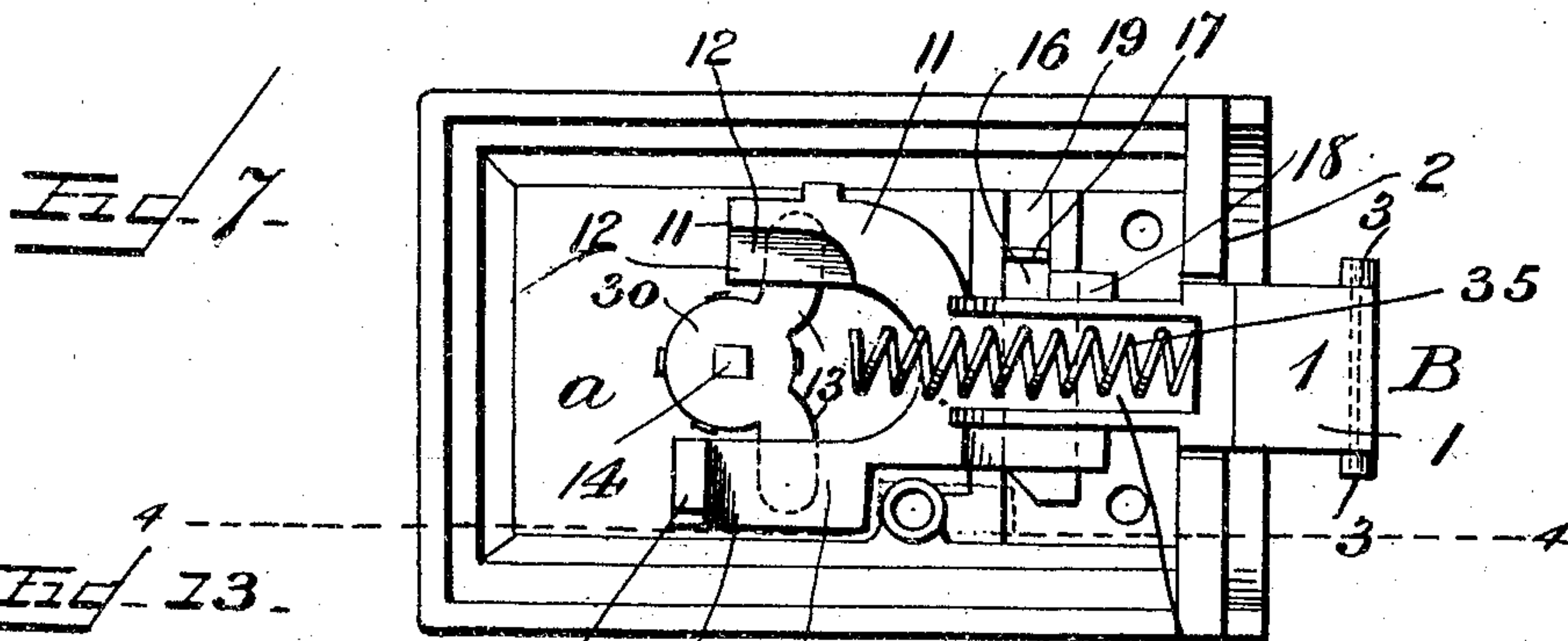
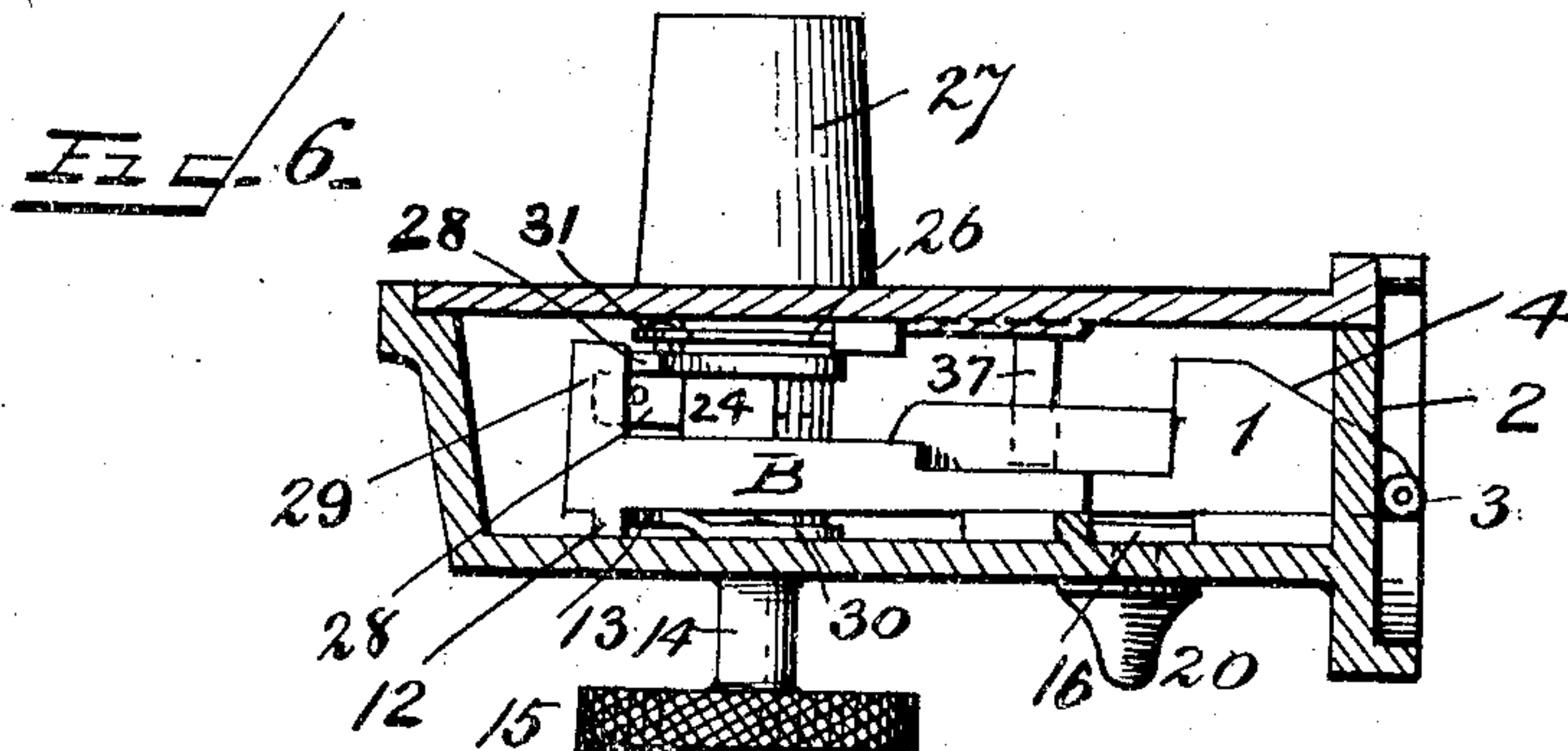
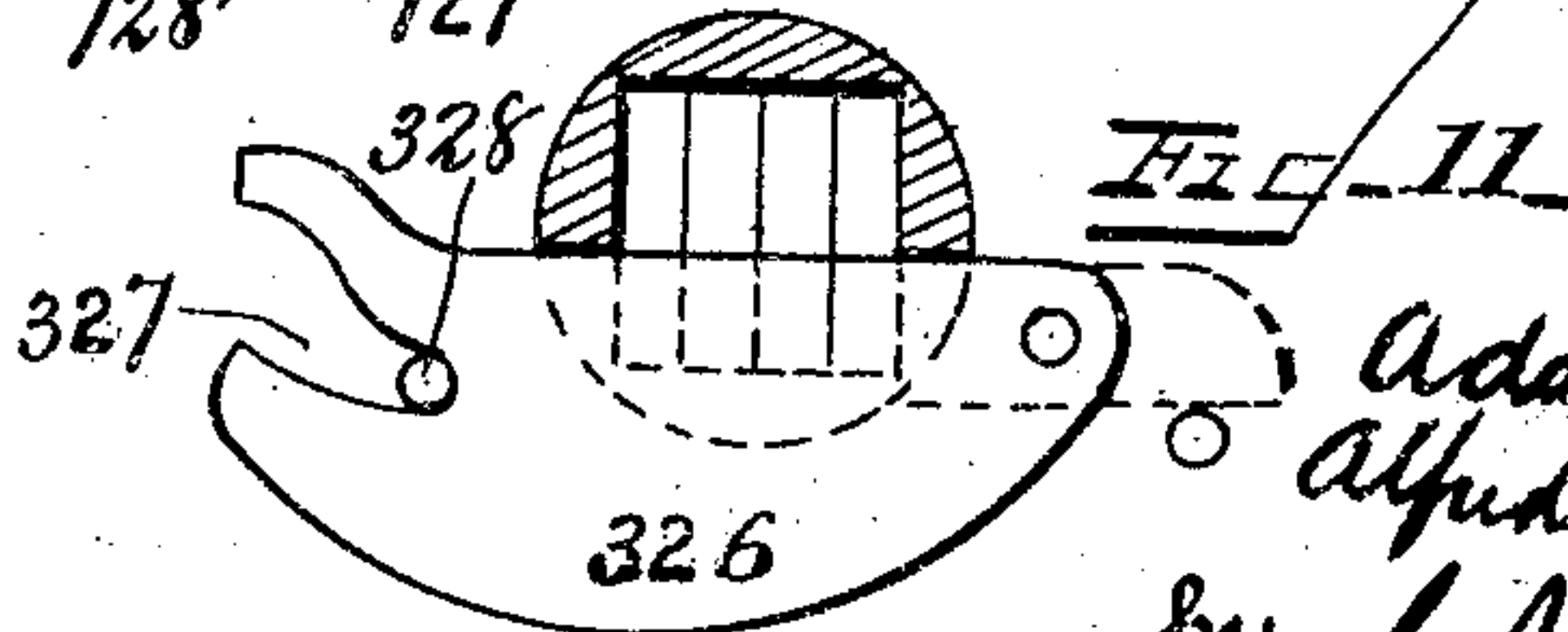
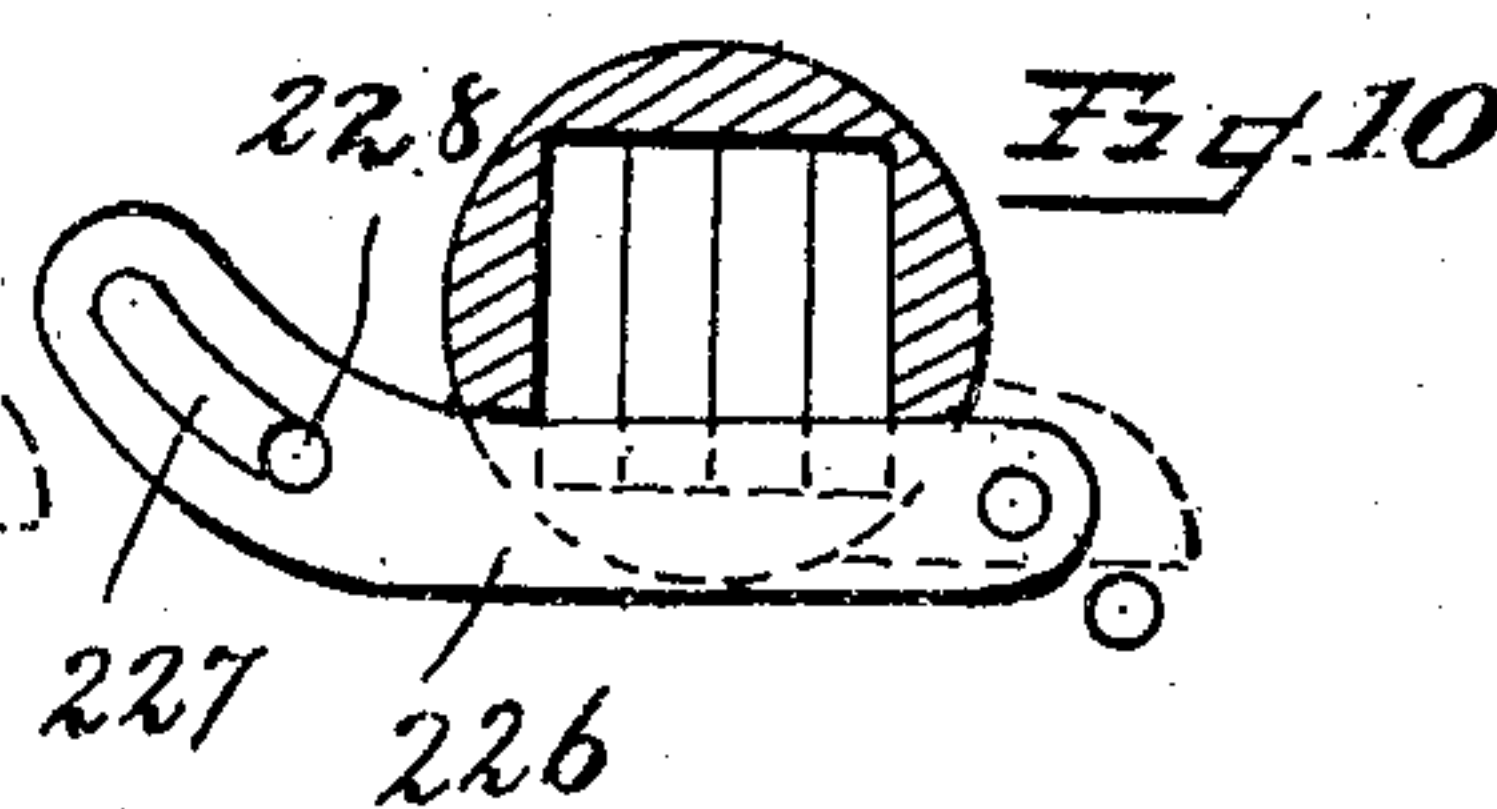
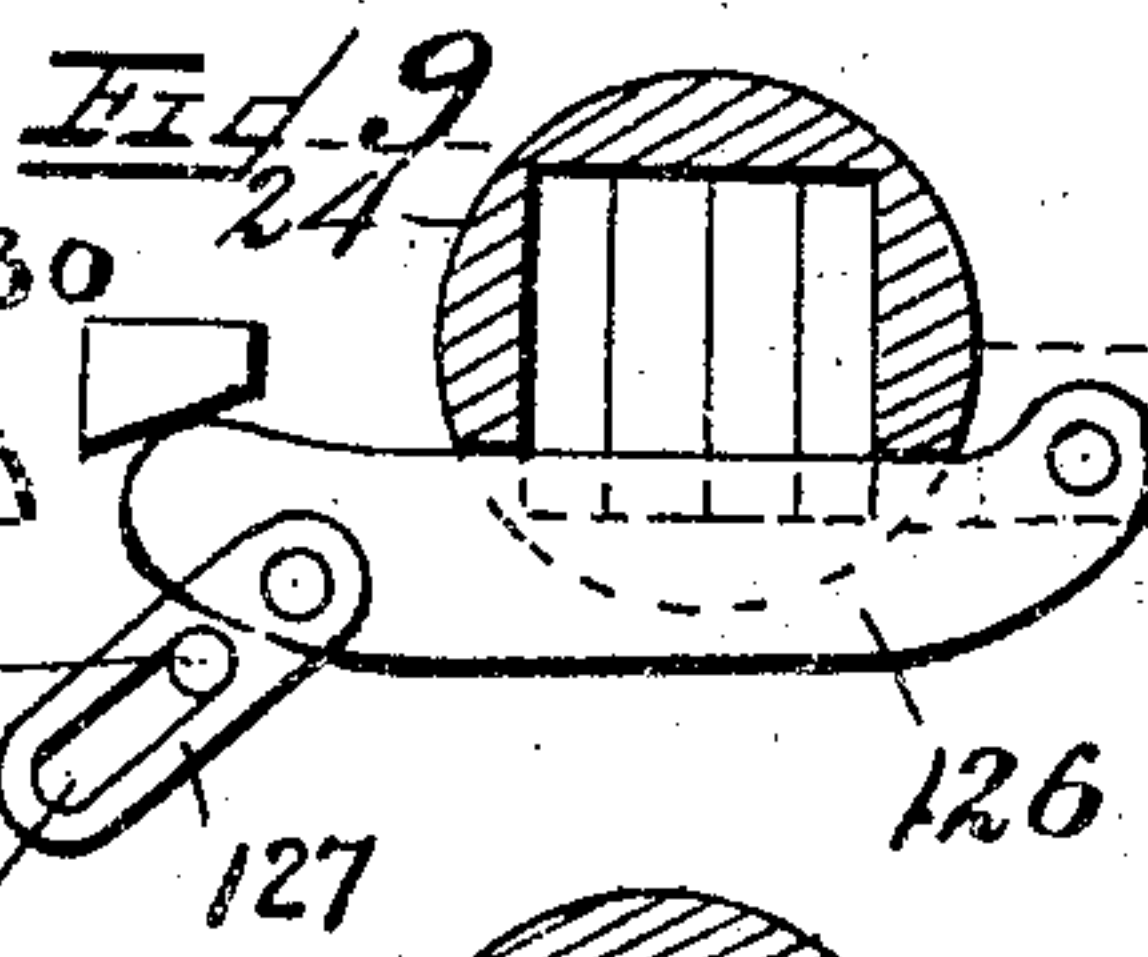
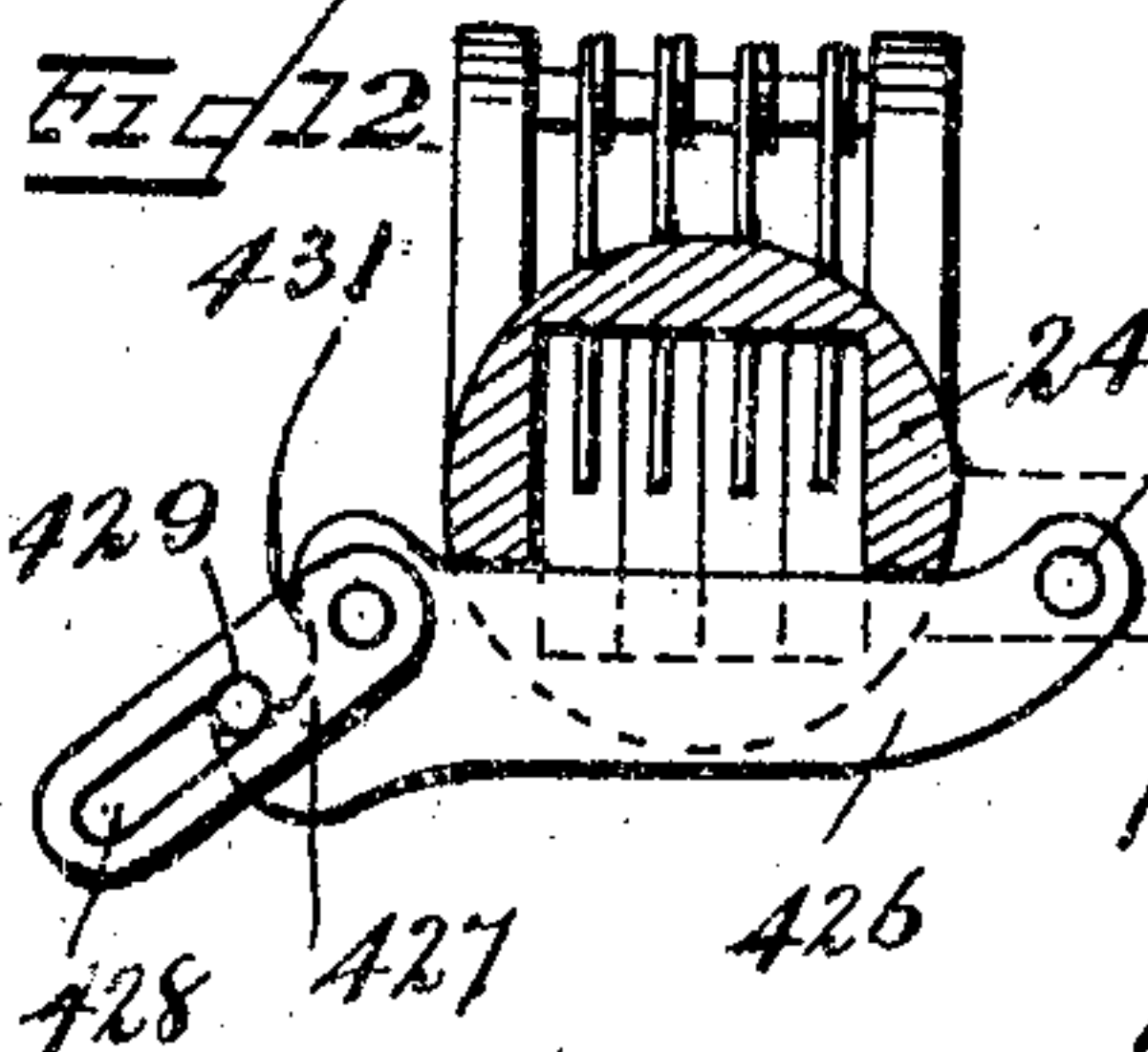
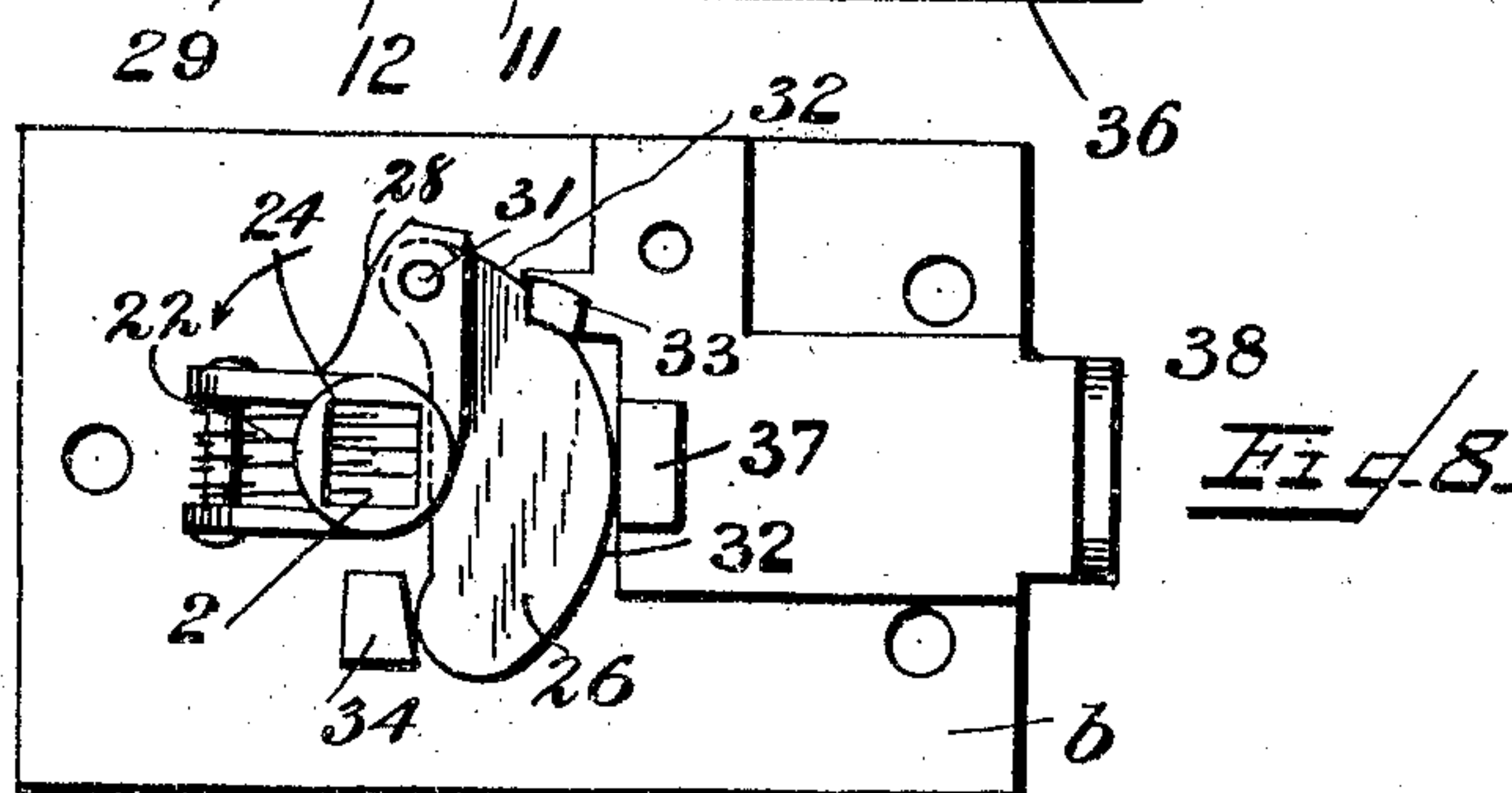
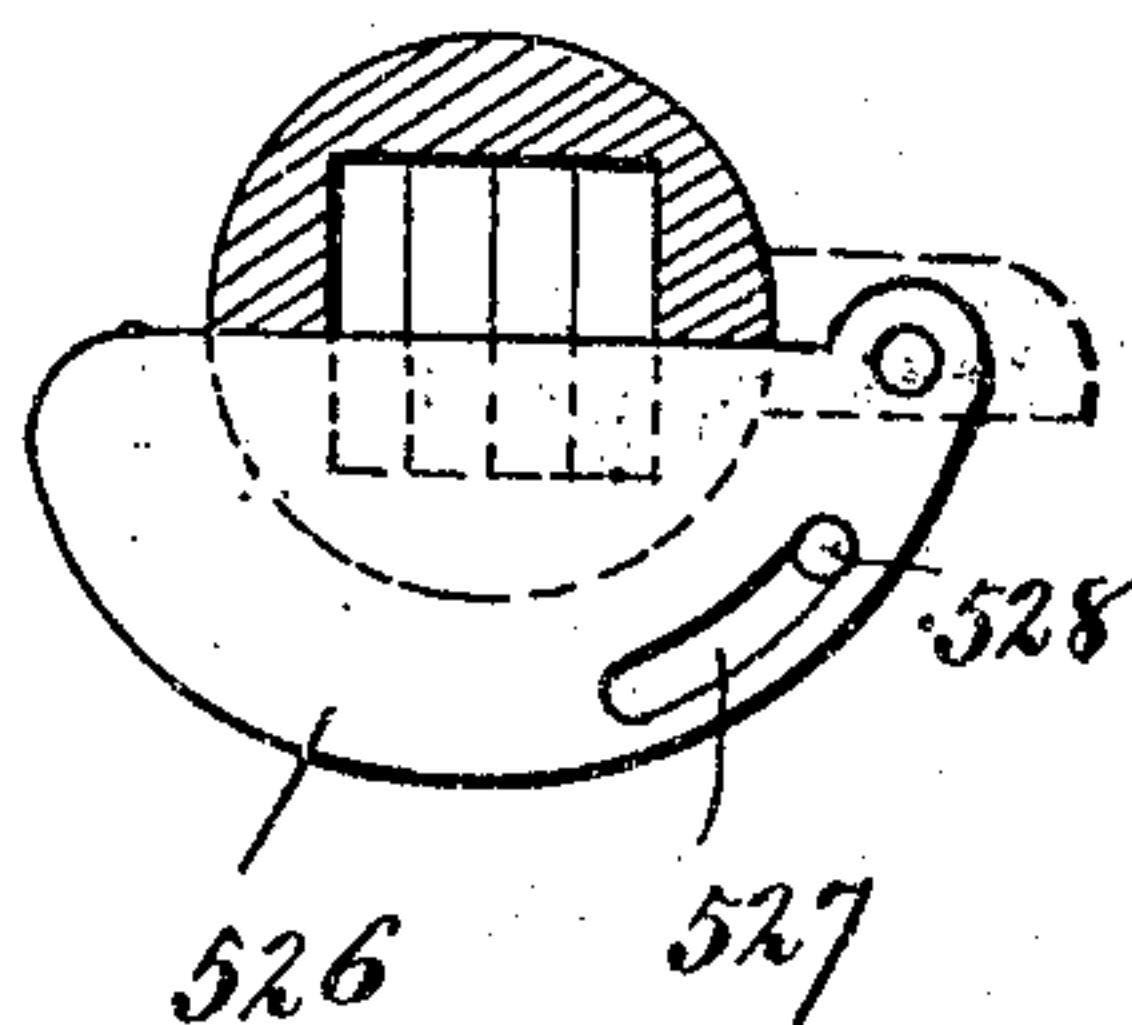


Fig. 13.



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UNITED STATES PATENT OFFICE.

ADAM KALB AND ALFRED A. R. BERGER, OF NEW YORK, N. Y.

DOOR CHECK AND LOCK.

SPECIFICATION forming part of Letters Patent No. 768,528, dated August 23, 1904.

Application filed July 13, 1903. Serial No. 165,340. (No model.)

To all whom it may concern:

Be it known that we, ADAM KALB and ALFRED A. R. BERGER, citizens of the United States, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented new and useful Improvements in Door Checks and Locks, of which the following is a specification.

This invention relates to certain improvements in door-checks; and it consists in peculiarities in the construction of parts and in novel combinations of elements substantially as hereinafter described, and particularly pointed out in the subjoined claims.

Among the important objects of the invention the following may be specially noted: First, to provide as one member of the device a lock having means for operating it from the inside and outside of the door, which lock is specially constructed to be of most simple, durable, and inexpensive construction and small size and at the same time to adapt its bolt to be projected the considerable extent desirable for use as a part of this door-check; second, to provide as one member of the device a lock comprising a tumbler mechanism having a gate free to turn therewith and provided with means for forcing said gate into and out of the tumblers at predetermined places in the movement of the parts and wherein said elements may be most conveniently tested and fitted for proper joint operation; third, to provide the keeper which carries the checking-arm with most simple and practical means for preventing engagement of the bolt end with said checking-arm.

These and other objects of the invention are well accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a door-check embodying our improvements, showing the position of the parts when the door is closed and the stop-plate is adjusted to permit engagement of the lock-bolt with the checking-arm. Fig. 2 is a central longitudinal section through the lock and keeper, with the stop-plate of the keeper adjusted across the path

of the lock-bolt. Fig. 3 is an end view of the lock. Fig. 4 is a perspective view showing the position of the parts when the door is checked in partly-open position. Fig. 5 is a plan view of the under side of the keeper portion of the lock, showing the slide or stop-plate adjusted out of the path of the lock-bolt to permit engagement of the bolt and checking-arm. Fig. 6 is a sectional view on the line 4 4 of Fig. 7. Fig. 7 is a plan view of the lock, with the rear plate thereof and the tumbler mechanism carried by said plate removed to disclose the interior mechanism mounted on the front plate. Fig. 8 is a plan view of the interior surface of the rear plate and the tumbler mechanism thereon. Figs. 9, 10, 11, 12, and 13 are details of different constructions of tumbler mechanisms which are more or less practical for the purpose of the present invention. Fig. 14 is a detail plan view showing a pin employed in lieu of the slide or stop-plate to prevent operation of the checking-arm by the lock-bolt.

The same reference characters designate the same parts in the several figures.

A designates the casing of the lock considered as a whole, and B designates the lock-bolt, the head 1 of which bolt is adapted to be projected through a suitable opening in the nosing 2 of said casing. Said head has lateral wings 3 and a beveled under surface 4.

C designates the lock-keeper, which comprises a hollow casing having an opening presented to the head of said bolt and also having an opening 6 in its top surface, through which latter opening the lock-bolt has access to the checking-arm D when said bolt is projected and the door being opened. This checking-arm is approximately U-shaped, and its pivoted end 9 overlies said opening 6. During the opening of the door when the bolt B is projected the lateral wings 3 of the latter engage the rear surfaces of the limbs 7 of said checking-arm, and said arm is thereby automatically swung outward in a horizontal arc until its closed end engages said bolt-head, thus checking the door in partially-open position and preventing intrusion. The head of said bolt travels in the open space between

the limbs of said arm. While the door is being closed from its said partially-open position, the checking-arm is automatically returned to its former position, ready to be again operated automatically by the wings 3 of said bolt by a suitable returning means, such as the springs 10. To permit the door to be fully opened, the lock-bolt B is retracted from the path occupied by said checking-arm.

It is a purpose of the present invention to permit this retraction to be accomplished from within the room or by a person provided with a proper key from without said room. To this end a night-latch is employed.

It will be observed that the extent of opening of the door prior to the checking thereof is largely determined by the extent of projection of the lock-bolt, and in order that said bolt may have a considerable range of longitudinal movement, so as to thereby permit the door to be checked at an open position, which permits the person within the room satisfactorily to see and talk with the one outside said room without so increasing the size of the lock as to make it expensive or cumbersome, we have produced a novel construction of lock with especial reference to securing a maximum range of longitudinal movement of the bolt in a most simple, inexpensive, and compact construction, whereby the lock is made most practical for the purpose of the present invention.

Said bolt B has a bifurcated rear end or tail 11, the limbs of which are provided with lugs 12, which extend toward the outer plate or front side *a* of the lock-casing and are engaged by wings 13, carried by a post 14, which is pivoted to said casing-plate or side *a* in a plane between the limbs of said tail 11 and is provided outside the casing with a head 15, by which it may be turned in either direction to retract the bolt from the inside of the room. To prevent retraction of the bolt, there may be employed a well-known means for said purpose consisting of a guided slide 16, having a flange 17, which in one position of the movement of said slide is in the path of rearward or inward movement of a lug 18, projecting from the side of said bolt, said slide being mounted upon a bowed spring 19, which keeps it in adjusted position, and being provided outside the casing with a head 20, by which it is adjusted. To retract the bolt from the outside of the door, there is employed a suitable tumbler mechanism, such as that shown in the accompanying drawings, in which four sliding tumblers 21, having a well-known arrangement of springs 22 for elevating them and the usual gates 23, are employed. These tumblers are mounted in a cylinder 24, having an opening 25, through which the fence 26 hereinafter described has access to said gates, and said cylinder is mounted to turn within a sleeve 27, formed on the rear casing-plate *b*,

and has an ear 28, which engages a lug 29 from the end of the tailpiece 11 of the bolt B, whereby the bolt is retracted when the cylinder is turned in a proper direction.

It will be observed that the cylinder 24 is mounted between the limbs of the bolt-tail 11, and in practice its inner end engages a plate 30, fixed to the post 14, from which plate project the wings 13, hereinabove referred to. The cylinder turns upon said plate when operated by a key and does not turn with said plate when the latter is turned by the head 15. The fence 26 prevents axial movement of the cylinder 24, and hence prevents retraction of the bolt from the outside of the door, except when the gates 23 are registered with each other, and the extent of retractive movement of the bolt depends upon the extent to which the cylinder 24 may be turned. Therefore in order not to unduly limit the turning movement of the cylinder the fence is so arranged as to be free to turn therewith throughout a considerable extent or to not confine the turning movement of the cylinder to less than that wherein it is capable of acting upon the bolt, and means are employed to force said fence into the gates when the tumblers are turned to retract the bolt and to force said fence from its engagement with said gates in the return movement of the tumblers. Several constructions more or less satisfactorily accomplishing this purpose are shown in the drawings. In one form of the device (well shown in Fig. 8) the fence 26 is pivoted at one end 31 upon the ear 28 of the tumbler-cylinder 24 and its other end is entirely free. One edge 32 is cam-shaped and engages a lug 33 projecting from the back plate *b* of the latch-casing, whereby when a proper key is inserted and the tumblers are depressed thereby until they register with each other in the line of the fence the tumbler mechanism may be turned axially in the direction of the arrow, Fig. 8, and in the initial portion of said turning movement the fence will be thrust into the gates by the action of said lug on its cam-shaped edge. As said fence is free to partake of the axial movement of the tumbler's cylinder throughout a considerable extent of movement of the latter, it is obvious that the longitudinal movement of the bolt may be correspondingly prolonged without restraint from said fence. In the return movement of the bolt and tumbler's cylinder the free end of the fence 26 engages a lug 34 on the casing-plate *b*, which stops the movement of said fence with the cylinder before the latter has completed its movement, and hence during the final movement of said cylinder the fence is caused automatically to be withdrawn from the gates, which latter are then raised by their springs 22.

Said return movement of the bolt-and-tumbler mechanism is caused automatically by a

coil-spring 35, which is located in a plane parallel with the longitudinal axis of the bolt and preferably is set in a recess 36, extending longitudinally of the shank of said bolt. This spring bears at one end against a lug 37, projecting from the back plate 7 of the latch-casing, and when it is set in the recess 36 the abutment for its other end may be provided by the front wall of said recess.

It will be seen that the construction of lock described permits the bolt to have an extensive range of longitudinal movement, thus especially adapting it for use as one member of a door-check of the kind herein set forth and obviates the necessity of employing a heavy, cumbersome, or expensive construction of lock to afford the required range of movement to the bolt. It will be further apparent that inasmuch as the lugs which force the fence into and out of the gates of the tumbler mechanism are located on the back plate 7 of the casing the operation of fitting the parts to each other and of testing them may be most readily accomplished as said parts are in full view of the operator during said fitting and testing operations.

To permit the door to be fully opened, it is necessary that the bolt be withdrawn from the keeper while the door is closed. In order to prevent access to the head of the bolt of a tool inserted from the outside for the purpose of forcing the bolt back from the keeper, the back plate 7 is formed or provided with a projection 38, which extends beneath the plane of the bolt-head into the space between the door and the door-casing. The keeper of the lock also has a projection to assist said projection 38 to prevent the insertion to the head of the bolt of a flat instrument from the outer side of the door. The nosing 2 of the lock-casing has an extension 39, which projects forward therefrom and makes a most desirable finish to the front of the lock.

In closing the door from its fully-open position the rear surfaces of the wings 3 of the bolt engage rounded or beveled surfaces 40 on the keeper, thus thrusting the bolt automatically back into the lock-casing and permitting it to pass the top of the keeper.

To render the checking-arm inoperative by the bolt, and thus prevent the door from being opened even partially without first retracting the bolt, the keeper is provided with means adjustable across the path between the bolt and checking-arm. The means greatly preferred for this purpose comprise a slide or stop plate 41, with which is connected a post 42, which is movable back and forth in a slot 43, formed in the top surface of the keeper to transmit similar movement directly to said slide or stop plate. This post 42 has a head 44 outside the keeper for convenience in adjusting the slide, and said head has at its

opposite ends projections 45, which extend toward the top surface of the keeper. When the slide or stop plate is adjusted out of the path of the lock-bolt, the projection 45 at the rear of said head extends over the edge of the rear end of the keeper, and in the opposite position of the adjustment of said slide or plate the forward projection similarly extends over the edge of the forward end of the keeper. Said projections thus lock the slide or stop plate in its adjusted positions. A flat spring 46, attached to the inner end of the post 42, permits the head 44 to yield to allow the projections to pass over the edges of the keepers and serves to pull said post and head toward the keeper to place the projections in proper holding position with respect to the keeper.

In lieu of the slide or stop plate hereinabove described there may be employed a pin 141, adapted to be inserted through openings in the keeper and to extend across said keeper and to lie between the bolt and the checking-arm, so as to prevent said bolt from engaging said checking-arm, said pin being removable from said openings in the keeper in order to permit the bolt to engage said arm. This form of device is indicated in Fig. 14, wherein the other parts of the device shown are of identical construction with the corresponding parts shown in the other forms of the invention.

Referring to the modifications of the fence, the one, 126, shown in Fig. 9 has a pivoted link 127 with an elongated opening 128 extending from it, said link being engaged by a pin 129, projecting from the back plate of the lock-casing. In the construction shown in Fig. 10 the fence 226 has an elongated slot 227 in its free end to engage a pin 228 from said back plate. In the construction shown in Fig. 11 the fence 326 has an open-ended slot 327 in its free end, which receives a pin 328 from said back plate. In the construction shown in Fig. 12 the fence 426 has a pivoted link 427 with an elongated slot 428 to receive a pin 429, extending from the back plate, and the end of the fence remote from its pivot 430 and contiguous to said pin 429 is formed to provide a recessed surface 431, and in the construction shown in Fig. 13 the fence 526 has an elongated slot 527 to engage a pin 528, projecting from the back plate of the lock-casing.

Having thus described the invention, what we believe to be new, and desire to secure by Letters Patent, and what we therefore claim, is—

1. A door check and lock, comprising a lock and its keeper; said lock comprising a casing having a removable back plate provided with lugs, spring-pressed bolt having a projection at one end, a cylinder mounted to turn and provided with a projection to engage the pro-

jection of said bolt, tumblers mounted in said cylinder and a fence pivoted at one end and carried by said cylinder and free to turn therewith when engaged with the gates of said tumblers and forced into and out of said gates by the lugs on said back plate; and said keeper having a pivoted checking-arm to engage the projecting end of the lock-bolt.

2. A door check and lock, comprising a lock and its keeper; said lock comprising a casing having a removable back plate provided with lugs, a spring-pressed bolt having a bifurcated inner end provided with projections, means connected with the bolt for retracting the same from the inner side of the door, said means having wings engaging projections from the bifurcated end of said bolt, and a tumbler mechanism for retracting the bolt from the outer side of the door, comprising a cylinder carried by said back plate and mounted to turn therein and arranged between the limbs of the bifurcated end of the bolt and having a projection to engage a projection from the latter, spring-pressed tumblers slidably mounted in said cylinder and a fence to engage the gates of said tumblers, said fence being pivoted at one end to said projection from the cylinder and carried thereby and free to move therewith when engaged with said gates and moved into and out of said gates by the lugs on said back plate; and said keeper having a pivoted checking-arm to engage the projecting end of the lock-bolt.

3. A combined lock and door-check, consisting of a lock and its keeper; said lock comprising a casing, a spring-pressed bolt having a projection within the casing and its head formed with a lateral wing, a cylinder mounted to turn and provided with a projection to engage said projection of the bolt, and a tumbler mechanism, having a cylinder and a pivoted fence carried by said cylinder and free to turn therewith and means for forcing said fence into and out of the gates of said tumbler mechanism; and said keeper having a checking-arm pivoted to swing in a horizontal arc and arranged to be adjusted into checking position by the wing of said bolt-head, substantially as described and for the purposes specified.

4. A combined door check and lock, consisting of a lock and its keeper; said lock comprising a spring-pressed bolt having a projection at one end, a cylinder mounted to turn and provided with a projection to engage the projection of said bolt, tumblers mounted in said cylinder and a fence pivoted at one end and carried by said cylinder and free to turn therewith; and said keeper having an opening in its top surface through which said bolt travels when it is projected and the door is being opened, a checking-arm pivoted to the casing of the keeper and overlying said opening and in the path of movement of said bolt,

and means adjustable across the path between said keeper and arm, substantially as described and for the purposes set forth.

5. A lock for use as a member of a door-check, comprising a casing having a removable back plate provided with lugs, a spring-pressed bolt having a projection within the casing, a cylinder mounted to turn and provided with a projection to engage the projection of said bolt, tumblers carried by said cylinder, and a fence to engage the gates of said tumblers, said fence being pivoted at one end and carried by said cylinder and free to turn therewith and forced into and out of the gates by said lugs on the back plate, substantially as described and for the purposes set forth.

6. A lock for use as a member of a door-check, comprising a casing having a removable back plate provided with lugs and a projection, a bolt having a projection within the casing, a cylinder mounted to turn and provided with a projection to engage the projection from said bolt, tumblers carried by said cylinder, a fence to engage the gates of said tumblers, said fence being pivoted at one end and carried by said cylinder and free to turn therewith and forced into and out of said gates by said lugs on the back plate, and a returning-spring for said bolt and cylinder, said spring being arranged parallel with the stem of said bolt and having one end engaged with said bolt and its other end engaged with said projection from the back plate, substantially as described and for the purposes set forth.

7. A lock for use as a member of a door-check, comprising a casing having a removable back plate provided with lugs, a bolt movably mounted in said casing, and a tumbler mechanism for operating said bolt in one direction, said tumbler mechanism comprising a cylinder mounted to turn and provided with tumblers, and a fence pivotally connected with said cylinder and free to turn therewith and arranged to be forced into and out of the gates of said tumblers by said lugs on the back plate, substantially as described.

8. The combination with a lock, of a keeper comprising a casing, a checking-arm pivoted to said casing and arranged in the path of movement of the bolt of said lock so as to be adjusted thereby and to hold the door in partly-open position, means adjustable into and out of the path between said bolt and checking-arm, and locking devices for said adjustable means.

9. In a door check and lock, the combination of a lock and its keeper, said keeper comprising a casing, a checking-arm pivoted to said casing and arranged in the path of movement of the bolt of said lock so as to be adjusted thereby and to hold the door in partly-open position, a slide adjustable into and out of the path between said bolt and checking-

arm, means for adjusting said slide, and projections from said adjusting means adapted to lock the slide in its adjusted positions.

10. In a door check and lock, the combination of a lock and its keeper, said keeper comprising a casing, a checking-arm pivoted to said casing and arranged in the path of movement of the bolt of said lock so as to be adjusted thereby and to hold the door in partly-open position, a slide adjustable into and out of the path between said bolt and checking-arm, a head connected with said slide and

operated to adjust the same, said head having locking projections, and a spring connected with said head, for the purposes set forth. 15

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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