

No. 868,306.

PATENTED OCT. 15, 1907.

H. P. TOWNSEND.  
SAFE DEPOSIT LOCK.  
APPLICATION FILED JAN. 31, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

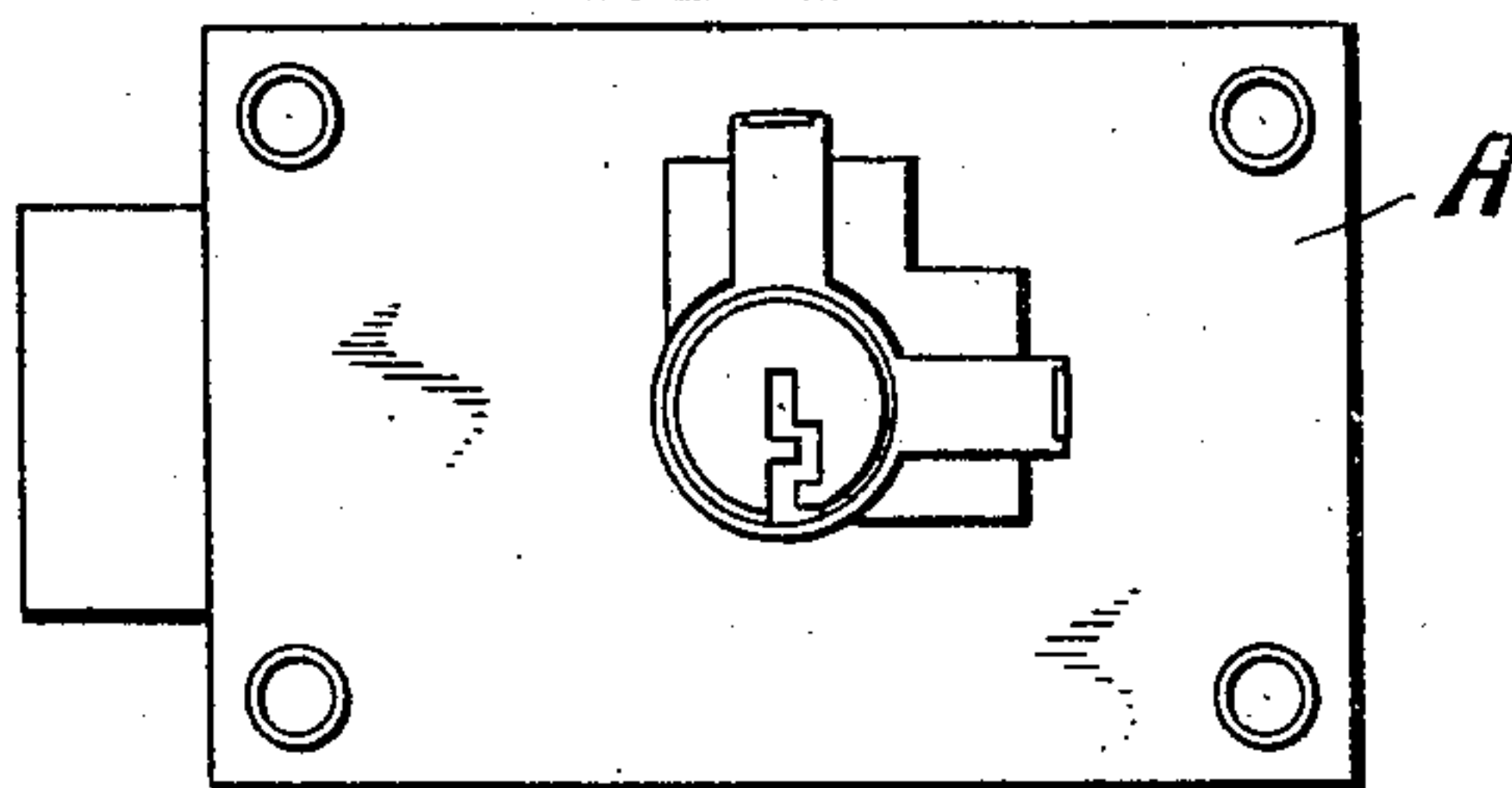


Fig. 14.

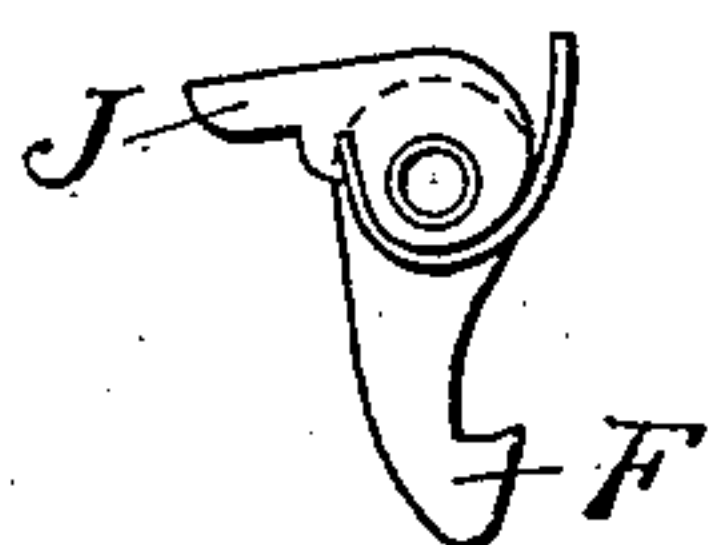


Fig. 2.

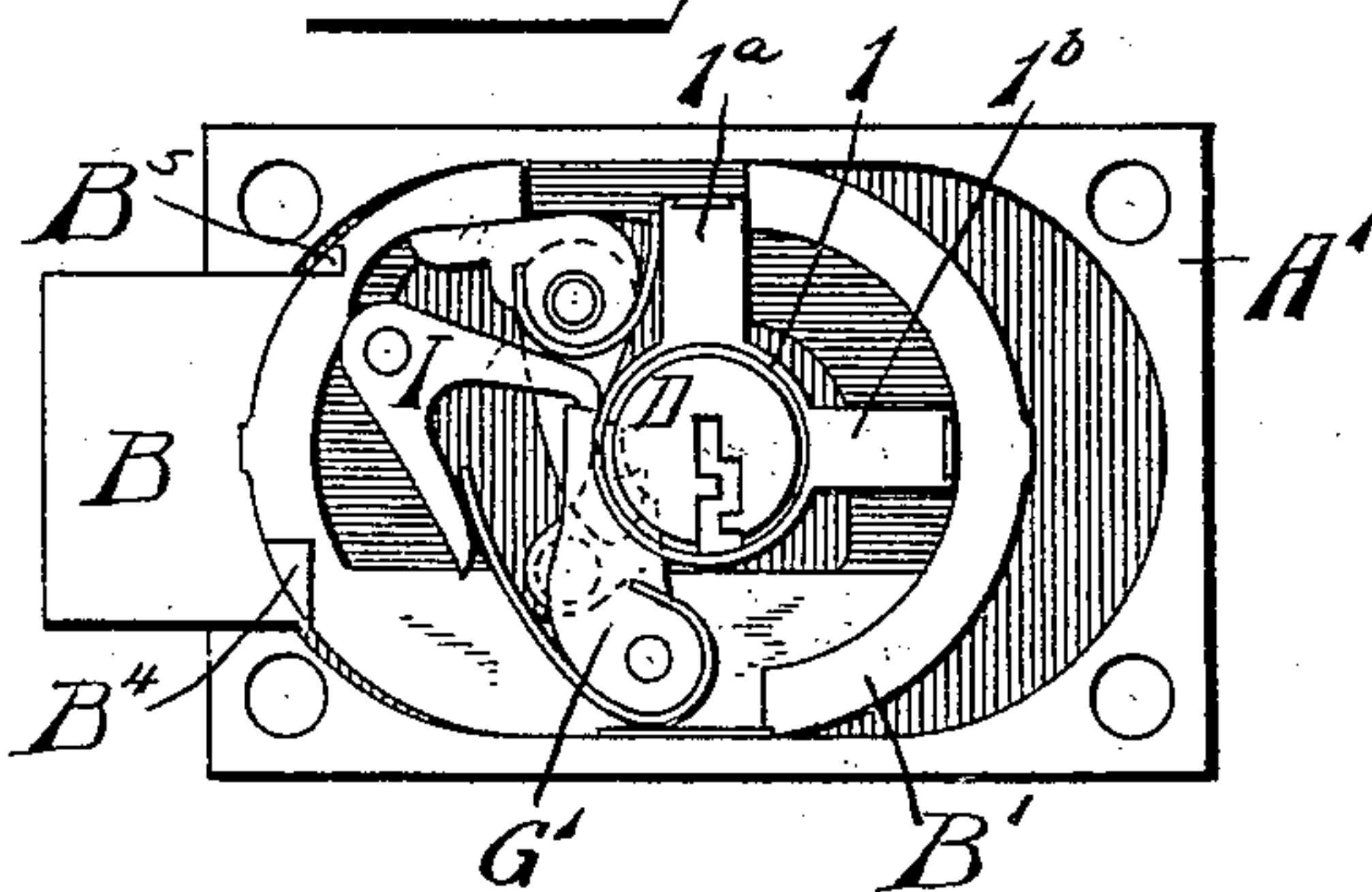


Fig. 16.



Fig. 15.

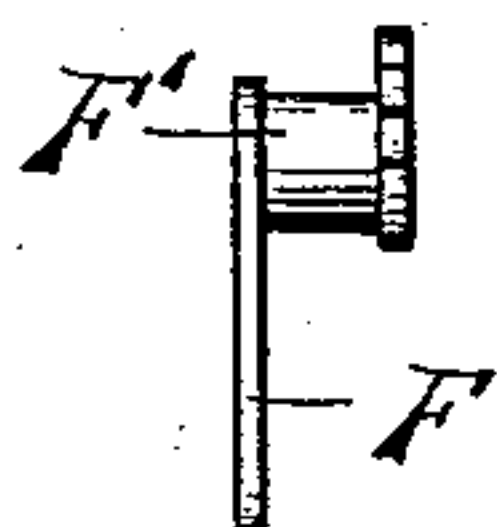


Fig. 17.

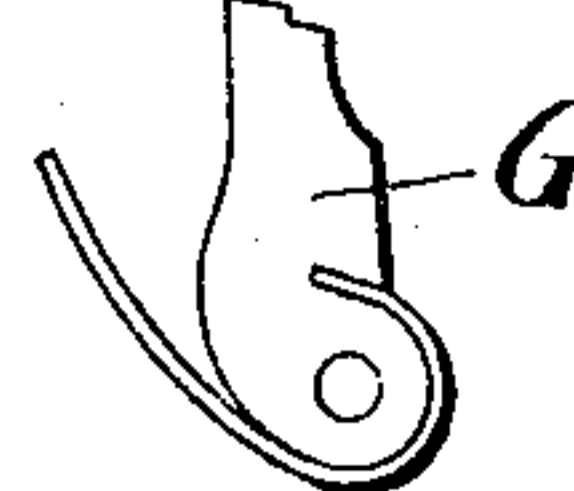
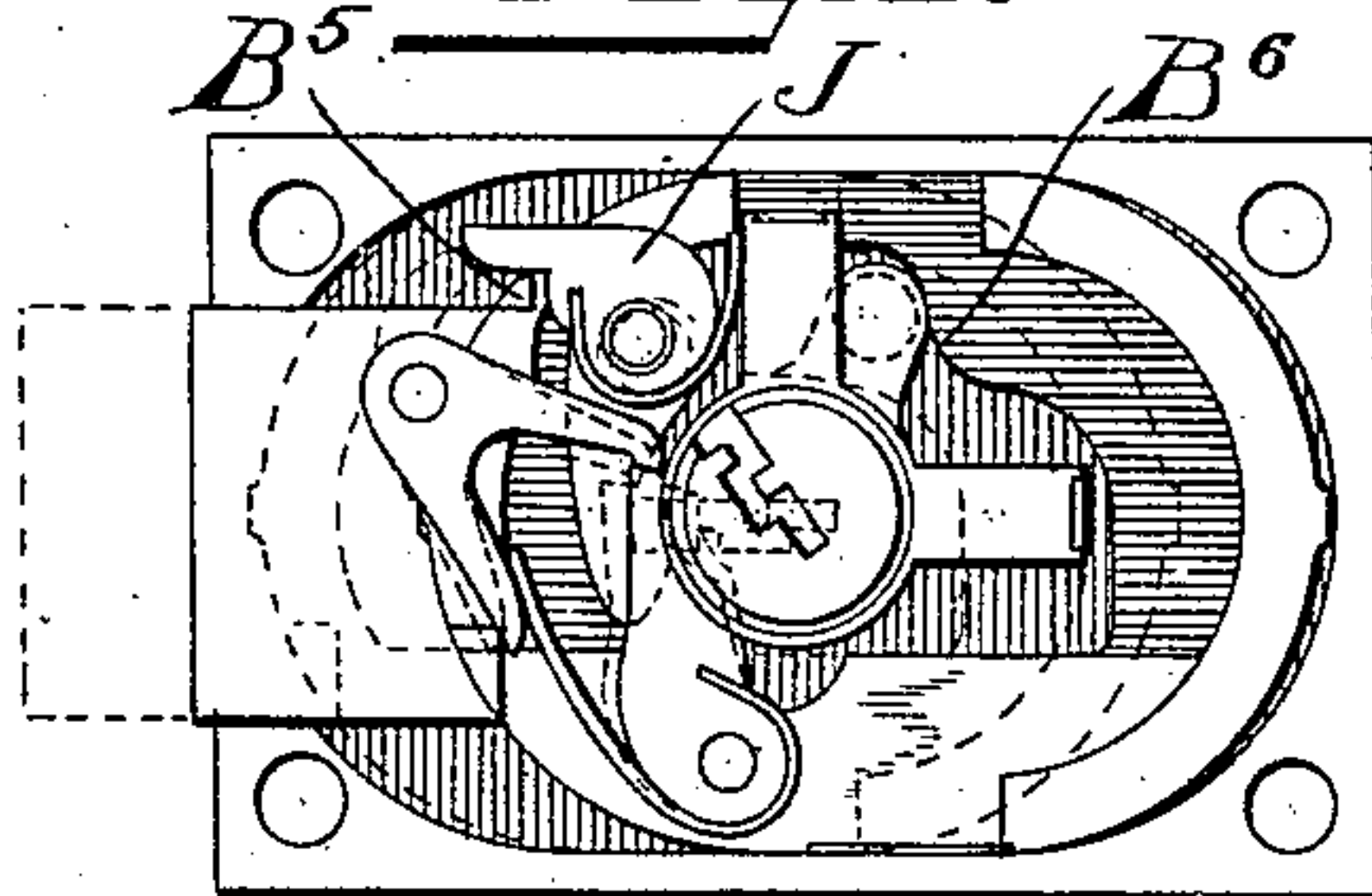


Fig. 3.



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*H. P. Townsend*  
By his Attorneys  
*Butler, Bonnell & Mitchell*

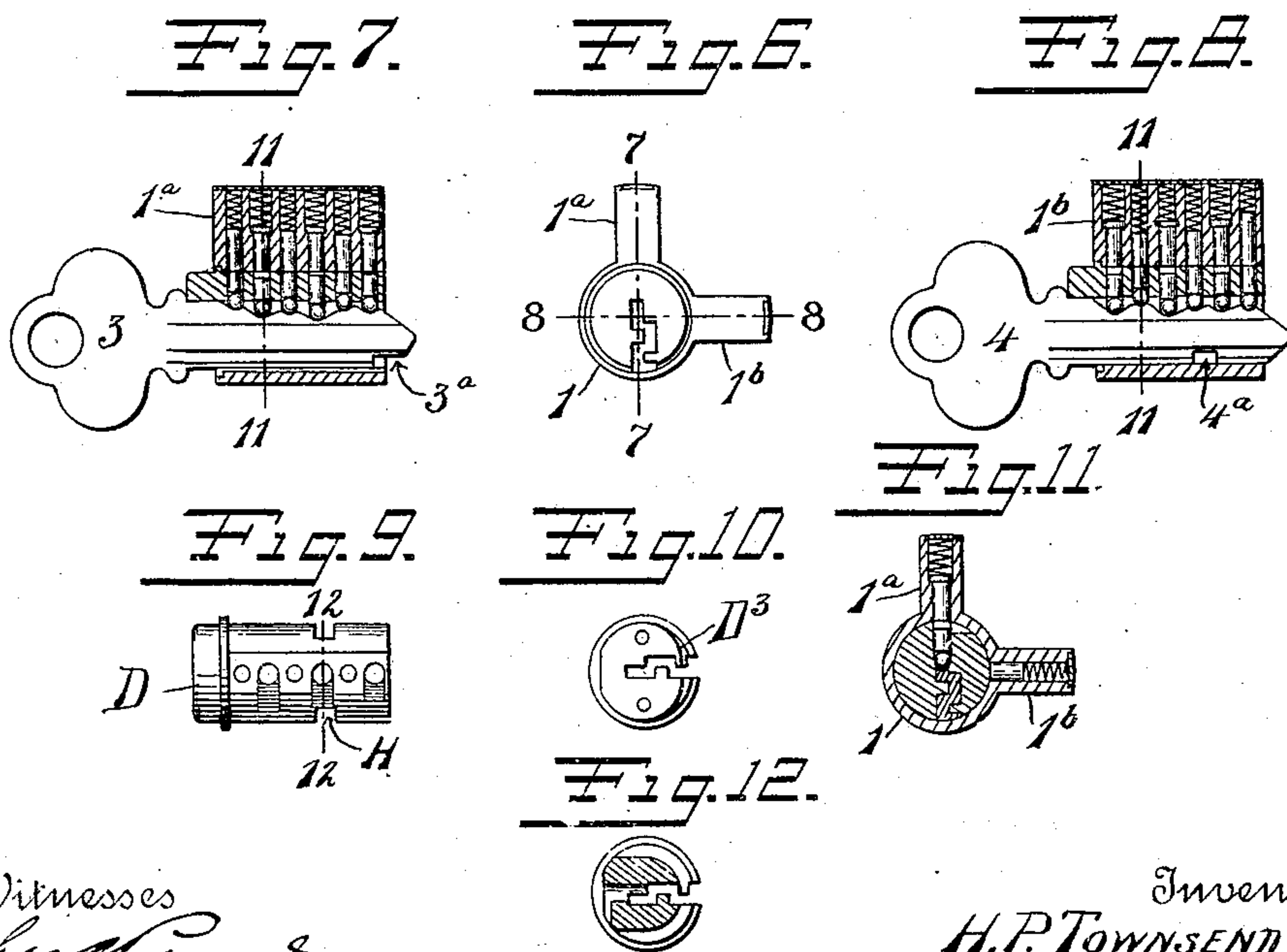
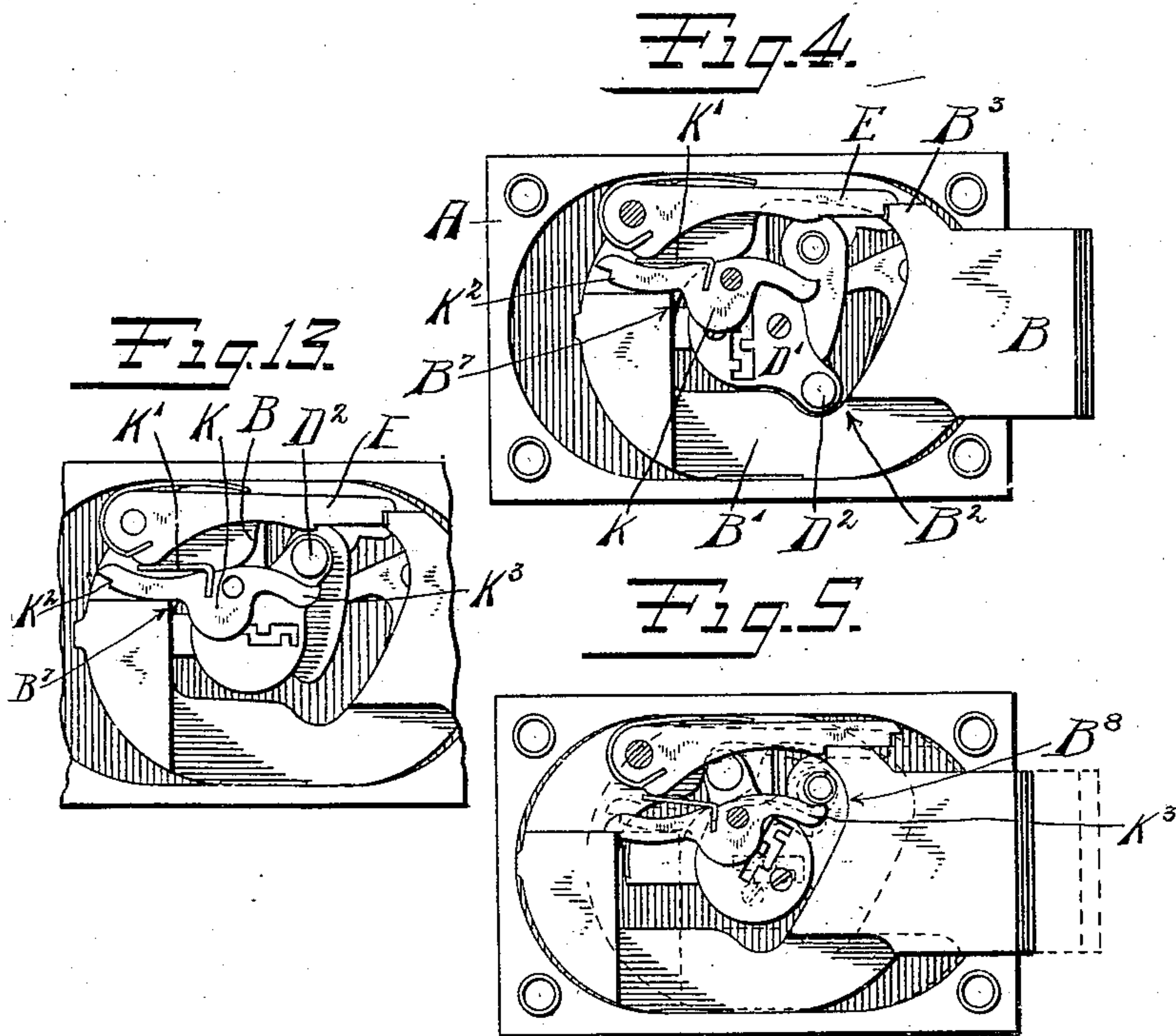
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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

HARRY P. TOWNSEND, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO CORBIN CABINET LOCK COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

## SAFE-DEPOSIT LOCK.

No. 868,306.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed January 31, 1907. Serial No. 354,974.

*To all whom it may concern:*

Be it known that I, HARRY P. TOWNSEND, a citizen of the United States, residing at New Britain, county of Hartford, Connecticut, have invented certain new and useful Improvements in Safe-Deposit Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in safe deposit locks and the like, the object being to provide simple and effective mechanism for preventing the withdrawing of the bolt until two keys have been employed. One of said keys may be carried by an attendant, who may insert his key and turn the part operated thereby to a second position, whereupon he may then remove his key, after which the owner of the box or vault may insert his differently bitted key in said second position and by suitable movement retract the bolt.

In the drawings, Figure 1 is a front elevation. Fig. 2 is a similar view, the cover being removed, the bolt being projected, as in Fig. 1. Fig. 3 is a similar view, the bolt being retracted. Fig. 4 is a view of the opposite side of the internal mechanism, the bolt being projected as in Fig. 2, the parts being in the position indicated in that figure. Fig. 5 is a view similar to that shown in Fig. 4, the parts being in the position indicated in Fig. 3. Fig. 6 is a front elevation of the pin cylinder lock. Fig. 7 is a section on the line 7—7 Fig. 6. Fig. 8 is a section on the plane 8—8 Fig. 6, the hub, however, being turned so that the key-slot stands in the same plane. Fig. 9 is a side elevation of the hub. Fig. 10 is an elevation of the inner end of the hub. Fig. 11 is a cross section of the cylinder lock on the plane of the line 11—11 Figs. 7 and 8. Fig. 12 is a cross section of the hub in the plane of the line 12—12 Fig. 9. Fig. 13 is a similar view to Fig. 4 showing the roll-back in second position, bolt not withdrawn. Figs. 14, 15, 16 and 17 are details of parts of the lock mechanism.

I need not describe in detail the construction and operation of the pin cylinder lock mechanism, because the same is made the subject-matter of a companion application filed by Wilbur R. Corbin and myself, Serial No. 354,973 and a detailed description will be found therein. It is sufficient to say that the construction of this lock is such that upon the insertion of a suitable key the key-hub may be turned from the position shown in Fig. 1, clockwise, until the key-slot is in a horizontal position, but this first key will have the capacity of moving it no further, because in said position it will not operate a second set of pin tumblers. A second key, however, may be inserted when the hub is in this position to operate the pin tumblers coöperat-

ing therewith in that position, so as to free the hub, so that a continued movement of the hub in a clockwise direction will retract the bolt.

A is the front cover plate of the lock casing. A' is the back thereof. These plates A—A' are suitably recessed to contain the hollowed out body portion of a bolt B. B' is the frame or body portion of said bolt, the sides thereof being by preference guided in the hollowed out portion of the lock case.

1 is the hub casing of the cylinder lock.

1<sup>a</sup> is an offset portion containing one series of pin tumbler sections. 1<sup>b</sup> is another offset portion containing another series of pin tumbler sections.

A suitable bitted attendant's key 3 is provided to operate the pin tumbler sections in the offset portion 1<sup>b</sup>, while the owner's key 4 will operate the pin tumbler sections in the offset 1<sup>a</sup>. The attendant's key 3 has a notch 3<sup>a</sup> in its back and at its end. The owner's key 4 has a notch 4<sup>a</sup> in its back at a different point from the notch in the attendant's key.

D is a hub at the inner end of which is a roll-back D', having a laterally projecting stud D<sup>2</sup>. The roll-back D' stands in a recess D<sup>2</sup> in frame B' when the parts are in the locked position (see Fig. 4). In this position a spring-pressed tumbler E engages with the shoulder B<sup>3</sup> on the bolt frame to hold it projected. When the attendant inserts the key 3, frees the tumblers and turns the hub clockwise, he will shift the roll-back D' from the position indicated in Fig. 4 to that indicated in Fig. 13. This will not effect the bolt B nor the tumbler E, but it will result when the key is withdrawn in the locking of the hub against its return to the original position, excepting by the same key. This is accomplished as follows: F is the hook mounted on bearing sleeve F' and spring-pressed so that the bill of the hook will press toward the hub. As will be seen in Fig. 10, the rear end of the hub D is cut back, as indicated at D<sup>3</sup>. This cut-back portion is of substantially the width of the end of the hook F and lies in front of the same. The bill of the hook stands, as best seen in Fig. 2, directly under the key-slot when the same is in the horizontal position, and so as to register with notch 3<sup>a</sup> in key 3. It follows that if an owner's key 4 were inserted in the hub when the slot is in a horizontal position, the back of the key would be engaged by the hook F because the notch 4<sup>a</sup> would not register with hook F, and the hub could not be returned to its original position. The attendant's key is notched at 3<sup>a</sup>, so that the attendant can turn the hub back to its original position.

When the attendant's key 3<sup>a</sup> is turned to the horizontal position it performs another function as follows: G is a spring-pressed pivoted dog, the function of which



is to lock the owner's key against removal after the owner's key has been operated and the bolt retracted. It will, however, permit the owner's key to be removed when the key is restored to its original position and the bolt is projected. This dog G bears against the hub at a different plane from the hook F and so as to register with notch 4<sup>a</sup> in the owner's key 4. The hub is notched to allow it to enter the same slightly, as best seen in dotted lines, Fig. 2. H illustrates said notch (Fig. 9). When the attendant's key is introduced and turned, its back forces back the dog G until it is engaged by a spring-pressed latch I (Fig. 2), the hooked end of which engages a shoulder on dog G (see Figs. 2, 16 and 17). This latch I will hold said dog G retracted until the bolt B has been retracted by the introduction and turning of the owner's key. At about the time the bolt reaches the end of its inward excursion, the latch I is cast off by the shoulder B<sup>4</sup>, whereupon the dog G springs into the notch H in the hub and the notch 4<sup>a</sup> in the back of the owner's key 4. The consequence is—the owner cannot remove his key until he has again thrown the bolt, as above indicated. When the bolt is thrown, of course, the owner's key 4 will stand in a position wherein the dog G will not project into the notch 4<sup>a</sup>. The owner's key when the bolt is locked is not only turned to the horizontal position, but is turned entirely back to the original position so that to project the bolt does not require the presence of the attendant. This return of the owner's key to the original position, (in which the key-slot is vertical) could not be effected were it not for means provided to hold the hook F out of engagement with the hub and out of the range of the back of the owner's key. This is accomplished as follows: J is a lever extension on the sleeve F', the end of which is beveled so that an operating shoulder B<sup>5</sup> on the bolt frame B' may engage under the same and lift it when the bolt is being retracted and before the owner's key will reach the hook F. The length of the arm J is such that the presence of the shoulder B<sup>5</sup> under it will hold back the hook F so long as the bolt is withdrawn, or at least until the owner's key has passed the horizontal position.

Incidental to the retracting of the bolt B which follows the introduction of the owner's key, it is first necessary to release the tumbler E. This is accomplished by means of the stud D<sup>2</sup> which engages and lifts said tumbler before the bolt is retracted. After this tumbler is lifted, the roll-back D' will engage shoulder B<sup>6</sup>, so that by continuing the rotation of the hub D the bolt B will be retracted, (see Fig. 3).

K is a dog pivoted on the case. K' is a spring which in the form shown is carried by the dog K and bears under the head of tumbler E and applies its force in a direction to swing the dogging shoulder K<sup>2</sup> in a direction to engage the shoulder B<sup>7</sup> on the bolt, when the same is retracted. While this dog is not necessary, it is preferable in order that the quick slamming of the door may not by centrifugal force cause the bolt B to be projected accidentally.

K<sup>3</sup> is a tail-piece on the dog K. This tail-piece is in the path of movement of the stud D<sup>2</sup>, so that when the owner turns his key back said stud will first engage the tail K<sup>3</sup>, tilting dog K and freeing the bolt B, whereupon the roll-back D will then engage the shoulder or surface B<sup>8</sup> of the bolt body, forcing it ahead and out of

engagement with the stop shoulder K<sup>2</sup> which will rest upon the shoulder B<sup>7</sup> of the bolt while the latter is projected.

What I claim is:

1. In a lock, a case, a bolt, a hollow frame carrying said bolt, lock operating mechanism arranged within the hollow portion of said bolt frame, a roll-back adapted to engage said frame and a dogging device also arranged within said bolt frame, a shoulder on the frame adapted to be engaged thereby when the bolt is retracted, said roll-back lifting said dogging device out of engagement therewith before extending the bolt. 70
2. In a safe deposit lock comprising a case, a bolt and bolt frame guided therein, a key-operated device, a roll-back, shoulders on said bolt frame adapted to be engaged by the roll-back to extend and withdraw said bolt, said shoulders arranged to permit a limited movement of the roll-back before engaging either, a spring-pressed dog pivoted to the case, a shoulder upon the bolt frame adapted to be engaged thereby when the bolt is extended, said roll-back lifting said dog out of engagement therewith before withdrawing the bolt and another spring-pressed dog pivoted to the case, a shoulder on the bolt frame adapted to be engaged thereby when the bolt is withdrawn, and an extension on said dog adapted to be engaged by said roll-back to lift the dog out of engagement before the bolt is extended. 75
3. In a lock, a case, a bolt, a key-operated step-by-step mechanism arranged to extend and retract the bolt after the second step, a separate key to operate each step of the mechanism, a stop against counter rotation for one key and means for throwing off said stop by the operation of the bolt. 80
4. In a lock, a case, a bolt, a key-operated step-by-step mechanism arranged to extend and retract the bolt after the second step, a separate key to operate each step of the mechanism, a retainer for one key preventing the withdrawal thereof and means for throwing off said retainer by the operation of the bolt. 85
5. In a safe deposit lock comprising a case, a bolt frame and a bolt carried thereby guided therein, a lock casing carried by said case, a hub in said casing provided with a roll-back to operate the bolt, said casing provided with two independent means to lock the hub in two different positions, a key-way in said hub, a tangential groove on each side of said key-way, means to rotate the hub and a spring-pressed hook pivoted to the case plate adapted to enter the grooves in the hub at the second position and prevent the entire reverse rotation of the hub until the bolt has been fully retracted and again extended. 90
6. In a safe deposit lock comprising a case, a bolt frame and a bolt carried thereby guided therein, a lock casing carried by the case, a hub in said casing provided with a roll-back to operate the bolt, said casing provided with two independent means to lock the hub in two different positions, a key-way in said hub, a tangential groove on each side of said key-way, means adapted to be inserted in the key-way to rotate the hub, a spring-pressed hook pivoted to the case adapted to enter the grooves in the hub at the second position and prevent the entire reverse rotation of the hub until the bolt has been fully retracted and again extended, and a projection secured to said hook adapted to be engaged by a lug on the bolt frame when the bolt is retracted to withdraw said hook. 95
7. In a safe deposit lock mechanism, a bolt frame provided with a bolt, a lock casing, a hub rotatable therein provided with a roll-back, said casing provided with two independent means to lock the hub in two different positions, means to release and rotate said hub from the first to the second position, and independent means to release and rotate the hub from the second position, said roll-back adapted to be moved from the first to second position without engaging the bolt frame, a key-way in said hub, a transverse notch intersecting the key-way, a corresponding slot on one side of the casing and a spring-pressed pivoted dog adapted to enter said notch and engage the second releasing means to prevent its removal from the hub until the bolt has been retracted and again extended. 100
8. A safe deposit lock mechanism, comprising a case, a 105



bolt frame, a bolt carried thereby, a lock casing, a hub rotatable therein provided with a roll-back adapted to engage the bolt frame to operate the bolt having a limited movement before each operation, said casing provided with two independent means to lock the hub in two different positions, a key to release the hub from the first position and rotate it to the second position, a second key to release and rotate the hub from the second position to operate the bolt, and means carried by the case engaging the second key to prevent reverse rotation of the hub beyond the second position until the bolt has been retracted and again extended.

9. A safe deposit lock mechanism, comprising a case, a bolt frame, a bolt carried thereby, a lock casing, a hub rotatable therein provided with a roll-back adapted to engage the bolt frame to operate the bolt having a limited movement before each operation, said casing provided with two independent means to lock the hub in two different positions, a key to release the hub from the first position and rotate the hub, a second key to release and rotate the hub from the second position to operate the bolt, and means carried by the case engaging the second key to prevent its withdrawal from the hub until the bolt has been retracted and again extended.

10. A safe deposit lock mechanism, comprising a case, a

bolt frame, a bolt carried thereby, a lock casing, a hub rotatable therein provided with a roll-back adapted to engage the bolt frame to operate the bolt having a limited movement before each operation, said casing provided with two independent means to lock the hub in two different positions, a key to release the hub from the first position and rotate it to the second position, a second key to release and rotate the hub from the second position to operate the bolt, a transverse elongated notch in the hub, a corresponding slot in the casing, a spring-pressed dog pivoted to the casing adapted to project through said slot and engage in the notch in said hub, said dog engaged by the first key and in moving the hub from the first to the second position is retracted from engagement therewith, a shoulder on said dog, a spring-pressed lever adapted to engage the said shoulder on the dog in its retracted position, a shoulder on the bolt co-acting with said lever to release the dog when the bolt is retracted, and a notch in the second key adapted to be engaged by said dog to prevent the withdrawal of said key until the bolt has been retracted and again extended.

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Witnesses:

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