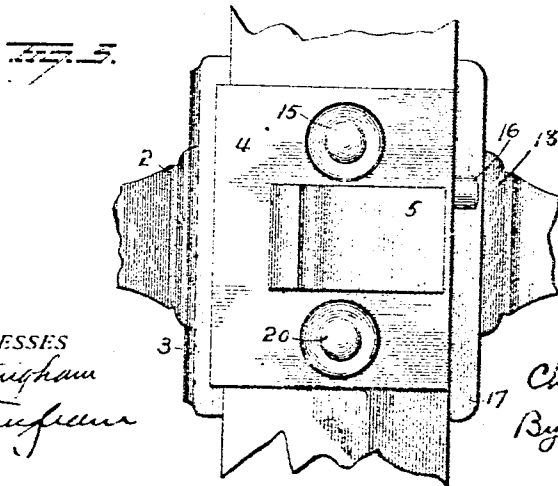
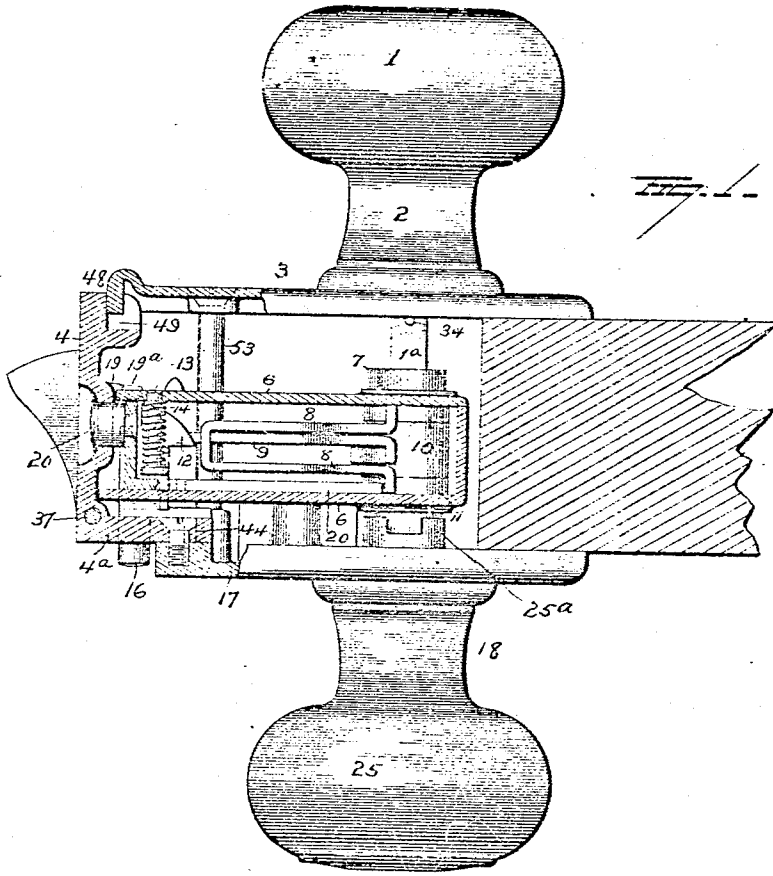


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LOCK.
APPLICATION FILED AUG. 12, 1907.

949,613.

Patented Feb. 15, 1910.

4 SHEETS—SHEET 1.



WITNESSES
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4 SHEETS—SHEET 2.

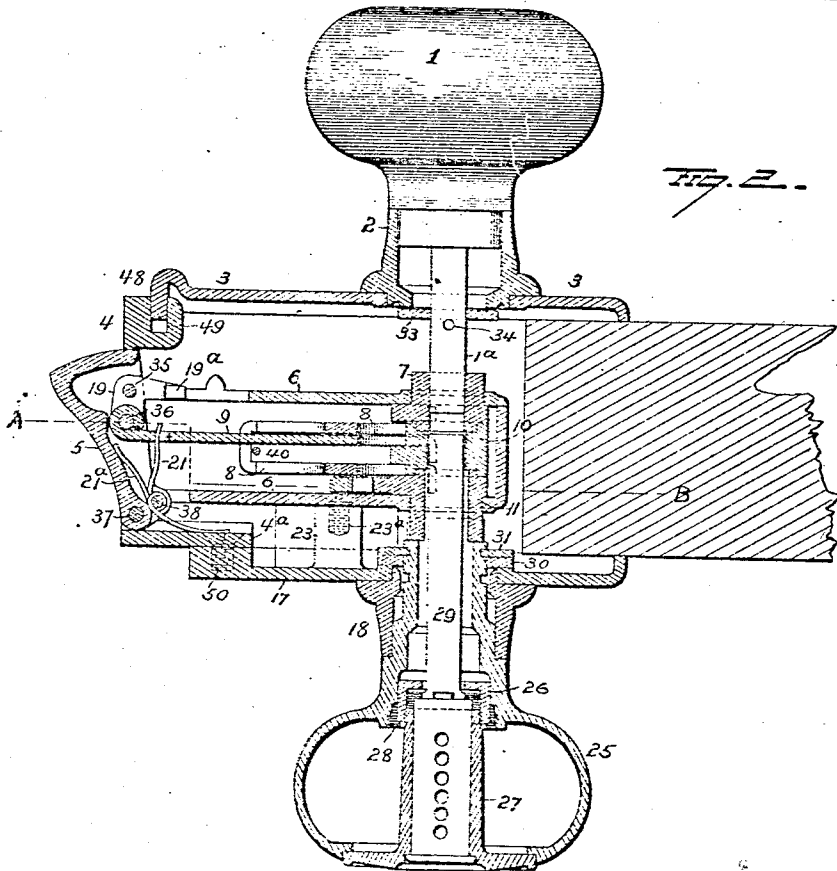


Fig. 2.

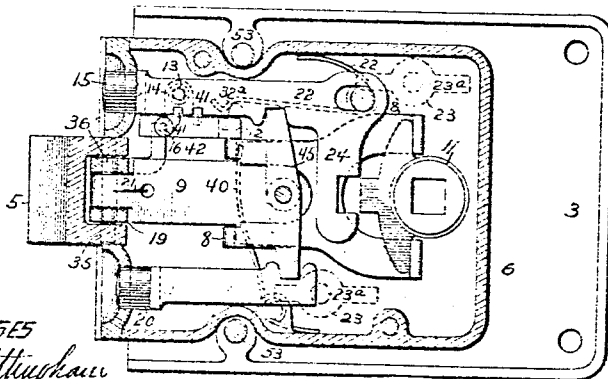


Fig. 4.

WITNESSES

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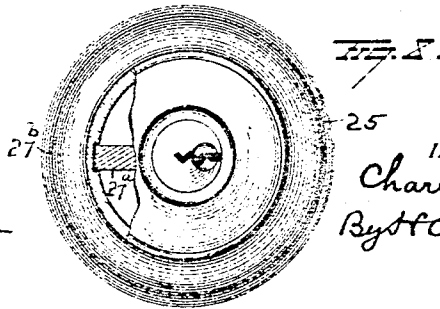
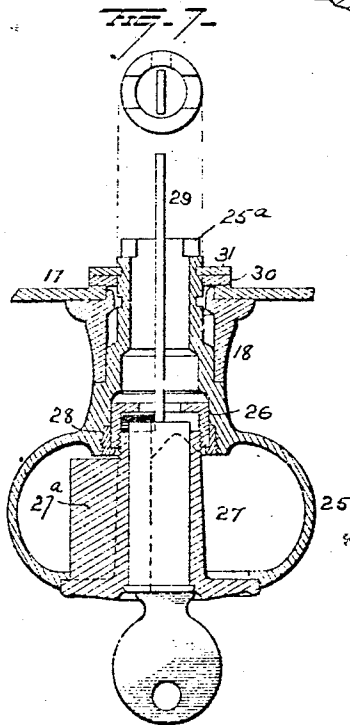
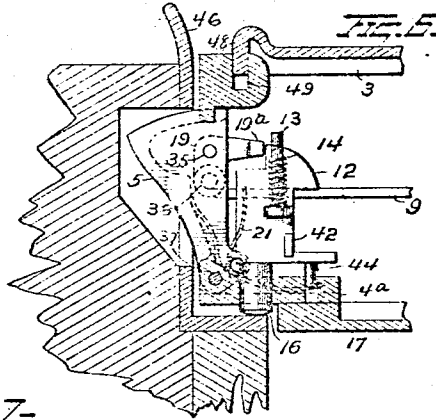
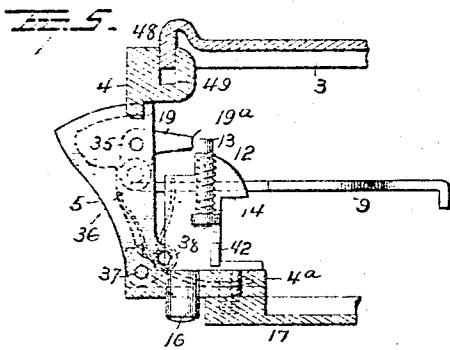
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4 SHEETS—SHEET 3.



WITNESSES
E. Nottingham
S. Nottingham

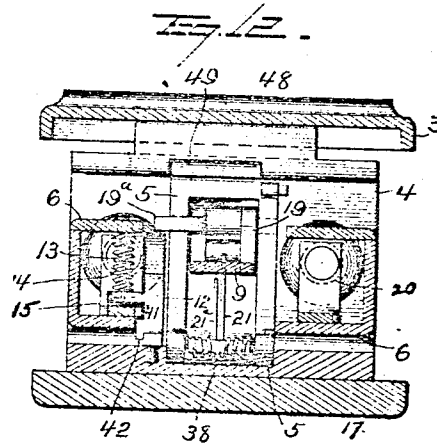
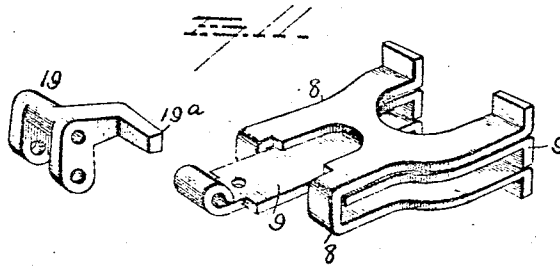
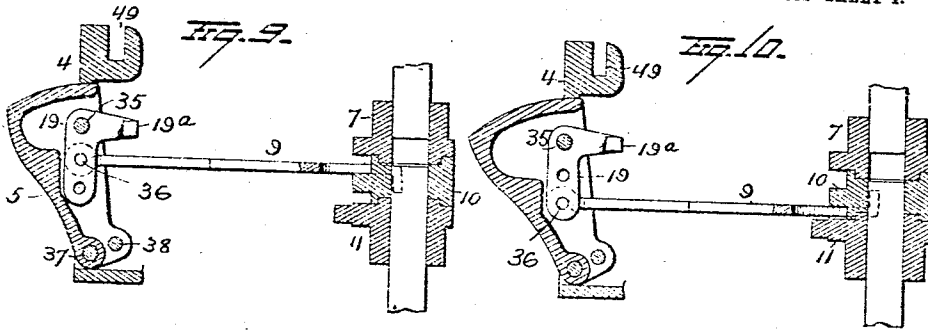
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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LOCK.

949,613.

Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed August 12, 1907. Serial No. 388,219.

To all whom it may concern:

Be it known that I, CHARLES A. BERRY, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in locks, the object being to provide a lock composed of a plurality of parts or units each complete in itself, and adapted to be adjusted and assembled on a door without disconnecting or altering any of the parts.

A further object is to provide a lock with means for deadlocking the outer knob, and also with automatically actuated means for deadlocking the latch bolt and also the dead locking mechanism of the outer knob.

With these ends in view my invention consists in the parts and combinations of parts, and in certain details of construction as will be more fully explained and pointed out in the claims.

In the accompanying drawings Figure 1 is a view in section through a section of the door and inner case of the lock, the section being taken in a plane above the knob's thimbles. Fig. 2 is a similar view through the bolt and outer knob, the inner knob being shown in elevation. Fig. 3 is a view in end elevation of the lock applied to the door. Fig. 4 is a view in section on the line A—B of Fig. 2 looking toward the inside knob. Fig. 5 is a view in section of the outer end of the lock showing the position of the dead locking slide 12 and dog 19 when the door is standing open. Fig. 6 is a view of the same parts showing their positions when the door is closed. Figs. 7 and 8 are views of the outside knob and cylinder therein. Figs. 9 and 10 show the means for changing the adjustment between the key tail piece and dead locking dog 19. Fig. 11 is a view showing the hub and key tail pieces detached, and Fig. 12 is a view in transverse section looking toward the bolt.

1 represents the inside knob mounted to turn in thimble 2 rigidly fixed to the inside escutcheon or face plate 3. The knob 1 carries the spindle 1^a which passes through a

hole at the inner end of thimble 2 and is held in place, and against displacement by washer 33 bearing against the inner end of thimble 2, the washer being held in place by pin 34. The inner end of spindle 1^a enters the roll back 7 which with the roll backs 10 and 11 are mounted in the inner case 6, the two outer roll backs 7 and 11 having hubs projecting through the case 6. The case 6 is rigidly secured to the outside escutcheon plate 17, by the screws 23^a entering threaded holes in the studs 23 integral with plate 17 and projecting therefrom, the studs serving to hold case 6 and its contained mechanism at the proper distance from plate 17.

The front plate 4 is provided with an inwardly projecting flange 4^a which latter is secured by screws 50 to the inner face of outside plate 17. The front plate 4 rests flush with the face edge of the door and is provided at its free end, which is thickened as shown in Figs. 1 and 2, with a slot 49 in which the flange 48 formed on the front end of the inside plate 3 rests. By means of this flange and slot, an adjustment is provided for to compensate for varying thickness of doors. The front plate 4 is slotted for the reception of the bolt 5 which latter is hinged at 37 adjacent to the outside plate 17.

The outside knob 25, which carries the key cylinder, is secured to the outside plate 17, by means of a spring washer 31 seated in a groove in the knob shank and bearing against a supporting washer 30 resting against the inner face of plate 17, the knob shank being extended beyond the washer and terminating in a clutch or toothed end 25^a which engages or meshes with a similar shaped end on the roll back 11, so that when outer knob 25 is turned, roll back 11 will move therewith.

The cylinder 27 which carries the key cylinder, is secured to the outer knob 25, by sleeve nut 26, which latter is in turn held in place by nut 28. This cylinder 27 is passed through a hole in the outer face of the knob and its screw threaded inner end engages the internal threads in sleeve nut 26. By now rotating nut 26 which may be done by a special wrench introduced through the inner end of the knob shank, the nut 26 will be screwed onto cylinder 27 thus lock-

ing the latter in place within the knob. The outer end of cylinder 27 terminates in a plate or flange which latter closes the opening in the knob and this cylinder is prevented from rotating within the knob by the enlargement 27^a which carries the pin tumbler and springs of the cylinder or pin tumbler lock, resting within a slot 27^b in the knob. It is obvious however that various other means may be employed for preventing the rotation of cylinder 27 and hence I do not confine myself to the construction shown for accomplishing this end.

The outside thimble 18 is permanently secured to plate 17 in the same manner that thimble 2 is secured to plate 3, and carries and supports the outer knob. The key cylinder which rotates in cylinder 27 is provided with a connecting bar 29, shown in Figs. 2 and 7, which extends through a round hole in the hub of roll back 11 and terminates within a slot in the middle roll back 10, whereby the latch bolt 5 may be retracted by a key when the outer knob is dogged as will be hereinafter described.

From the construction thus far described it will be seen that the inner knob actuates roll back 7, the outer knob the roll back 11, and the key cylinder in the outer knob, the roll back 10. Both knobs operate to retract the latch bolt through the medium of a tail piece 8 common to both. This tail piece is U-shape longitudinally, and is slotted at its rear end to embrace the hubs of the roll backs 7 and 11, the free ends of one member of the tail piece being bent outwardly toward the inner knob so as to engage the roll back 7, and the free ends of the other member bent toward the outer knob and engaging the roll back 11.

The front end of tail piece 8 is slotted for the passage of the key tail piece 9 the rear end of which is bifurcated to embrace the roll back 10, and the extreme inner end of tail piece 9 is bent to engage said roll back. This piece 9 extends forwardly in advance of tail piece 8, and is pivotally connected to the dead locking dog 19 mounted on pin 35 carried by the latch bolt 5. These tail pieces constitute the latch slide. The tail piece 9 is expanded immediately in rear of the front end of tail piece 8 thus forming shoulders against which the forward end of the latter bears. When the parts are in their normal positions as shown in Figs. 1, and 6, these shoulders rest in contact with the front end of tail piece 8, hence when either knob is turned to retract the bolt, tail piece 9 which is connected to the latch bolt, is retracted by the engagement of the end of tail piece 8 with the shoulders on tail piece 9. When the bolt is retracted by the key roll back 10, through tail piece 9, tail piece 8 remains passive. Dead locking dog

19 which as before stated is pivotally mounted on the latch bolt 5 is of bell crank form, the inwardly projecting member of which is provided with a lug 19^a parallel with the pin 35 on which the dog 19 is mounted.

16 is a spring pressed plunger projecting through flange 4^a of the front in a position to engage the stop on the door frame when the door is closed. This plunger 16 carries the dead locking slide 12, which together with plunger 16 are normally forced outwardly by the spring 14 embracing pin 13 carried by the slide. The slide 12 also carries the guiding pin 44 which moves in a hole in flange 4^a. When the door is closed, plunger 16 is forced inwardly as shown in Fig. 6, thus moving slide 12 up against and in the path of movement of the lug 19^a on the dead locking dog 19, thus absolutely preventing the bolt 5 from being forced inwardly by an instrument inserted between the strike plate or keeper 46 and the face plate 4 of the lock.

15 and 20 are stop work plungers slidingly mounted in the front plate 4 on opposite sides of the bolt 5. Plunger 15 (as shown in Fig. 4) is L-shaped, its inner member 24 being provided with a slot to receive a lug on the hub of roll back 11, and the two plungers 15 and 20 are connected by the rocking lever 43, the ends of the latter resting in recesses in the plungers, so that as one plunger is pushed inwardly the other will be forced out, in a manner similar to the stop work mechanism now in general use. When plunger 15 is forced inwardly the slot in its inner member 24 embraces the lug on the roll back 11 and thus positively dead locks the outer knob.

In order to prevent the stop work plungers 15 and 20 from being manipulated by a bent wire or other tool, introduced between the strike plate 46 and the face plate of the door, for the purpose of throwing off the dead locking mechanism of the roll back for the outer knob, I have provided the dead locking slide 12, (which as before explained dead locks the bolt 5) with a lug 42, which when the plunger 16 is forced inwardly by engagement with the stop on the door frame, is moved into a slot 41 in stop work plunger 15 (shown in Fig. 4) and thus dead locks both connected plungers 15 and 20 against movement when the door is closed. This plunger 15 is provided with two slots 41 one of which is engaged by the lug 42 when the stop work plunger 15 is "in" and the other when it is "out" thus dead-locking the stop work mechanism in its two positions.

The dead locking slide 12, is as shown in Fig. 4, to one side of the plane of movement of the bolt 5 and does not interfere with the free movements of the latter except when

tampered with from the outside as previously explained. When the tail piece 9 is actuated by the turning of any one of the roll backs, the dead locking dog is first
 5 turned on its pivot so as to carry its lug 19^a out of the path of slide 12, and the continued pull on piece 9 then retracts the bolt 5. The bolt 5 is yieldingly held in its normal or "out" position by the spring 21^a,
 10 which with spring 21 which yieldingly holds the tail pieces in their normal positions, is mounted on pin 38. The stop work plungers are held against accidental movement by the spring 22, engaging the shoulder 32^a
 15 on plunger 15, and the tail piece 8 is held in its normal position by the spring 40.

With this lock it will be seen that the bolt 5 is dead locked against movement by an instrument introduced between the front and
 20 strike plates, and that the deadlocking mechanism of the outer knob, is also deadlocked when the door is closed. It will also be seen, from the construction as above explained, that the lock case 6 carrying the
 25 roll backs and tail pieces, together with the outer knob 25 are all carried by the outside plate 17, while the inner plate 3 carries its knob and spindle, hence in order to apply the lock to a door it is simply necessary to
 30 cut out a section sufficiently large to accommodate the case 6 and front plate 4, the plates 3 and 17 overlapping and concealing the cut. The parts previously assembled, and adjusted are placed in their proper
 35 positions, on opposite sides of the door, the only adjustments necessary being to seat the end of the spindle 1^a in its roll back 7 and the flange 48 in groove 49. After the parts have been thus applied, they are secured by
 40 screws 53 passing through plate 3 and entering screw threaded sockets in plate 17 and by screws passing through plates 3 and 17 into the door. In locks of this kind, it is customary to extend the front loosely beyond
 45 the edge of the inside plate without any connection whatsoever.

By means of the groove 49 and flange 48, I connect the front which is carried by one plate, to the other plate, thereby providing a
 50 much stronger front than in those locks in which there is no such connection.

As shown in Figs. 9 and 10 the throw of the bolt may be adjusted by providing the dog 19 with two holes for the pin 36. By
 55 changing the pin from the lower hole as in Fig. 10 to the upper hole as in Fig. 9 and turning tail piece 9 over so as to engage its roll back 10, I secure a greater throw of the bolt.

60 It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it un-

derstood that I do not wish to confine myself to the exact construction of parts shown and described but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and
 65 scope of my invention.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a lock the combination with an escutcheon plate, a latch bolt carried thereby, a casing secured to said plate and roll
 75 backs carried by said casing, of a second escutcheon plate, a knob carried thereby and carrying a knob spindle removably connected with one of said roll backs, a knob
 80 carried by the first mentioned escutcheon plate and engaging another roll back, and a latch slide connecting the latch bolt and roll backs and supported by said bolt and roll backs, substantially as set forth.

2. In a lock, the combination with a plate carrying a bolt, a casing in rear of the plate and adapted to rest in a slot in the door, a series of roll backs within the casing, a knob connected with one of said roll backs,
 90 means connecting the roll backs and bolt, a key lock carried by said knob and connected with another roll back, means for deadlocking the knob and means carried by the casing and actuated by the closing of the door for
 95 deadlocking said knob deadlocking means.

3. In a lock the combination of two side plates one of which is provided with an end or face plate, a swinging bolt carried by said end or face plate, a knob carried by
 100 one side plate, a casing intermediate the two side plates and secured to and carried by one of said plates, the said casing carrying a roll back and bolt actuating means, means for deadlocking said knob, and
 105 means carried by the casing and actuated by the closing of the door for deadlocking the knob dead locking means.

4. In a lock the combination with a carrying frame and a hinged bolt, of a dead
 110 locking dog carried by the bolt, and means actuated by the closing of the door for engaging said dog and deadlocking the bolt.

5. In a lock, the combination with a carrying frame, a hinged bolt, a deadlocking dog
 115 pivoted to said bolt and bolt retracting means connected to said dog, of means actuated by the closing of the door for engaging said dog and deadlocking the bolt.

6. In a lock, the combination with a carrying frame, a hinged bolt, a dog pivoted to the bolt, a roll back and means connecting the roll back and dog for tilting the dog and retracting the bolt, of means actuated
 120 by the closing of the door for engaging said dog and deadlocking the bolt when the dog is in its normal position.

7. In a lock the combination with a hol-

- low knob having an open front, a sleeve nut within the knob and a nut for locking said sleeve nut against displacement, of a lock cylinder engaged by said sleeve nut, the outer end of said cylinder closing the open front of the knob, and having an enlargement resting against a seat on the knob whereby the lock cylinder is prevented from rotating.
8. The combination with a plate, a thimble carried thereby, a knob shank mounted in the thimble and passing through the plate and a split ring engaging a recess in the knob shank and bearing against the rear face of the plate, the inner end of the knob shank having teeth or projections, of a roll back engaged by said teeth or projection on the shank, a bolt and means connecting the roll back and bolt.
9. In a lock the combination with three roll backs and a bolt, of a tail piece connecting the bolt and intermediate roll back, and a U-shaped tail piece engaging the outside roll backs and a shoulder on the first mentioned tail piece.
10. In a lock the combination with two independent knobs, a key lock in one of said knobs, three roll backs two of which are coupled up to the knobs, and one to the lock mechanism in the knob, of a bolt, a tail piece connecting the latter with the intermediate roll back, and a U-shaped tail piece connected to the outer roll backs and engaging a shoulder on the first mentioned tail piece.
11. In a lock, the combination with a pivoted bolt, and a pivoted bell crank shaped dog on said bolt, the dog having a plurality of holes therein, of a pin adapted to be secured in any one of said holes, a tail piece connected to the pin and a roll back for actuating the tail piece.
12. In a lock, the combination with two removable side plates and a latch bolt, of three roll backs supported in a frame intermediate the two side plates, a knob attached to and carried by each side plate, each knob having detachable connection with the roll back adjacent thereto, and key mechanism having detachable connection with the intermediate roll back.
13. In a lock, the combination with two side plates and intermediate casing carrying three roll backs, of a knob attached to and carried by each side plate, the two knobs located in line with said roll backs, each knob having detachable connection with the roll back adjacent thereto, and a key mechanism carried by one knob and connected with the middle roll back.
14. In a lock, the combination with a bolt, means for actuating same and a movable stop adapted to be moved to its operative position by the closing of the door, of a movable deadlocking dog carried by the bolt and connected to the bolt actuating means, whereby when the bolt is actuated the deadlocking dog will be disengaged from the movable stop.
15. In a lock, the combination with a bolt and means for actuating same, of deadlocking means movably mounted on the bolt, a movable stop for said deadlocking means, the said stop being moved to its operative position by the closing of the door, and means for moving said deadlocking means out of the path of the movable stop when the latch is actuated by the latch operating devices.
16. In a lock the combination with a bolt, of a dead locking means carried by the bolt, a movable stop coacting with the dead locking means on the bolt, bolt operating means and devices connecting the latter and the bolt, and adapted when retracted, to move the dead locking means on the bolt out of the path of the stop.
17. In a lock, the combination with a latch-bolt and mechanism for retracting the bolt of a slide for deadlocking said mechanism, and a single means for automatically deadlocking both the slide and the latch-bolt.
18. In a lock, the combination with a latch-bolt and mechanism for retracting the bolt, of a slide for deadlocking said mechanism, a single means for automatically deadlocking both the slides and latch-bolt, and an actuator projecting outside of the lock and arranged to engage the door casing when the door is closed.
19. In a lock, a latch-bolt, means for retracting the same, stop-work arranged to engage said latch-bolt operating mechanism, and a dog comprising a movable plate arranged to automatically block said stop-work and latch-bolt simultaneously when the door is closed.
20. In a lock, a latch-bolt, a slide cooperating therewith to retract the same when the slide is retracted, means for retracting said slide, a stop-work mechanism for said slide retracting means, and a single dogging device arranged to block both the latch-bolt and the stop-work when the latter is in its operative position and the door is closed.
- In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

CHARLES A. BERRY.

Witnesses:

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CHARLES E. VAIL.