No. 844,763. PATENTED FEB. 19, 1907.

H. G. VOIGHT.

LOCK AND LATCH.

APPLICATION FILED OCT. 17, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

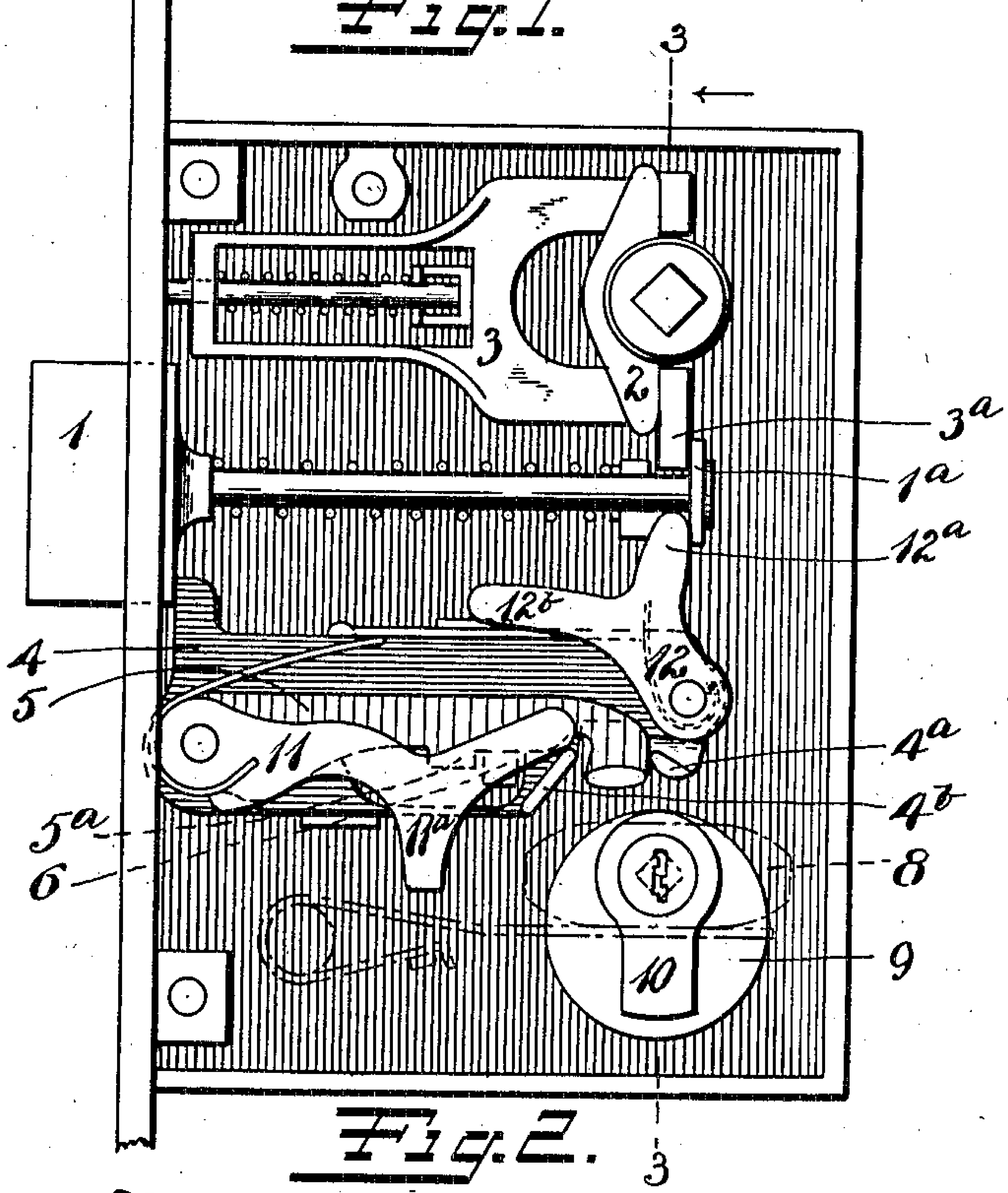
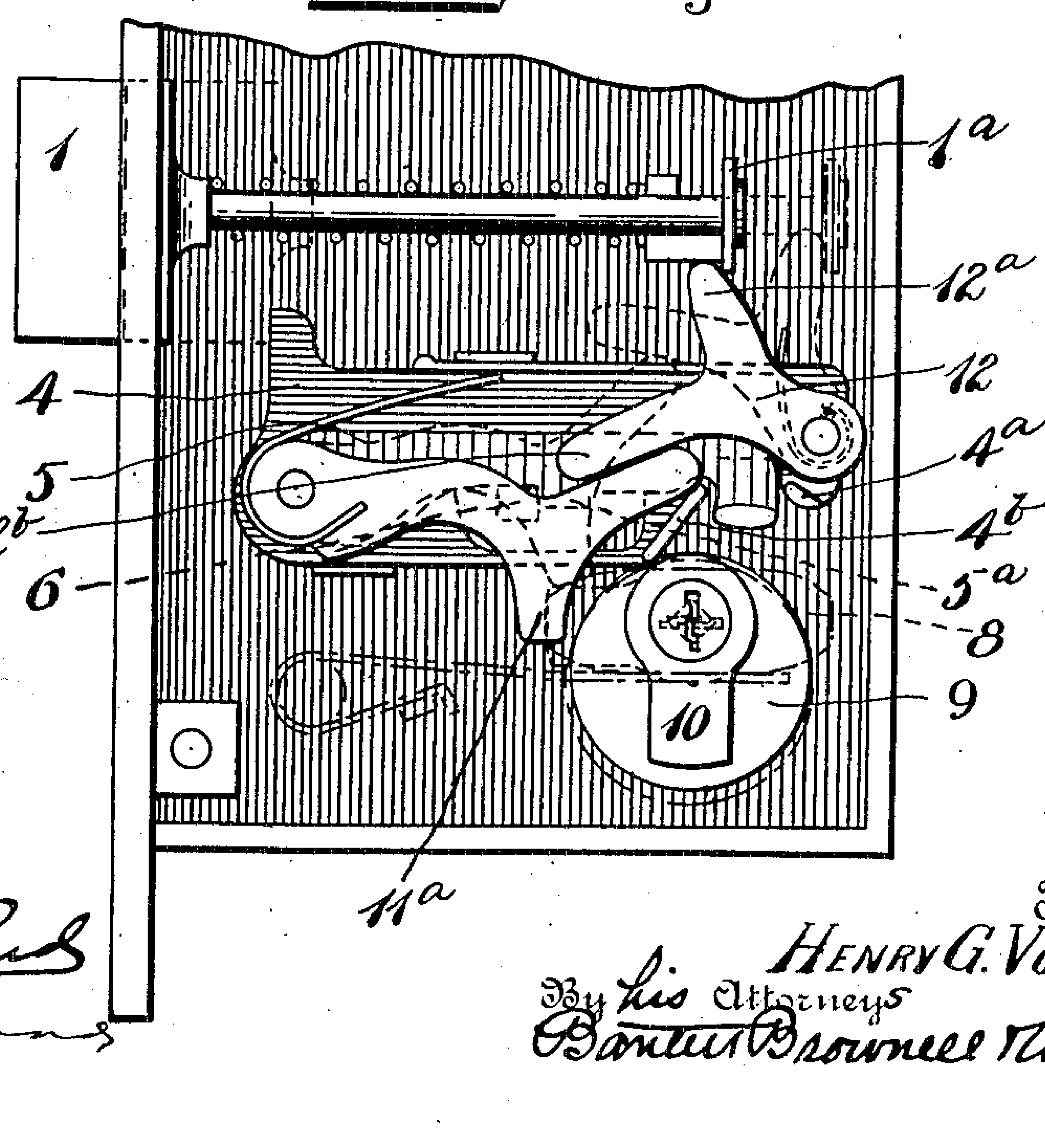


Fig. 2.



Witnesses
Chas. W. Pearl
L. Vreeland

Inventor
HENRY G. VOIGHT
By his Attorneys
Bartlett Brownell & Mitchell

No. 844,763. PATENTED FEB. 19, 1907.

H. G. VOIGHT.

LOCK AND LATCH.

APPLICATION FILED OCT. 17, 1906.

2 SHEETS—SHEET 2.

Fig. 4.

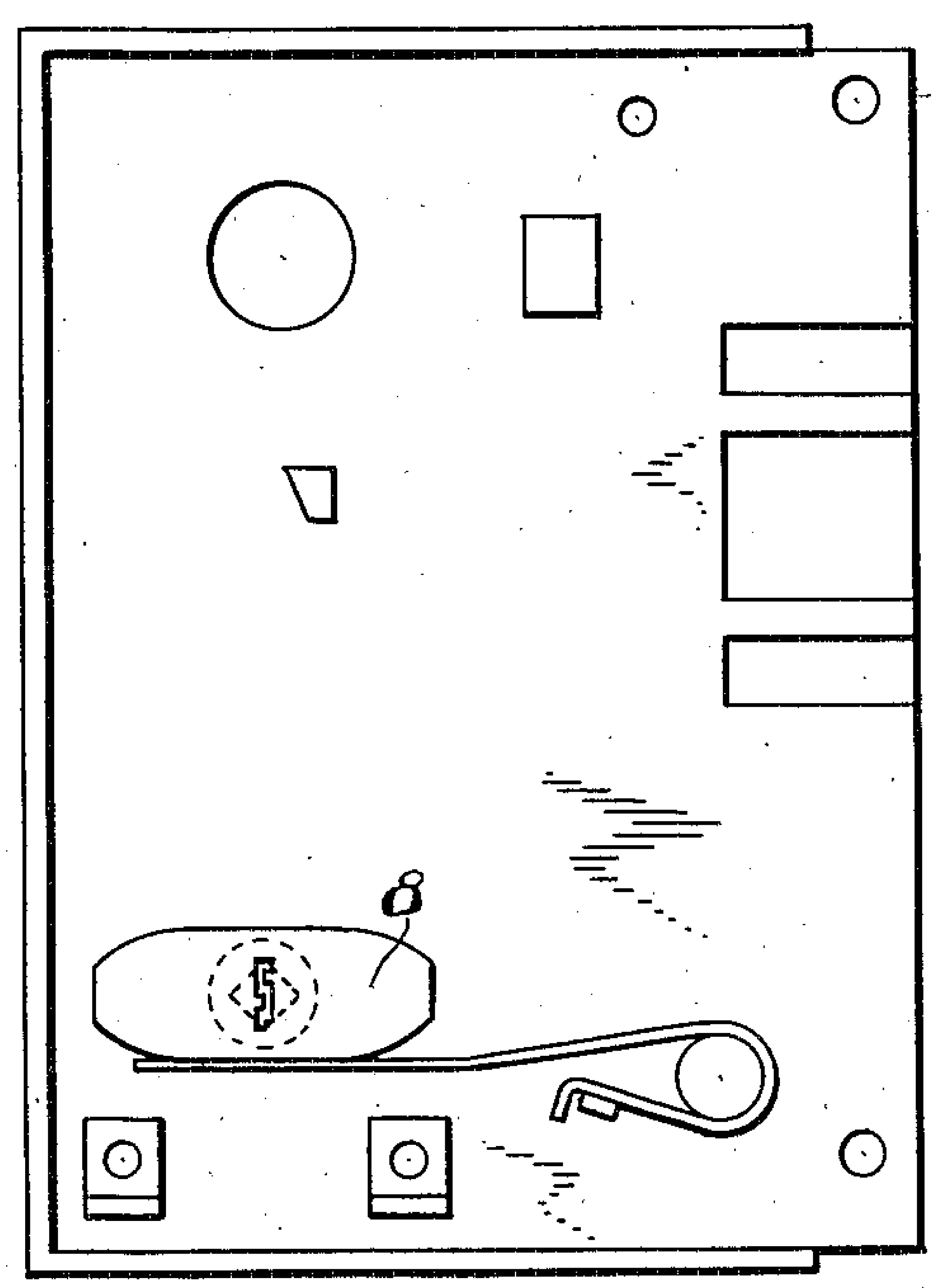


Fig. 3.

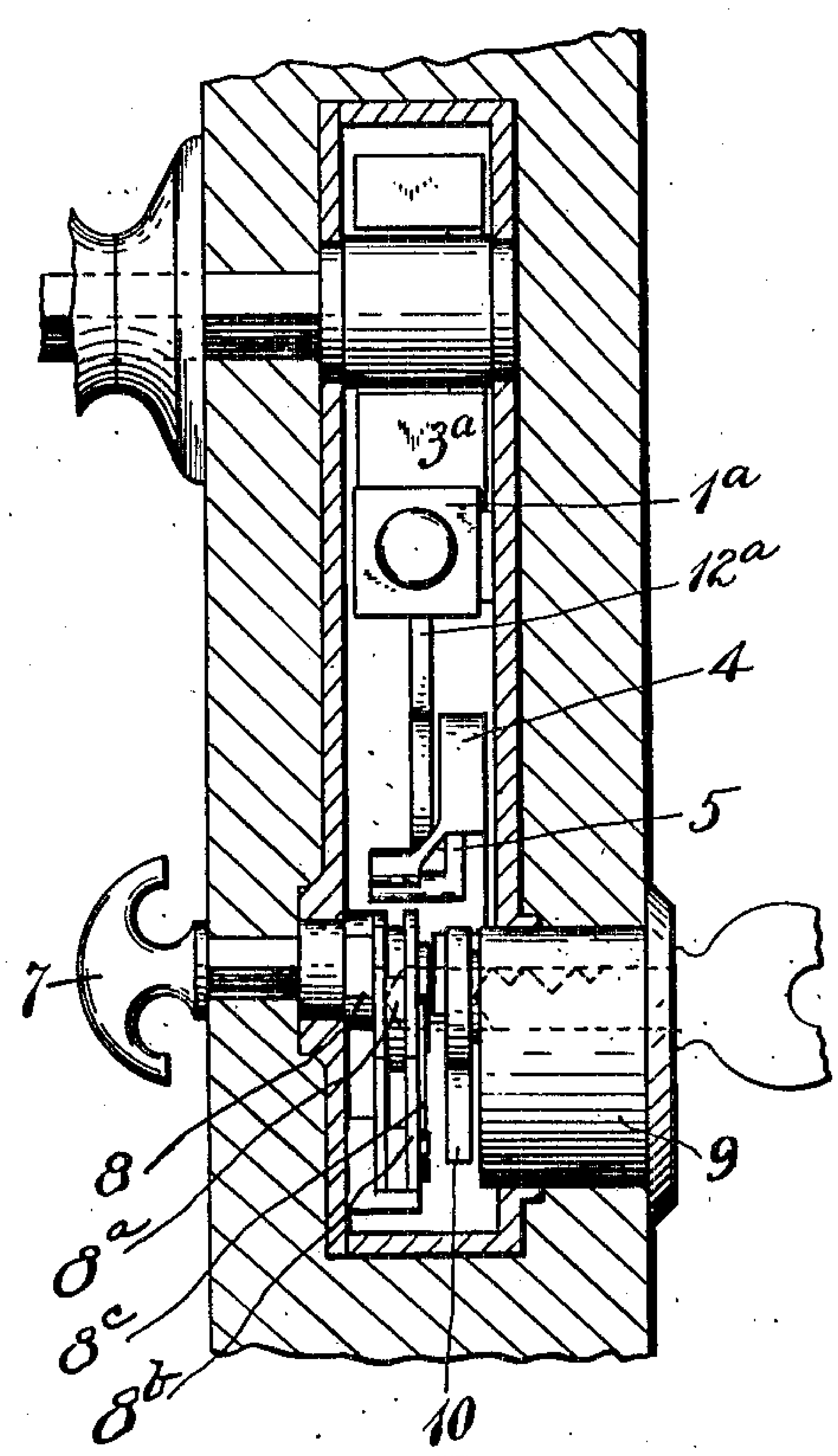


Fig. 7.

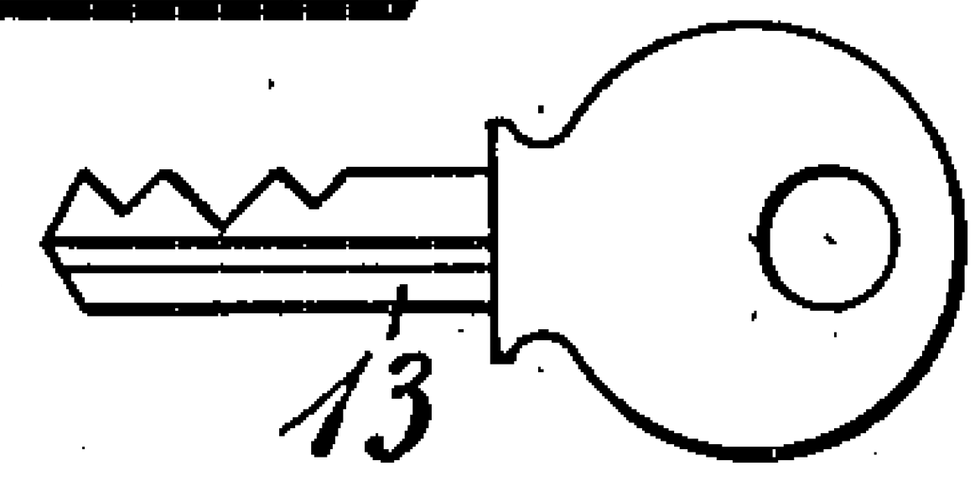


Fig. 5.

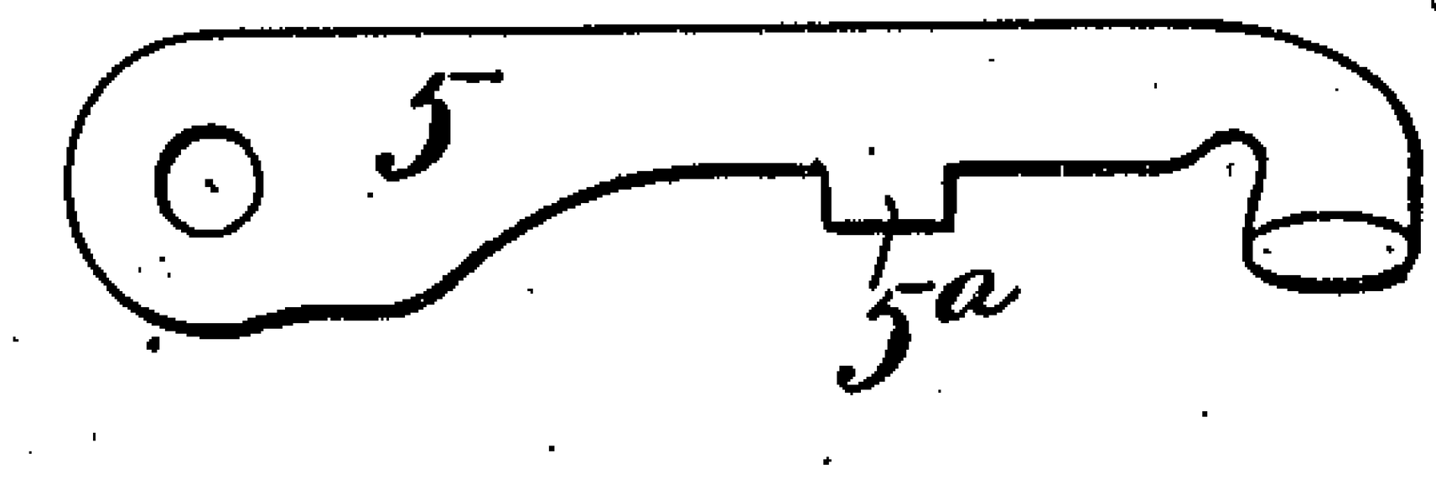


Fig. 8.

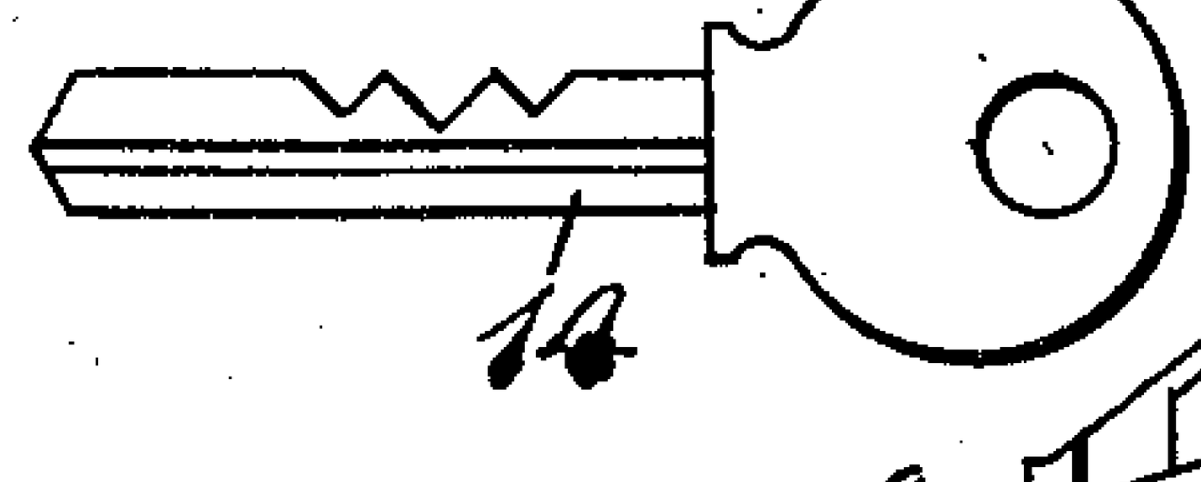


Fig. 6.

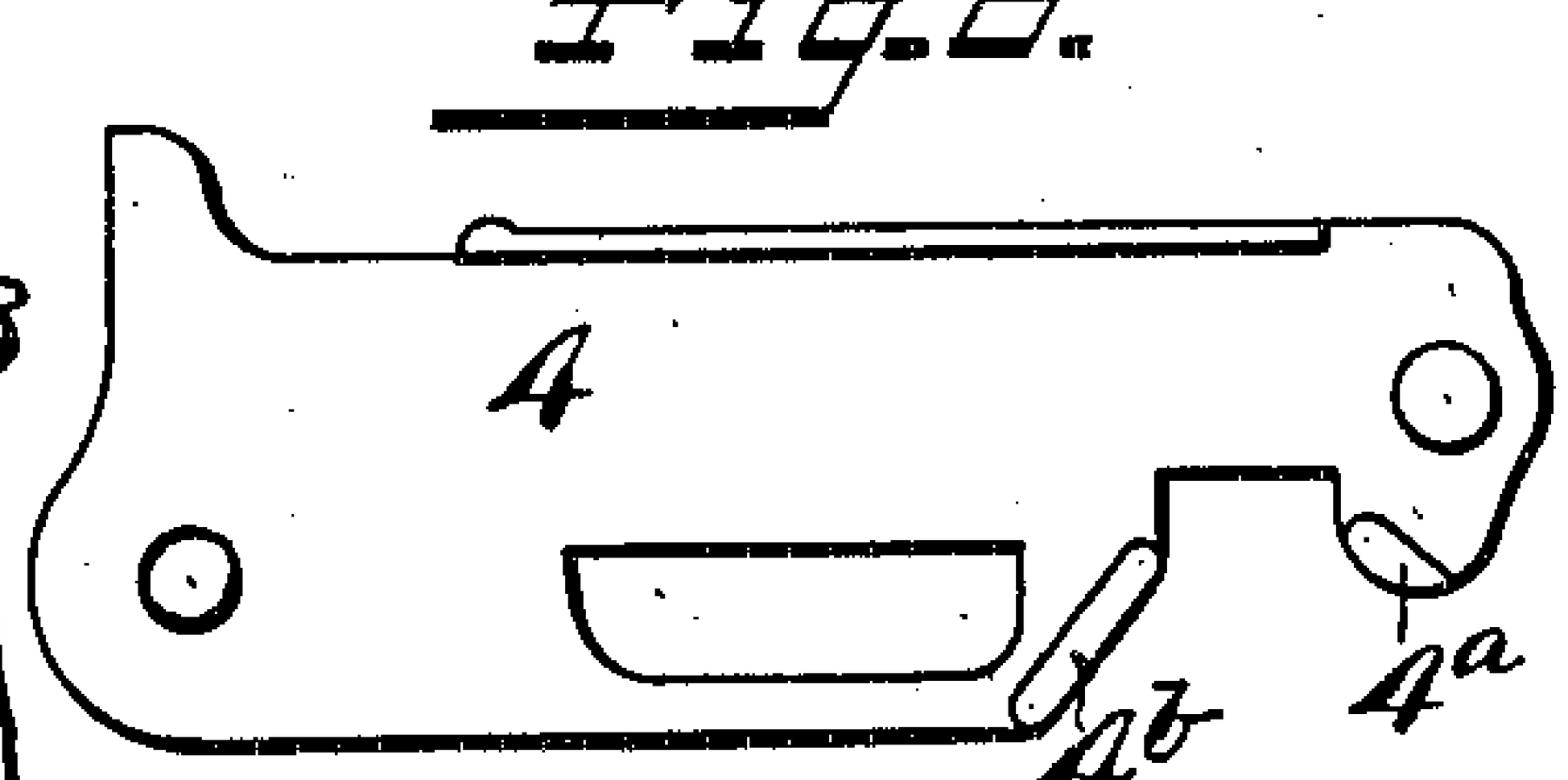
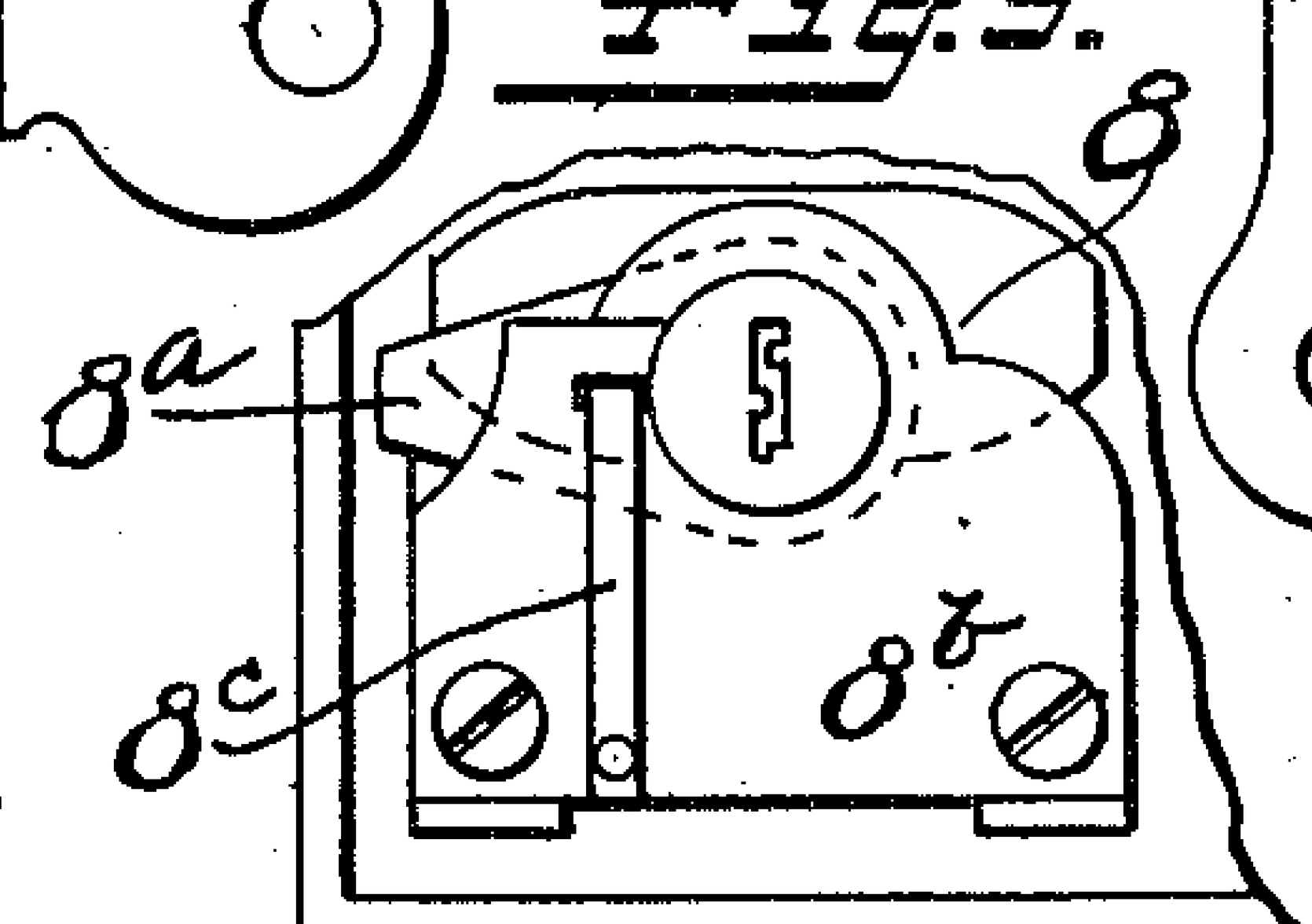


Fig. 9.



Witnesses
Chas. A. Pearl
L. Vreeland

Inventor
HENRY G. VOIGHT
By his Attorneys
Bartlett Brownell & Mitchell.

UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK AND LATCH.

No. 844,763. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed October 17, 1906. Serial No. 339,294.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, county of Hartford, Connecticut, have invented certain new and useful Improvements in Locks and Latches, of which the following is a full, clear, and exact description.

This invention relates to improvements in locks, and is particularly useful as applied to hotel corridor-doors.

Among the main objects of the invention are the provision of means whereby when a door is locked on the inside by so-called "dead-locking" device a key adapted to the lock and inserted from the outside will have no effect whatever upon the latch mechanism, but will revolve freely and loosely, thereby avoiding danger of breakage as well as annoyance to the occupant of the room.

Another object of the invention is to provide an entirely new form of master-key and master-key mechanism.

In the accompanying drawings is illustrated the preferred form of the invention.

Figure 1 is an elevation of a lock constructed to embody the invention, the parts being shown in the position in which the latch-bolt is dogged or dead-locked. Fig. 2 is a view similar to Fig. 1 of a portion of the lock, the parts being shown in another position, the latch being free to be retracted. Fig. 3 is a section on the line 3 3, Fig. 1, showing a portion of the door and the associated parts. Fig. 4 is a plan view of the inside of one side of the lock-case with the dogging roll-back in place. Fig. 5 is a view of a tumbler detached. Fig. 6 is a view of a slide detached. Fig. 7 is a view of a key. Fig. 8 is a view of an emergency-key. Fig. 9 is a view of a portion of the case shown in Fig. 1 with other parts in place.

1 is a latch-bolt having the usual stem and spring to cause it to normally project outwardly. 2 is a roll-back mounted on the usual knob-spindle. 3 is a reciprocating slide spring-actuated in the usual manner and coacting with the knob roll-back 2 and having a projection 3^a, which bears against the abutment 1^a on the stem of the latch-bolt 1, so that when the roll-back 2 is actuated it will cause the retraction of the latch 1. The parts thus described need not be set forth more in detail, because they are of any well-known construction.

4 is a reciprocating dogging-slide mounted in a suitable guideway in the lock-case. The latch-bolt 1 is locked against retraction when said slide is in the position shown in Fig. 1. When the slide 4 is in the position shown in Fig. 2, however, the latch-bolt 1 is free to be retracted. The slide 4 carries a pivoted tumbler 5, the free end of which stands between the shoulders 4^a 4^b. The tumbler has a stop-shoulder 5^a, which stands on one side or the other of a fixed stop 6 on the latch-case. In Fig. 1 this shoulder 5^a stands between the stop 6 and the latch-bolt 1. Hence the latch cannot be pressed back or retracted. In Fig. 2 the shoulder 5^a stands on the opposite side of the stop-shoulder 6 and prevents the slide from accidentally moving out of the unlocked position. The means for moving the slide for the purpose of dogging the latch comprise a thumb-turn 7 or equivalent device, arranged on the inside of the door. This thumb-turn carries a roll-back 8, so that when the same is turned clockwise, as viewed in Fig. 1, one end will engage the end of the tumbler 5 and lift it, so as to free the shoulder 5^a from the stop 6. The same end of the roll-back will then engage the shoulder 4^a, and the slide 4 will be moved from the locked position shown in Fig. 1 to the unlocked position shown in Fig. 2. When the thumb-turn 7 is turned in an opposite direction, the parts being as shown in Fig. 2, the roll-back 8 will first engage the tumbler 5 and free it and will then engage the shoulder 4^b and shift the slide 4 to the left and dead-lock the latch-bolt 1.

On the opposite side of the door from the thumb-turn is a suitable lock 9—say of the cylinder type. This lock has the usual key-hub and cam 10, and it is the intention that by means of this cam 10 the latch may be retracted. To accomplish this, the levers 11 and 12 are provided. These levers are respectively mounted on the opposite ends of the slide 4. The normal position of the lever 11 relatively to the slide 4 is shown in Figs. 1 and 2. The normal position of the lever 12 is such that one end 12^a rests adjacent to the shoulder 1^a of the latch. The other end 12^b, however, stands somewhat elevated, as shown in Fig. 1, or somewhat depressed, as

shown in Fig. 2, according to the position of the slide 4. The cam 10 operates the latch-bolt 1 through the medium of these two levers, the said cam engaging directly the projection 11ª of lever 11 when said retracting action takes place. The elevation of lever 11 (when the parts are as shown in Fig. 2) will cause the lever 12 to swing back, and thus retract the latch-bolt 1. When the latch 1 is dogged, however, the lever 11 is moved entirely out of the path of movement of the cam 10. Hence an ordinary key inserted in the lock 9 may be turned freely round and round without having any effect upon the lock mechanism. To permit this, it will be noticed that there is a clearance-space under the slide 4, as best seen in Fig. 3.

Operation: From the foregoing it will be seen that when a room is empty the dogging device will of course be thrown off and the parts will stand in the position shown in Fig. 2. A guest may then enter his room by using a suitable change-key 13, Fig. 7, and turning the same until the cam 10 lifts the levers 11 and 12 so as to retract latch-bolt 1. He may then close the door and apply the dogging device through the medium of thumb-turn 7. Upon doing this the lever 11 will be moved out of the range of operation of the cam 10, whereupon any attempt to enter the room by a duplicate change-key, a master-key, or a grand-master key will be futile. The change, master, and grand-master keys are similar to key 13, but have different bittings.

If for any reason it becomes necessary to enter the room even though the latch is dead-locked, an emergency-key 14, Fig. 8, may be employed for that purpose. This emergency-key is of novel construction and operation, and by it the dogging device is first thrown off and then the latch retracted. This emergency-key is of greater over-all length than the change-key 13, and when inserted it passes entirely through the lock 9 and its end enters a slot in the hub of a roll-back arm or cam 8ª, carried by a bracket 8ᵇ and arranged in line with the emergency-key. The function of the arm or cam 8ª is the same as that of the cam 8, excepting that it is turned not by the thumb-turn 7, but by a proper key inserted from the outer side of the door. When this emergency-key is inserted in lock 9, it passes through it and engages the hub of cam 8ª. The first turn of this key will throw the cam 8ª and cast off the dead-locking device. Continued rotation of the emergency-key will bring the cam 8ª into engagement with the lever 11, and by it the latch will be retracted. By this arrangement it will be seen that there may be a change-key for a single lock, a master-key to fit several such locks, requiring keys of different bitting, a grand-master key fitting all the locks in the building, and an emergency-key, which will do all that the first three keys will do and will also operate the dead-lock. All four of these keys are used in the same keyway, yet they each have their own peculiar functions.

8ᶜ is a spring for preventing the accidental dislodgment of the cam 8ª, so as to hold it in its normal position ready to be engaged by the end of the emergency-key when the same is inserted. An obvious modification would be to cause the emergency-key to directly engage the roll-back 8 instead of employing the third roll-back or arm 8ª; but the form shown is preferable. It will be noted that the knob-operable roll-back 2 is operable from the inner side of the door only. Access to the room or apartment is gained only by the use of one of the proper keys.

What is claimed is—

1. In a lock, a latch-bolt, a dead-locking device therefor, separate latch-retracting means carried by said dead-locking device, means for actuating said latch-retracting mechanism from the outer side of the lock when said dead-locking device is out of action, said means being out of range of operation of said externally-controlled means when said dead-locking device is in action.

2. In a lock, a latch-bolt, a dead-locking slide and means at the inner side of the lock for throwing said slide into or out of action, separate means carried by said dead-locking slide arranged to retract said latch-bolt, key-controlled means coöperating therewith independently of the means for throwing the slide into and out of action and operable from the outer side of the door only, and coöperating with said latch-retracting means only when the dead-locking slide is thrown off and out of action.

3. In a lock, a latch mechanism including a plurality of hubs arranged in line, one of said hubs being operable independently, a master-key therefor of sufficient length to pass entirely through one of said hubs and engage another for the purpose of operating dependently the hubs thus coupled.

4. In a latch mechanism, a bolt, actuating means including a bolt-retracting lever, a separate dead-locking device for dogging said bolt, said bolt-retracting lever being carried thereby, means accessible from the inner side of the door to move the dead-locking device, means accessible from the outer side of the door by one key to operate the bolt-retracting lever, and independent operating devices controlled by a different key whereby both the dead-locking device and the latch-bolt may be moved from the outer side of the door.

5. In a latch mechanism, a latch, latch-actuating means including a lever, a dead-locking device independent of said lever for dogging the latch, and means to move the dead-locking device and said lever bodily out of the range of action of the key as the latch is being dogged.

6. In a latch mechanism, a latch-bolt, a dead-locking device arranged to coact with said bolt, means accessible from the inner side of the lock for moving said dead-locking device into and out of its operative position, a plurality of coöperating levers carried by but independent of said dead-locking device, one of said levers engaging said bolt, the other lever being engaged by independent key-controlled mechanism operable from the outer side of the lock when the dead-locking slide is out of action, said last-mentioned lever being out of range of engagement by said key-controlled mechanism when said dead-locking slide is in action.

7. In a lock, a latch-bolt, a dead-lock therefor, dead-lock-controlling means at the inside of the door for throwing said dead-lock, said means including a manually-operable roll-back hub, a key-controlled cam in front of said dead-lock-controlling means and operable by means of a key inserted from the outer side of the door, said cam coöperating with the latch-bolt to retract the latter when the dead-lock is off by the use of one key, and a key of sufficient over-all length to engage both the latch-bolt-operating mechanism and the dead-lock-operating mechanism to secure dependent operation of said parts.

8. In a lock, a latch bolt or head, a dead-locking device therefor, knob mechanism, or the like, to retract the latch-bolt when the dead-locking device is off, key-controlled mechanism independent of said knob mechanism and operable from the outer side of the door for operating either the dead-locking device or the latch-bolt or both, said key-controlled mechanism including two independent hubs arranged in line and operating respectivelythe latch-bolt and the dead-lock-operating hub, and means at the inner side of the door independent of the knob mechanism for operating the dead-lock independently of the key-controlled mechanism for operating the latch-bolt.

9. In a lock, a change-key and an emergency-key, said emergency-key being of greater over-all length than the change-key, said lock having a single key way or passage adapted to both of said keys.

10. In a latch mechanism, a latch-bolt, a dogging device therefor, a separate latch-retracting device carried thereby, separate means for independently operating said latch and said dogging device, said operating means being arranged substantially in line, and a key arranged to coöperate with both of said operating means by passing through one and into the other.

11. In a latch mechanism, a latch-bolt, a dogging device, independent operating devices accessible from the opposite sides of the lock for the independent operation of the parts, and means for securing dependent operation of said parts by the use of a suitable single key arranged to engage parts of both of said operating means at the same time whereby said latch-bolt and dogging device may be operated dependently as well as independently.

12. In a latch mechanism, two independent devices to be operated, two separate means for operating the said devices respectively, a single key arranged to coöperate with and couple both of said operating devices by passing through one and into the other, one of said operating devices being capable of independent operation by the use of a shorter key.

13. In a latch mechanism, a latch-bolt, a dead-locking device therefor, a roll-back operable from the inner side of the door only for actuating said dead-locking device, a second roll-back operable from the opposite side of the lock only for retracting the latch-bolt, and a third roll-back for operating the dead-lock and arranged to be coupled with the second-mentioned roll-back by the use of a suitable key whereby both the dead-lock and latch-bolt may be operated dependently as well as independently from the outside.

14. In a latch mechanism, a latch-bolt, a dead-locking device therefor, a key-controlled hub for retracting the latch, a second key-controlled hub independent of the first and in line therewith for actuating the dead-locking slide, the former being outside of the latter, a pin-cylinder lock having a key-passage in line with said hub and two keys of different over-all lengths, the shorter one actuating only one of said hubs, the longer one being arranged to operatively connect or couple both of said hubs.

HENRY G. VOIGHT.

Witnesses:
G. ERNEST ROOT,
WM. V. CALLUM.