

A. ARENS & E. L. TEICH.
HOTEL LOCK.
APPLICATION FILED AUG. 5, 1909.

958,352.

Patented May 17, 1910.
3 SHEETS—SHEET 1.

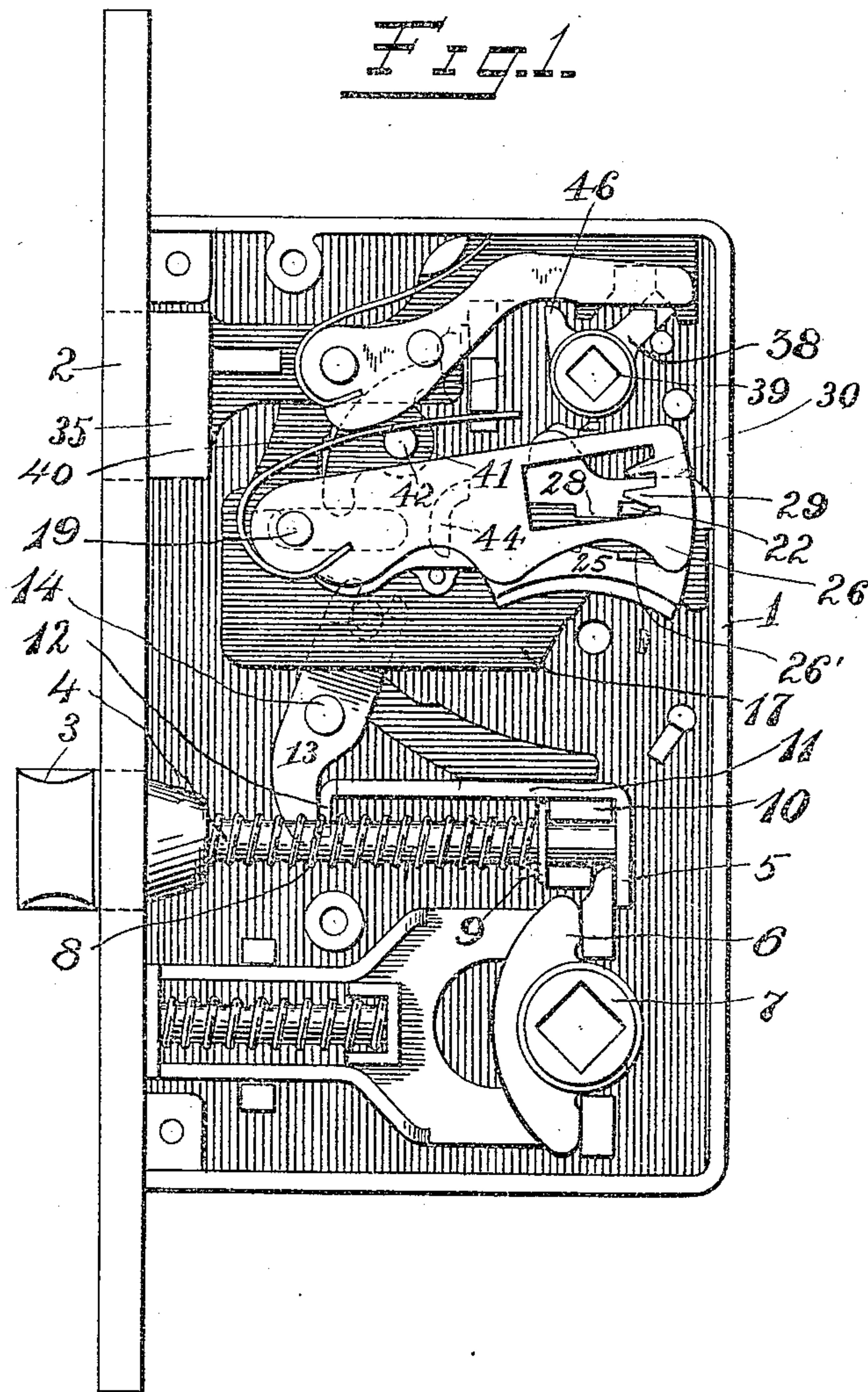
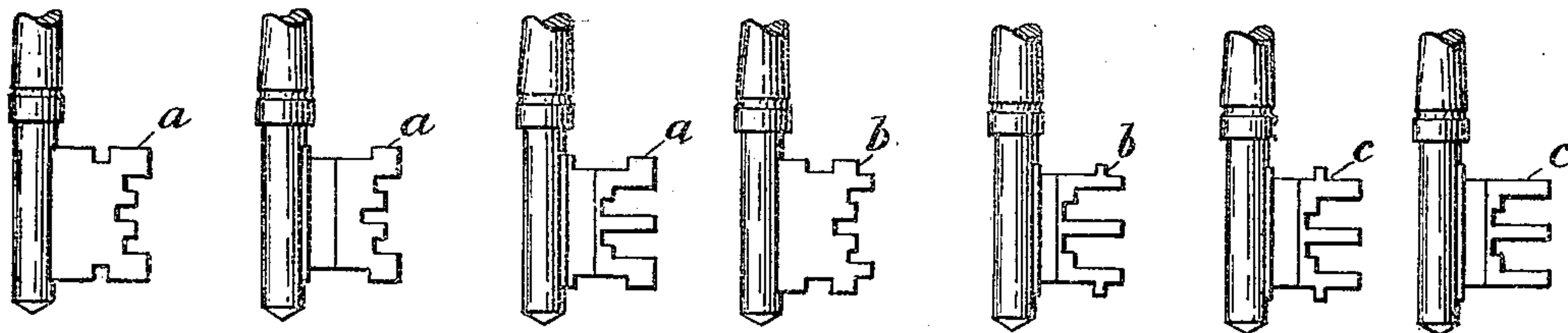


Fig 10. Fig 11. Fig 12. Fig 13. Fig 14. Fig 15. Fig 16.



Witnesses:
Chas. A. Beard
Fred M. Dannenfelser

AUGUST ARENS Inventors
E. L. TEICH
By their Attorneys
Carlton G. Small *Wm. C. Cline*

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3 SHEETS—SHEET 2.

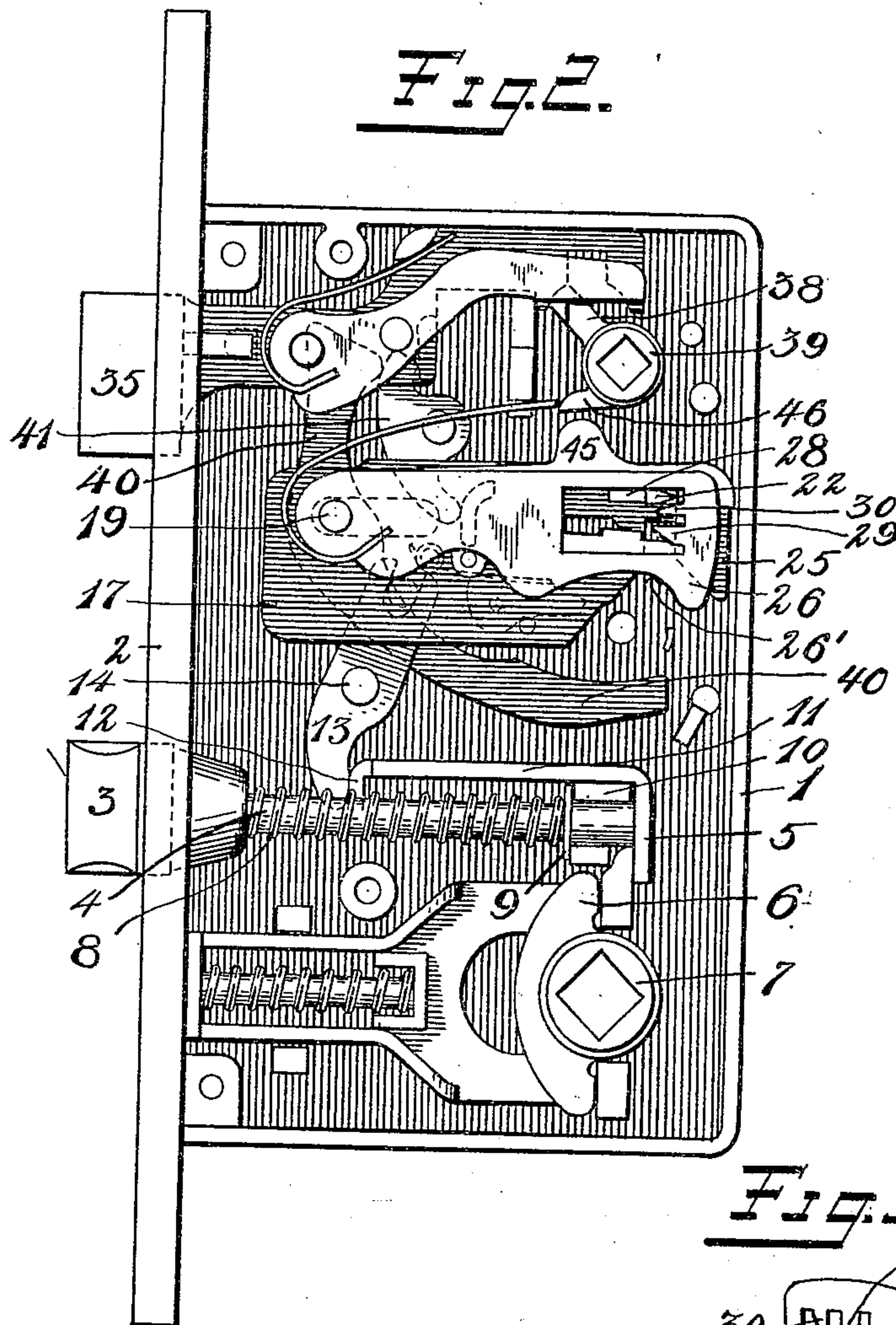


Fig. 6.

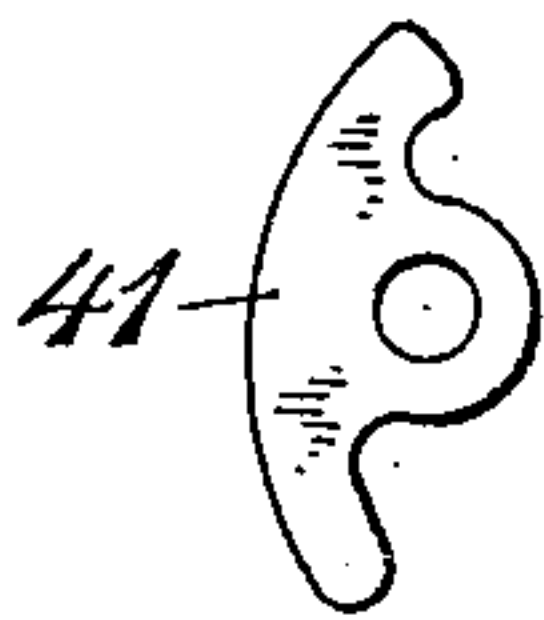


Fig. 7.

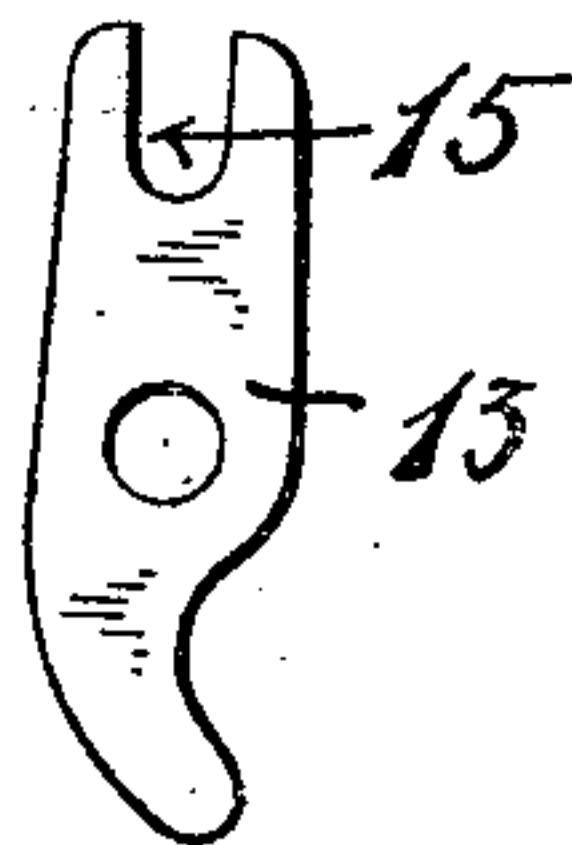
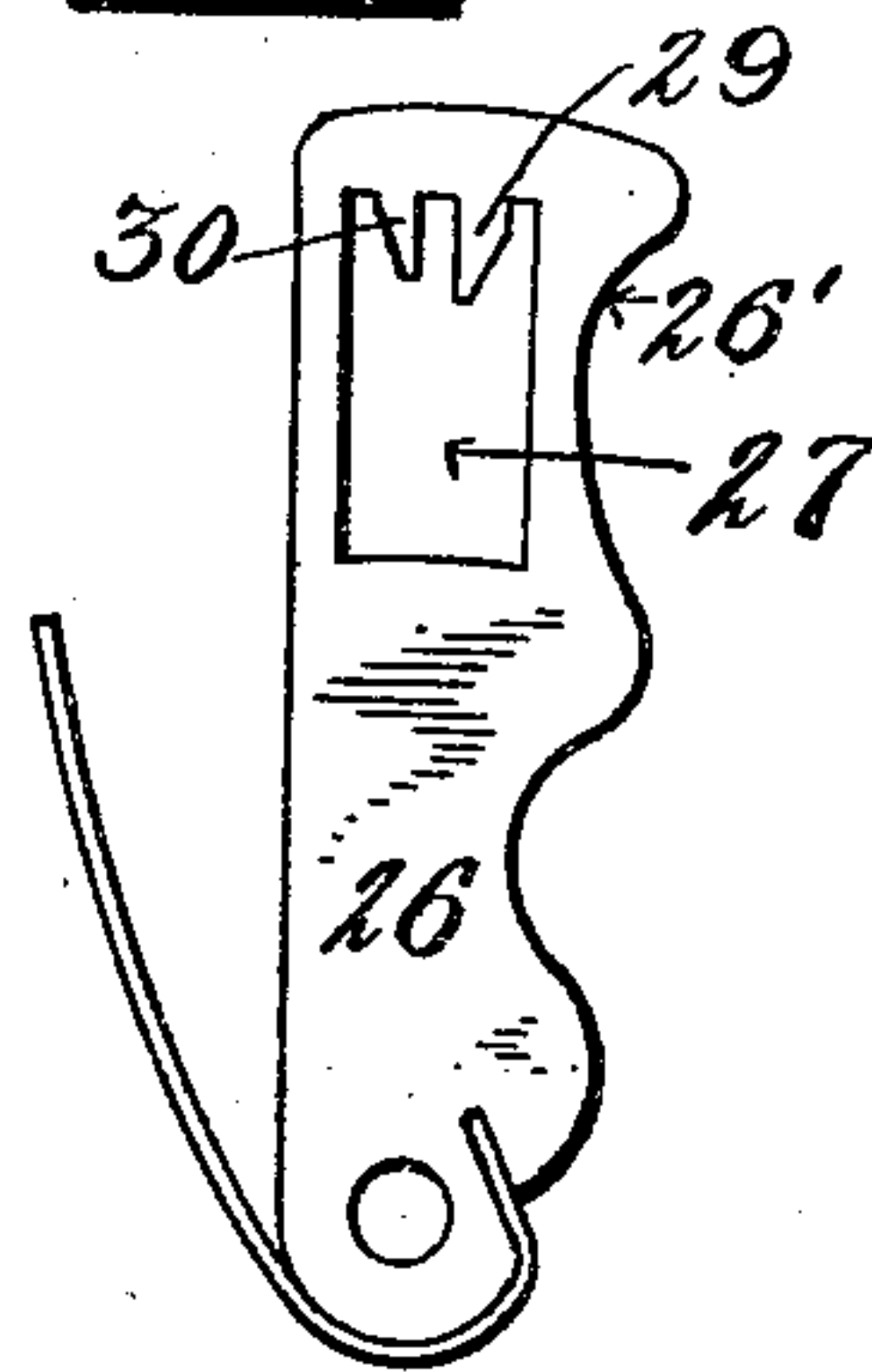


Fig. 9.



Witnesses:
Chas. A. [Signature]
Fred M. Dammeyer

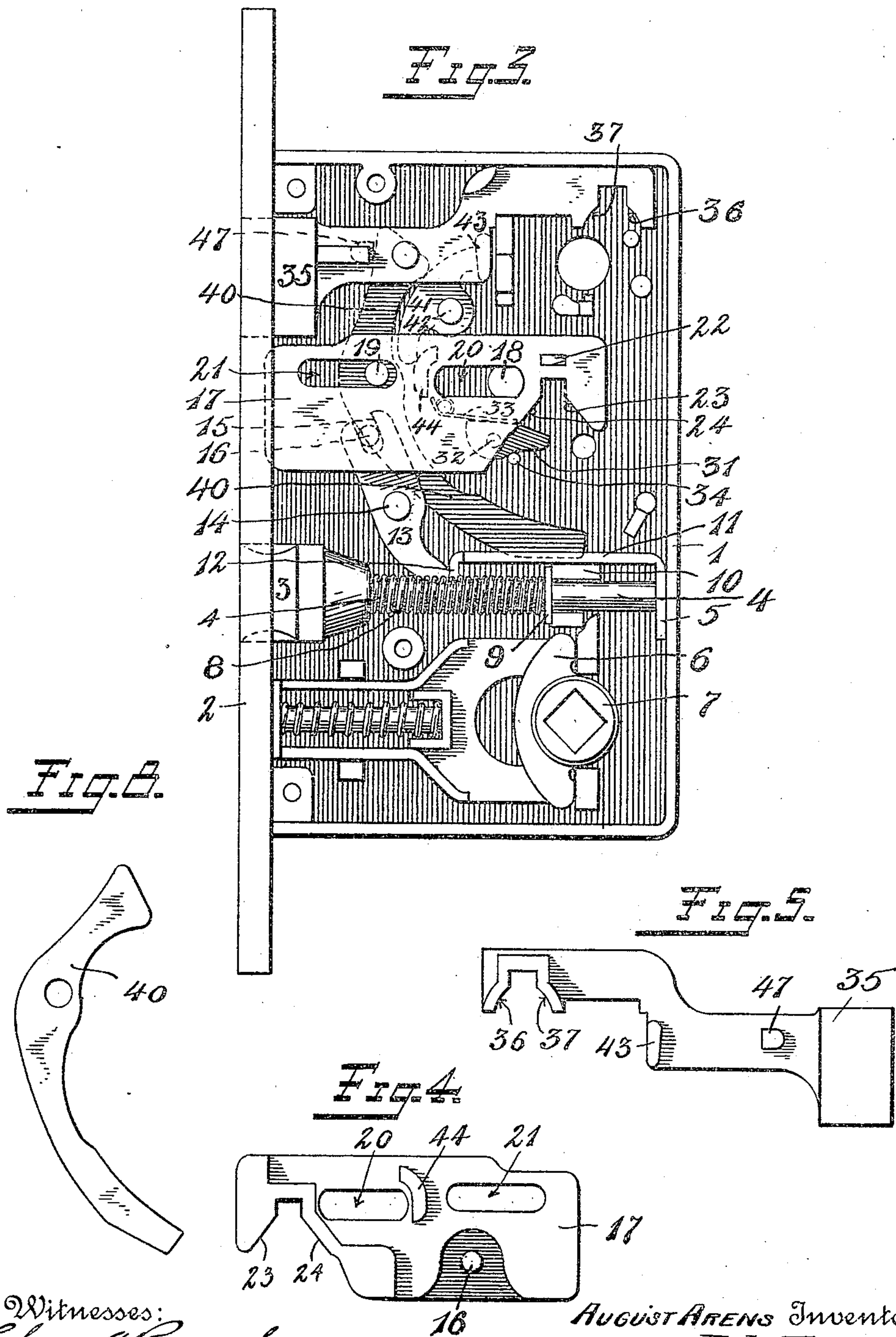
AUGUST ARENS Inventors
E. L. TEICH
By *his* Attorneys
Arthur Emmet [Signature]

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3 SHEETS-SHEET 3.



Witnesses:
Chas. W. Beard
Fred M. Dammelfelser

AUGUST ARENS Inventors
E. L. TEICH
By *Arthur B. Bunker Mitchell*
Attorneys

UNITED STATES PATENT OFFICE.

AUGUST ARENS AND ERNEST L. TEICH, OF NEW BRITAIN, CONNECTICUT, ASSIGNORS TO
P. & F. CORBIN, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

HOTEL-LOCK.

958,352.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, AUGUST ARENS and ERNEST L. TEICH, citizens of the United States, residing at New Britain, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Hotel-Locks, of which the following is a full, clear, and exact description.

Our invention relates to improvements in so-called hotel door locks which are adapted to be operated by a number of different keys, and also adapted, when operated by certain of the keys, to be rendered inoperable by other of the keys. Thus, in some instances, it is desirable that the lock may be operated interchangeably by a guest key and also by a master key held by the chamber maid, which master key is adapted to operate all the locks for example of one floor. Furthermore, it may be desired that the lock may be operated interchangeably and not only by the guest key and master key, but also by a grand master key, which will operate all the locks of all the floors interchangeably with the guest and master keys. Furthermore, in some instances it may be desirable that access to the room be confined to the guest to the exclusion of those holding the keys before mentioned, as for example, where the room is used for the display of goods. To this end the lock is adapted to be operated by a so-called display key, which will block the lock against operation of the keys heretofore mentioned. Again, it may be desirable that access to the room when used for display purposes may be permitted to a party with proper authority for the purpose of looking after the display on behalf of the guest. To this end a so-called master display key is provided, the operation of which will block the lock against operation by the guest, master and grand master keys, but will leave it in position to be operated by the display key. In other words, the display and master display keys may be used interchangeably. In some instances, furthermore, it may be desired to block the lock against operation by all of the keys before mentioned for which purpose a so-called grand lock-out key is provided, which, when operated, will so set the lock as to render the keys heretofore mentioned inoperable and finally it may be desirable to

provide a key to be held by the proprietor of the hotel, for example, which will operate the lock "through" any of the keys before mentioned. For the above purposes, the lock is provided with mechanism adapted to be set by the various keys to operate in the manner described.

A further object of the invention is to so construct the lock that the door will always be locked or bolted when closed. To this end the lock and the keys are so constructed that none of the keys, with the exception of the last key above mentioned, which is termed an emergency key, can be withdrawn from the lock unless the bolt is in locked position.

A further object of the invention is to provide means whereby the door may be bolted from the inside as by a thumb bolt in such manner that it can not be opened save by the emergency key, which key is constructed to retract the thumb bolt from the outside as well as to unlock the latch bolt, while at the same time mechanism is provided whereby, when the thumb bolt is projected, none but the emergency key can be operably inserted in the lock from the outside. It is to be understood, moreover, that in the construction contemplated by this invention, the lock is provided with a key-hole only upon the outside.

A further object of the invention is to provide means whereby the latch bolt may be readily retracted from the inside by the usual door knob, it being understood that the knob on the outer side of the door is rigid and not operably connected with the latch bolt mechanism.

With the above objects in view, the invention consists in the construction and arrangement of parts, the preferred embodiment of which is illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of the lock with the cap-plate removed to show the interior mechanism, said mechanism being shown in position after the bolt has been projected by the guest, master or grand master keys. Fig. 2 is a view similar to Fig. 1, showing the lock mechanism in position when the latch bolt has been projected by the grand lock-out or the emergency key, and also showing the thumb bolt in pro-

jected position. Fig. 3 is a view similar to Figs. 1 and 2, showing the position of the parts when both the thumb bolt and latch bolt have been retracted. Fig. 4 is a detached underside view of the so-called blind bolt which operates the latch bolt. Fig. 5 is a view similar to Fig. 4 of the thumb bolt. Figs. 6, 7, 8 and 9 are detached views of several parts of the operating mechanism hereinafter to be described. Figs. 10 to 16 inclusive are views in elevation of the ward ends of the guest, master, grand master, display, grand master display, grand lock-out and emergency keys respectively.

In the embodiment of our invention herein selected for illustration, 1 represents the usual lock case having the front plate 2 adapted to be secured to the rim of the door and provided with a cover plate (not shown) to conceal and protect the lock mechanism within the case.

3 represents a latch bolt having the usual shank 4 which is provided at the rear with a cross head 5 arranged to be actuated by the usual roll-back 6, operated by the knob spindle which passes through the hub 7. In the device herein described it is to be understood that the spindle is adapted to be rotated only from the inside knob and that the outside knob is fixed rigidly to the door. The construction and arrangement of the knobs and spindles to this end is sufficiently well known in the art to need no detailed description. The latch bolt is normally held in projected position by means of a coil spring 8 surrounding the shank 4 and interposed between the head of the latch and a loose washer 9, which in turn abuts against the projections 10 fixed to the base of the case. The cross head 5 is provided with a forwardly projecting arm 11 having a head 12 adapted to be engaged by a lever 13 pivoted at 14 on the lock case and which lever is provided at its opposite end with a slot 15 arranged to engage a stud 16 on the rear side of a so-called "blind" bolt 17. This blind bolt is arranged to be guided by studs 18 and 19 (Fig. 3) projecting upwardly from the bottom of the lock case into the slots 20 and 21 respectively of said blind bolt 17, and said bolt is provided at its rear end with a racking stump 22 and also with key-engaging shoulders 23 and 24. Pivoted on the forward stud 19, by which the blind bolt is guided, are a plurality of tumblers comprising the main or usual tumblers 25 and what may be termed a display lock out tumbler 26. Each of the tumblers is provided with the usual gate 27 and the main tumblers are also provided with the fences 28 adapted to engage the rear and forward side of the racking stump 22 when the latch bolt is in locked or unlocked position respectively.

The display and lock out tumbler is pro-

vided with teeth 29 and 30 respectively arranged to operate in conjunction with the racking stump 22 in a manner determined by the structure of the particular key or keys used to operate the blind bolt and through it the latch bolt 3 by means of the lever 13.

The operation of the parts thus far described by the various keys above mentioned is as follows: Referring to Figs. 10 to 12 inclusive, it will be seen that the wards of the guest, master and grand master keys respectively are of full outline at their outer corners as at *a*. The operation of any one of these keys, therefore, upon the tumblers of the blind bolt will result in the engagement of the sweep 26' of the display and lock out tumbler 26 and will raise said tumbler to such position that when the blind bolt 17 is thrown to the rear in the projection of the latch bolt, the racking stump carried by said blind bolt will engage within the notch of the display and lock out tumbler immediately below the tongue 29, or, in other words, the display and lock out tumbler will be thrown to its highest position.

From an inspection of Figs. 13 and 14, which illustrate the display and grand master display keys, respectively, it will be seen that the outer corners of the wards of these keys are cut away to a certain extent and for a certain depth toward the shanks of the keys as at *b*. As a result of this cutting away of the wards of the display and grand master display keys respectively, the bottoms of the cut away portions *b* will, when the lock is operated by these keys, engage the sweep of the display and lock out tumbler but will raise the same to a less extent than the same was raised by the three keys first specified, so that the racking stump upon rearward movement of the blind bolt, will engage within the notch between the tongues 29 and 30 of the display and lock out tumbler 26. When the latch bolt has been so locked by the operation of the display or grand master display keys respectively, it will be obvious that operation of the blind bolt by means of the guest, master and grand master keys will be prevented for the reason that the display and lock out tumbler will be blocked against the complete elevation necessary to permit rotation of the wards of these keys beneath said tumbler. Hence, when the latch bolt is projected by the operation of the display or grand master display keys, the lock will be blocked against operation by the guest, master and grand master keys.

From an inspection of Fig. 15, it will be seen that the ward of the grand lock-out key is cut away at its outer corner at *c* to a greater depth than the cut-away portion of the wards of the display and grand master display keys; and from an inspection of

Fig. 16, it will be seen that the entire ward of the emergency key is so reduced in width as to entirely eliminate the tumbler-engaging portions at its opposite edges. As a result of this construction of the grand lock-out and emergency keys, the display and lock out tumbler will not be raised at all when the blind bolt is operated by these keys, and consequently the racking stump of said blind bolt will take within the notch in the display and lock out tumbler just above the tooth 30 thereof. It will be obvious, therefore, that when the blind bolt has been actuated by either the grand lock out or emergency keys, it can not be operated by any of the other keys of the series. Furthermore, it will be seen that when the bolt is locked by the operation of the display and grand master display keys, it will be blocked against operation by the guest, master and grand master keys but may be operated by any of the remaining keys of the series. Furthermore, when the latch bolt has been projected by the operation of either the grand lock-out or emergency key, it will be blocked against operation by any key of the series except the grand lock-out and emergency key.

It is to be noticed that the latch bolt 3 is normally spring-projected by its spring 8 and one of the objects of the invention is to so arrange the mechanism that the latch bolt will always be left in projected position by whatever key it is operated, with the exception of the emergency key, in order that when the door is shut, it will invariably be locked. To this end, means are provided for preventing the withdrawal of any of the keys except the emergency key when the latch bolt is retracted. For this purpose, a spring dog 31, Fig. 3, is pivoted at 32 on the bottom of the lock case and is held in normal position by any suitable form of spring 33. A stop 34 is provided to hold the dog in normal position. This dog 31 is so arranged with respect to the key-engaged shoulders 23 and 24, of the blind bolt 17, that while the wards of the keys may turn said dog out of the way to permit the rotation of said wards to effect rearward movement of the blind bolt 17 to project the latch bolt, said dog while permitting of sufficient rotation of the keys in the opposite direction to retract the latch bolt, will prevent sufficient rotation to position the key to be withdrawn from the lock when the latch bolt is in retracted position. Consequently, in order to withdraw the key after retracting the latch bolt, it will be necessary to reverse its movement to bring its wards in line with the key-hole, which reverse movement will result in again projecting the latch bolt. This operation is rendered effective by the presence of the shoulders at *a*, *b* and *c* respectively of all of the keys

except the emergency key. The emergency key, however, inasmuch as its ward is free of shoulders at its upper and inner edges, will freely pass over said dog in both directions of rotation and hence the latch bolt may be left either in retracted or projected position upon withdrawal of the emergency key. This possibility of withdrawing the emergency key when the latch bolt is retracted serves the further purpose of resetting the display and lock out tumbler so that it may be operated by the guest, master and grand master keys after the lock has been operated by any of the other keys, such as the display, grand master display, grand lock-out or emergency, for with the latch bolt in retracted position, it is obvious that the racking stump 22 will be freed from all of the notches in the rear end of the display and lock out tumbler. Owing therefore to the fact that the latch bolt must always be left in locked position by any of the keys except the emergency key, it will be obvious that only the emergency key can reset the latch bolt for operation, for example, by the guest, master and grand master keys after it has been locked by the display, grand master display or grand lock-out keys respectively. It will be seen, therefore, that when the lock has been operated by the display or grand master display keys, access to the room will be confined to those holding these keys, or to those holding the grand lock-out or emergency key, and when the lock is operated by the grand lock-out key, access to the room will be confined to the one holding the grand lock-out key, or the one holding the emergency key.

In order that the guest or occupant of the room may lock the door from the inside and prevent the unlocking of the same from the outside by any but the holder of the emergency key, a thumb bolt 35 is provided mounted in suitable guide-ways at the upper end of the lock case which bolt is provided with cam surfaces 36 and 37 for engagement by a roll back arm 38 of a hub 39, provided with the usual thumb piece spindle, not shown, projecting to the inside of the door. It will be seen, furthermore, that the roll back arm 38 by engagement with the cam surface 37 of the thumb bolt will serve to dead-lock said bolt against unauthorized manipulation. Pivoted on the stud 19 which carries the tumblers of the blind bolt is a lever 40, having its upper end resting in a suitable recess at the rear of the thumb bolt 35, and having its lower end extended to a position just below the key-hole in the cap plate of the lock. When the thumb bolt is projected, this lever 40 is rotated on its pivot to bring its lower end in alignment with the key-hole, which results in preventing complete insertion of any of the keys except the emergency key due to the pres-

ence of the shoulders at the outer corners of the wards of all keys except the emergency key; hence when the thumb bolt is projected, access to the room may be had only by the
 5 holder of the emergency key.

It will be obvious that the occupant of the room may at all times unlock the door from the inside by reason of the fact that the roll back of the latch bolt may be operated by the rotatable knob spindle from the
 10 inside, as above described.

In order to make it possible to completely unlock the door even though locked on the inside by the thumb bolt, as for example in
 15 case of emergency, means are provided whereby upon operation of the latch bolt, the thumb bolt may be simultaneously retracted. To this end a lever 41 is pivoted on a stud 42 projected from the lock case, the upper end of which lever engages a
 20 shoulder 43 on the thumb bolt, and the lower end of said lever engages a shoulder 44 on the blind bolt 17.

Referring to Fig. 2 it will be seen that should the blind bolt be moved to its forward position to retract the latch bolt 3, the lever 41 will at the same time serve to retract the thumb bolt 35. It is, however, necessary to release the cam surface 37 of the thumb bolt from the roll back 38 in
 30 order to permit such retraction of the thumb bolt from the blind bolt. To this end one of the tumblers on the blind bolt is provided with a projection 45, which lies beneath a projection 46 on the roll back hub 39 so that when the tumblers are raised by the rotation of the key in the operation of the blind bolt, the projection 45 on one of said tumblers is adapted to engage the projection 46 of the
 40 roll back hub and rotates the roll back arm 38 out of engagement with the cam surface 37; whereupon further rotation of the key will serve to move the blind bolt to its forward position, thereby simultaneously unlocking the latch bolt 3 through the lever 13 and the thumb bolt 35 through the lever 41.

It is to be understood that the ward of the emergency key is so formed, as above described, as to clear the lower key-hole blocking arm of the lever 40. It will be
 50 seen that the upper end of the lever 40 is positioned between a projection 47 on the rear side of the thumb bolt 35 and the edge of the lever 41, whereby the lever 40 is caused to follow at all times the movements of the thumb bolt. It will furthermore be seen that by reason of the fact that the lower end of the lever 40 is always brought into alinement with the key-hole by the projection of the thumb bolt that none of the
 60 keys except the emergency key can be sufficiently inserted in the key-hole to operate the blind bolt and through it the thumb bolt, as above described. Hence unlocking of the
 65 door from the outside when locked on the

inside by the thumb bolt will be confined to the holder of the emergency key or the proprietor of the hotel. Furthermore it will be seen from an inspection of Fig. 1 that when the thumb bolt is retracted, the
 70 blind bolt may perform its function of locking and unlocking the latch bolt without interference with the lever 41 connecting said blind bolt with the thumb bolt.

While we have herein described a particular embodiment of our invention, it is to be understood that the same may be varied in details and arrangement of parts without departing from the spirit and scope thereof.

What we claim is:

1. In a lock, the combination of a latch bolt and a knob spindle for operating said latch bolt from one side of the door only, a plurality of keys, key operated lock mechanism operable by all of said keys for operating said latch bolt, including a member for preventing the operation of said latch bolt by certain of said keys when operated by certain other of said keys.

2. In a lock, a latch bolt normally spring projected, a knob spindle arranged to operate said latch bolt from the inside of the door only, a plurality of keys and a locking mechanism operable by all of said keys arranged to actuate said latch bolt including a member constructed to prevent operation of said latch bolt by certain of said keys when locked by the operation of certain other of said keys.

3. In a lock, a latch bolt normally spring projected, a knob spindle arranged to actuate said latch bolt from one side of the door only, a plurality of keys and tumbler mechanism operable by all of said keys, including a tumbler constructed and arranged to prevent the actuation of said latch bolt by certain of said keys when locked by the operation of certain other of said keys.

4. In a lock, a latch bolt normally spring projected, a knob spindle arranged to actuate said latch bolt from but one side of the door, a plurality of keys, a locking mechanism for said latch bolt operable by all of said keys including a tumbler so constructed and arranged as to prevent operation of certain of said keys when operated by certain other of said keys.

5. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected with said latch bolt, a plurality of keys and mechanism connected with said blind bolt and operable by all of said keys so constructed and arranged as to prevent operation of said blind bolt by certain of said keys when operated by certain other of said keys.

6. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected with said latch bolt, a plurality of keys and tumbler mechanism connected with said
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blind bolt and operable by all of said keys constructed and arranged to prevent operation of said blind bolt by certain of said keys when locked by certain other of said keys.

7. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected with said latch bolt, a plurality of keys and a member connected with said blind bolt and operable by all of said keys constructed and arranged to prevent operation of said blind bolt by certain of said keys when operated by certain other of said keys.

8. In a lock, a latch bolt normally spring projected, a locking mechanism operatively connected with said latch bolt, a plurality of keys and means to prevent the withdrawal of certain of said keys when said latch bolt has been projected by the operation thereof.

9. In a lock, a latch bolt normally spring projected, a plurality of keys, a blind bolt operatively connected with said latch bolt and means for preventing the withdrawal of certain of said keys when the latch bolt has been retracted thereby and until said latch bolt has been again projected by the operation thereof.

10. In a lock, a latch bolt normally spring projected, a knob spindle arranged to operate said latch bolt from the inside of the door only, a blind bolt, a lever connecting said blind bolt and said latch bolt whereby the latter may be retracted by the former, a plurality of keys and a member connected with said blind bolt whereby projection of the latch bolt by said blind bolt by certain of said keys will prevent the retraction of said latch bolt by certain other of said keys.

11. In a lock, a latch bolt normally spring projected, a locking mechanism for operating said latch bolt, a thumb bolt and operative connections between said locking mechanism and said thumb bolt to prevent projection of the latter when the latch bolt is retracted.

12. In a lock, a latch bolt normally spring projected, locking mechanism for said latch bolt, a thumb bolt, a lever interposed between said locking mechanism and said thumb bolt constructed and arranged to prevent projection of the thumb bolt when said latch bolt is retracted.

13. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected with said latch bolt, tumbler mechanism connected with said blind bolt, a thumb bolt and operative connections between said thumb bolt and said blind bolt to prevent projection of said thumb bolt when the latch bolt has been retracted by said blind bolt.

14. In a lock, a latch bolt, locking mechanism therefor, a thumb bolt, a roll back therefor arranged to dead lock said thumb bolt when the latter is projected, means included

in said locking mechanism to release said dead locking means when said locking mechanism is operated to retract said latch bolt.

15. In a lock, a normally spring projected latch bolt, a plurality of keys, a locking mechanism operatively connected with said latch bolt and having a member arranged to prevent retraction of said latch bolt by certain of said keys when projected by certain other of said keys, a thumb bolt, dead locking means therefor and means operated through the operation of said locking mechanism to release said dead locking means whereby said latch bolt and thumb bolt may be simultaneously retracted.

16. In a lock, a normally spring projected latch bolt, a knob spindle arranged to operate said latch bolt from the inside of the door only, key operated mechanism for said latch bolt, a thumb bolt having means to dead lock the same when in projected position, operative connections between said locking mechanism and said dead lock to release the same simultaneously with the retraction of the latch bolt.

17. In a lock, a key operated bolt, locking mechanism therefor, a thumb bolt having means to dead lock the same when in projected position and means connected with said locking mechanism to release said dead lock and retract said thumb bolt simultaneously with the retraction of said key bolt.

18. In a lock, a normally spring projected latch bolt, a knob spindle arranged to operate said latch bolt from the inside of the door only, a plurality of keys, locking mechanism including a member arranged to prevent operation of certain of said keys when operated by certain other of said keys, a thumb bolt and means to prevent projection of said thumb bolt when said latch bolt is retracted.

19. In a lock, a latch bolt, a knob spindle adapted to operate said latch bolt from the inside of the door only, a key operated blind bolt operatively connected with said latch bolt, a thumb bolt and operative connections between said blind bolt and said thumb bolt to prevent projection of said thumb bolt when said latch bolt has been retracted through said blind bolt.

20. In a lock, a normally spring projected latch bolt, a knob spindle arranged to operate the same from the inside of the door only, a blind bolt for operation of said latch bolt, a plurality of keys and locking mechanism connected with said blind bolt to prevent operation thereof by certain of said keys when operated by certain other of said keys, a thumb bolt, operative connections between said thumb bolt and said blind bolt to permit retraction of the former by the latter when said latch bolt is retracted by said blind bolt.

21. In a lock, a latch bolt normally spring

projected, a knob spindle arranged to operate said latch bolt from the inside of the door only, key operated locking mechanism for said latch bolt, a thumb bolt, operative
 5 connections between said thumb bolt and locking mechanism, a plurality of keys and means to prevent operative insertion of certain of said keys and to permit insertion of certain other of said keys when said thumb
 10 bolt is projected.

22. In a lock, a normally spring projected latch bolt, locking mechanism therefor, a series of keys including display, grand master display, grand lock-out and emergency keys respectively, a member arranged to prevent the retraction of said latch bolt by any other of said series of keys when locked by the operation of any one of said keys particularly specified.

20 23. In a lock, a latch bolt normally spring projected, a plurality of keys including display, grand master display, grand lock-out and emergency keys respectively, locking mechanism for said latch bolt including a
 25 member constructed and arranged to prevent retraction of said latch bolt by any other of said series of keys when projected by the operation of any one of the keys particularly specified when said latch bolt has
 30 been projected by the operation of said display key or grand master display key.

24. In a lock, a latch bolt normally spring projected, a plurality of keys including a display, grand master display, grand lock-out and emergency keys respectively, locking mechanism for said latch bolt including
 35 a member constructed and arranged to prevent retraction of said latch bolt by any other of said series of keys than those particularly specified when projected by the operation of the display or grand master display keys, and to prevent retraction of
 40 said latch bolt by any of said series of keys except the grand lock-out key and emergency key when projected by the operation of either the grand lock-out or emergency key.

25. In a lock, a latch bolt, a plurality of keys for operation thereof including the display key, grand master display key, grand lock-out and emergency keys respectively, locking mechanism for said latch bolt including a member having means to prevent retraction of said latch bolt by any of
 50 said series of keys except those particularly specified when projected by the operation of said display key or grand master display key and having means to prevent retraction by any of the keys of the series except the
 55 grand lock-out key or emergency key when said bolt has been projected by the operation of either of said keys last named.

26. In a lock, a latch bolt, a blind bolt operatively connected therewith, a plurality
 65 of keys including a display, grand mas-

ter display, grand lock-out and emergency keys respectively, tumbler mechanism on said blind bolt including a tumbler having means to prevent operation of said blind
 70 bolt by any of the keys of the series other than those particularly specified when said latch bolt has been projected by the operation of any one of the latter keys.

27. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected
 75 therewith, a plurality of keys including a display, grand master display, grand lock-out and emergency keys respectively, tumbler mechanism on said blind bolt including a tumbler having means to prevent operation thereof by any of the keys of the series
 80 other than those specifically named when said latch bolt has been locked by the operation of the display key or grand master display key and having means to prevent operation of said blind bolt by any of the keys of the series except said grand lock-out key or emergency key when said latch bolt has been locked by the operation of either of
 85 said keys.

28. In a lock, a latch bolt, a plurality of keys including display, grand lock-out and emergency keys respectively, a tumbler for said latch bolt having means to prevent operation of said bolt by any of said series of
 90 keys except those particularly specified when locked by the operation of the display key and having means to prevent operation of said latch bolt by any of said series of keys except the grand lock-out and emergency keys when locked by the operation of either of said last mentioned two keys.

29. In a lock, a latch bolt, a plurality of keys including a display, grand lock-out and emergency key respectively, locking
 105 mechanism for said latch bolt including a tumbler having a tongue to prevent operation of said latch bolt by any of said series of keys except those particularly specified when locked by the operation of said display key and having a second tongue to prevent operation of said latch bolt by any of said series of keys except the grand lock-out or emergency keys when locked by the operation of either of said keys.

30. In a lock, a latch bolt normally spring projected, a plurality of keys including a display key, grand lock-out and emergency key, locking mechanism for said latch bolt including a tumbler having means whereby
 120 it may be set to prevent retraction of said latch bolt by any but the keys particularly specified when locked by the operation of said display key and having means whereby it may be set to prevent operation of any
 125 of said series of keys except the grand lock-out or emergency key when the latch bolt is locked by the operation of either of said keys.

31. In a lock, a latch bolt normally spring 130

projected, a plurality of keys including display, grand lock out and emergency keys respectively and means to prevent withdrawal of any of the keys of said series except the emergency key when the latch bolt is in retracted position.

32. In a lock, a latch bolt normally spring projected, a series of keys including display, grand lock-out and emergency keys respectively, locking mechanism for said latch bolt including a member constructed and arranged to prevent retraction of said latch bolt by any of said series of keys except those particularly specified when locked by the operation of the display key and having means to prevent the operation of said latch bolt by any of said series of keys except the grand lock-out and emergency key when locked by the operation of either of said keys and means to prevent the withdrawal of any of the keys of the series except the emergency key when the latch bolt is in retracted position.

33. In a lock, a latch bolt normally spring projected, a series of keys including display, grand lock-out and emergency keys respectively, locking mechanism for said latch bolt including a member adapted to be set when said latch bolt is locked by the operation of the display key to prevent unlocking by any of the keys of the series except those particularly specified and adapted to be set by the locking of said latch bolt by the operation of the grand lock-out and emergency keys to prevent unlocking of said latch bolt by any but either of said keys, means to prevent withdrawal of any of the keys of the series from the lock except the emergency key when the latch bolt is retracted whereby said member can only be reset for other keys of the series after operation by the display, grand lock-out and emergency keys by the emergency key.

34. In a lock, a latch bolt normally spring projected, a series of keys including an emergency key, locking mechanism for said latch bolt including a member adapted to be set by certain of said keys to prevent operation of the latch bolt by certain other of said keys when said latch bolt is projected, means to prevent withdrawal of any of said keys from the lock except the emergency key when the latch bolt is retracted whereby said member can be reset for other keys of the series than those by which it has been operated by the emergency key only.

35. In a lock, a latch bolt normally spring projected, a blind bolt operatively connected with said latch bolt, a series of keys, tumbler mechanism for said blind bolt including a tumbler constructed and arranged to prevent operation of said blind bolt by certain of said keys when locked by certain other of said keys, a thumb bolt and a lever operated

by said thumb bolt constructed and arranged to prevent operative insertions of certain of said keys when said thumb bolt is projected.

36. In a lock, a latch bolt normally spring projected, a knob spindle for said latch bolt arranged to be operated from the inside of the door only, a blind bolt operatively connected with said latch bolt, tumbler mechanism for said blind bolt, a thumb bolt, operative connections between said thumb bolt and said blind bolt constructed and arranged to prevent projection of said thumb bolt when said latch bolt has been retracted by said blind bolt.

37. In a lock, a latch bolt normally spring projected, a knob spindle for said latch bolt operable from the inside of the door only, a key-operated blind bolt operable from the outside of the door only, operative connections between said blind bolt and said latch bolt, a thumb bolt, operative connections between said thumb bolt and said blind bolt whereby said latch bolt and said thumb bolt may be simultaneously retracted by said blind bolt.

38. In a lock, a latch bolt normally spring projected, a knob spindle for said latch bolt operable from the inside of the door only, a key-operated blind bolt operable from the outside of the door only, a thumb bolt, operative connections between said thumb bolt and said blind bolt constructed and arranged to prevent projection of said thumb bolt when said latch bolt is retracted.

39. In a lock, a latch bolt normally spring projected, a knob spindle for said latch bolt operable from the inside of the door only, a key-operated blind bolt operatively connected with said latch bolt, a thumb bolt operatively connected with said blind bolt, said connections being so arranged that said latch bolt and thumb bolt may be simultaneously retracted by said blind bolt.

40. In a lock, a latch bolt normally spring projected, a knob spindle for said latch bolt operable from the inside of the door only, a key-operated blind bolt operably connected with said latch bolt, a thumb bolt operable from the inside of the door and operably connected with said blind bolt said thumb bolt being so arranged that said latch bolt and thumb bolt may be simultaneously retracted by the operation of said blind bolt, a series of keys including an emergency key and means to prevent operative insertion of any of said keys except the emergency key when said thumb bolt is projected.

AUGUST ARENS.
ERNEST L. TEICH.

Witnesses:

G. ERNEST ROOT,
WM. CALLIN.