

Dec. 5, 1933.

H. F. KEIL

1,938,339

LOCK CONSTRUCTION

Filed Sept. 10, 1930

2 Sheets-Sheet 1

Fig. 1.

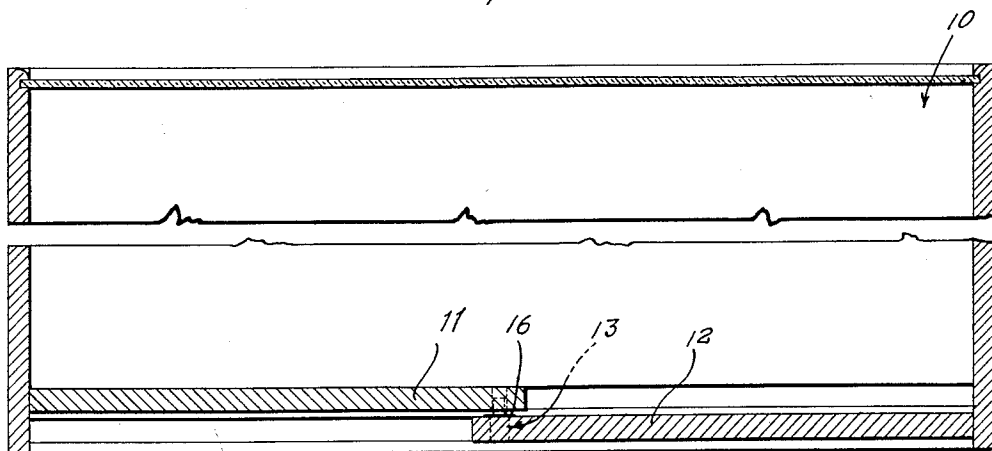
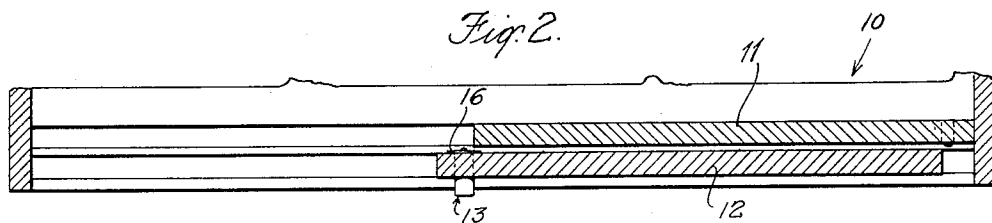
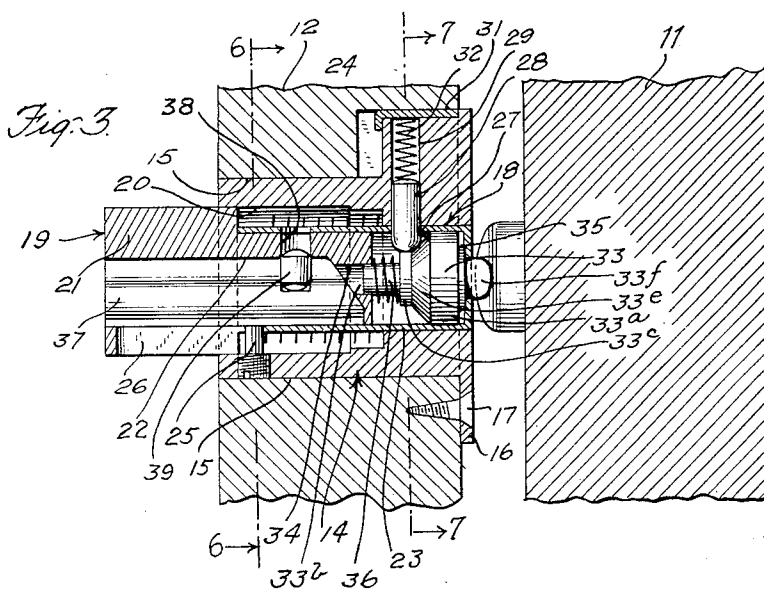


Fig. 2.



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Dec. 5, 1933.

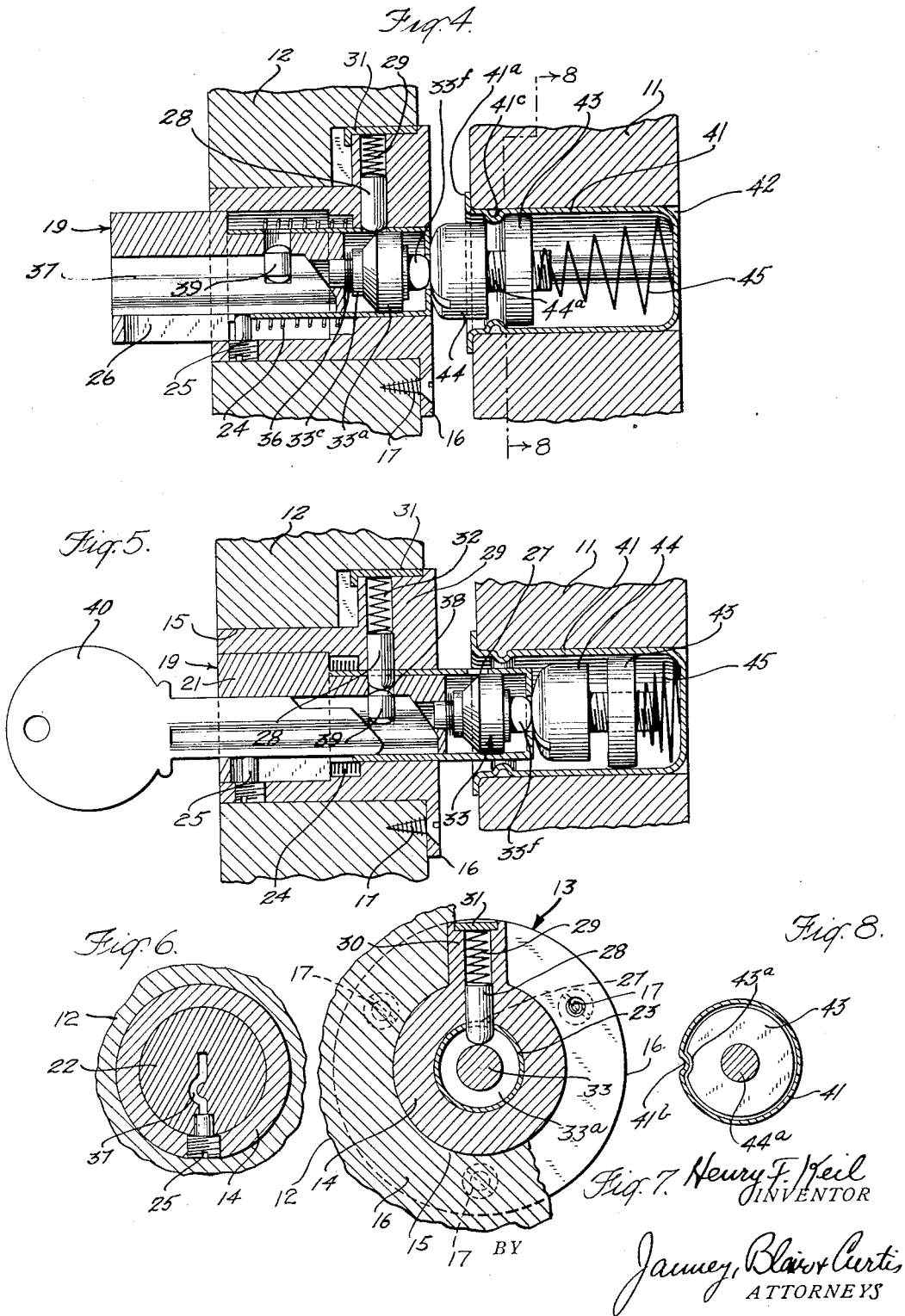
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

1,938,339

LOCK CONSTRUCTION

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Application September 10, 1930
Serial No. 480,835

25 Claims. (Cl. 70—14)

This invention relates to lock construction and more particularly to a lock construction for locking together two relatively slidable members, such as sliding panels, doors or the like for show cases.

One of the objects of this invention is to provide a simple and practical lock construction that will be strong, durable, and of efficient action. Another object is to provide a lock construction that is compact, capable of embodiment in diminutive form, and well adapted for rapid and inexpensive manufacture. Another object is to provide a thoroughly practical lock construction that may be manually operated, that is, without the use of a key, to secure together the parts intended to be locked but which requires the use of a key to permit separation of the locked parts. Another object is to provide a construction of the above mentioned nature in which inadvertent manual operation of the lock mechanism to secure the parts together is prevented in a simple and dependable manner. Another object is to provide a construction of the above mentioned character for meeting the varied requirements and conditions met with where two relatively sliding members, such as the sliding doors or panels of a show case, are to be locked together. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is shown a preferred form of my invention,

Figure 1 is a horizontal sectional view of, for example, a show case or the like, showing two relatively sliding doors or panels that are to be locked together to close the case;

Figure 2 is a similar horizontal sectional view showing certain parts of the construction shown in Figure 1 in different positions

Figure 3 is a vertical central sectional view, on an enlarged scale, of the lock construction shown in operative relation to the parts to be locked together, the parts of the lock construction being shown in the positions which they occupy when conditions are not appropriate for locking the door or panel members together;

Figure 4 is a like vertical central sectional view, on an enlarged scale, showing the parts of the lock construction in readiness to be manually

actuated when conditions are appropriate for locking the parts together;

Figure 5 is a view like that of Figure 4, but showing the parts of the mechanism in the positions they occupy when the doors, panels, or the like are locked together;

Figure 6 is a vertical sectional view as seen along the line 6—6 of Figure 3;

Figure 7 is a vertical sectional view as seen along the line 7—7 of Figure 3; and

Figure 8 is a vertical sectional view as seen along the line 8—8 of Figure 4.

Similar reference characters refer to similar parts throughout the several views in the drawings.

Referring now more particularly to Figures 1 and 2, I have shown, by way of illustration merely, a cabinet or case generally indicated at 10, closed by preferably two sliding doors or panels 11 and 12, as is common in show case construction for example. The panels 11 and 12 are mounted in any suitable way to slide with respect to each other and when occupying the position shown in Figure 1, the panels 11 and 12 overlap and, if secured together in this overlapping position, they effectively close the case or cabinet against access to the interior thereof. At the overlapping portions of the panels 11 and 12, I provide a lock construction, generally indicated at 13 in Figure 1, for locking the parts 11 and 12 against relative movement away from each other.

Referring now to Figure 3, in which is shown in vertical cross section that portion of the lock mechanism 13 that is mounted in the front panel 12, I have shown a lock casing 14 of a generally cylindrical shape or construction and taking the form preferably of a casting adapted to be fitted into a suitable round opening 15 in the panel 12, and having a circular flange 16 (see also Figure 7) adapted to overlap the inner right hand face of the panel 12, suitable screws 17 securing the flange 16 and hence the lock casing 14 in place.

The casing 14 is bored out, as at 18, in order slidably to receive the rear or right hand end of a plunger generally indicated at 19, the left hand portion of the casing 14 being bored out, as at 20, to a larger diameter than the portion 18 in order slidably to receive the enlarged cylindrical head portion 21 of the plunger 19. The plunger 19 is preferably of a built-up construction and preferably comprises the solid headed portion 21, reduced in diameter as at 22, and a sheet metal sleeve member 23 fitted over the reduced portion 22 and secured to the latter in any suitable

manner. It is the sleeve-like member 23 that is slidably guided in the reduced bore 18 of the casing 14. A coiled spring 24 surrounds the sleeve member 23, abutting at its right hand end against a portion of the casing 14, and at its left hand end against the enlarged or head portion 21 of the plunger 19, the spring 24 tending to urge the plunger 19 in a direction towards the left, as viewed in Figure 3, and to oppose movement of the plunger 19 in a direction towards the right.

The plunger 19 is limited in its movement in a direction towards the left by a set screw 25 that is threaded through the side wall of the cylindrical casing 14, and has its stub end projecting into a slot 26 extending lengthwise in the side of the head portion 21 of the plunger 19. As shown in Figure 3, the slot 26 in the plunger 19 is positioned so that the set screw 25 is at the right hand end of the slot. Movement of the plunger 19 in a direction towards the right, as viewed in Figure 3, may be limited by engagement of the left hand end wall of the slot 26 with the set screw or stop 25. The stop or set screw 25 also holds the plunger 19 against rotation about its axis.

The plunger 19 is, when the panels 11 and 12 are not intended to be locked together, normally held in substantially the position shown in Figure 3 and in order to hold it in this position, I provide the sleeve member 23 with an opening 27 (see also Figure 7), into which may be moved a tumbler pin 28 generally of a cylindrical construction and slidably housed in a channel 29 extending radially of the casing 14 and conveniently through a radial extension 30 (see also Figure 7) of the casing 14, this channel 29 being closed at its upper open end as by means of a plate member 31. Interposed between the upper end of the tumbler pin 28 and the closure plate 31 is a spring 32 that tends to urge the tumbler pin 28 in a downward direction, and hence into and through the opening 27 in the sleeve 23 when the opening 27 and the channel 29 are brought into alignment with each other.

The extent of inward movement of the tumbler pin 28 is limited by means of an auxiliary plunger generally indicated at 33, and slidably housed within the sleeve member 23. This plunger 33 has an enlarged cylindrical portion 33^a slidably fitted into the sleeve 23, and at its left hand end is provided with a shaft-like extension 33^b that is slidably received within a round opening 34 in the right hand end of the reduced portion 22 of the plug-like head portion 21. This plunger 33 is thus nicely guided for sliding movement axially of and within the sleeve 23.

Intermediate of the portion 33^b and the portion 33^a of the plunger 33, the latter is provided with a cylindrical portion 33^c of lesser diameter than the portion 33^a, while a cam-like or frusto-conical portion 33^e gradually merges the outside surfaces of the portions 33^c and 33^a one into the other.

The sleeve 23 is closed at its right hand end by an end wall 35 through a central opening in which projects an extension 33^f of the plunger 33. The end wall 35 of the sleeve 23 limits the movement of the plunger 33 in a direction towards the right, as viewed in Figure 3, coiled spring 36 about the shaft portion 33^b urging the plunger 33 toward the right and normally holding it in substantially the position shown in Figure 3. In that position, the tumbler pin 28, urged downwardly by the spring 32 through the opening 27

in the sleeve 23, which has been aligned with the channel 29, is brought to rest against the cylindrical stop portion 33^c of the plunger 33 and thus the plunger 19, which includes the parts 21—22 and the sleeve 23, is thus held locked against movement in a direction toward the right, as viewed in Figure 3. To permit such movement in a direction toward the right to take place, the tumbler pin 28, as will be made clear hereinafter, has to be brought out of engagement with the sleeve 23.

The portion 21—22 of the plunger 19 is adapted to receive a key, and accordingly is provided with a suitable key-receiving slot 37 (see also Figure 6), the slot 37 extending in a direction toward the right, as viewed in Figure 3, to a sufficient extent to intersect a radially extending channel 38 in the portion 22 and in which is received a tumbler pin 39 of a generally cylindrical shape. The channel 38 extends, as is clearly shown in Figure 3, also through the wall in the sleeve 23 and is aligned with the opening 27 in the sleeve 23. Moreover, the opening 27 and the channel 38 are spaced from each other by a distance substantially equivalent to the range of movement of the plunger 19 in a direction toward the right so that, upon movement of the plunger 19 having taken place, the tumbler pin 28 may seat itself in the channel 38 and against the tumbler pin 39, the parts thus assuming the position shown in Figure 5, and thus locking the plunger 19 against retrograde movement under the effort of the spring 29 until an appropriate key, indicated at 40 in Figure 5, is inserted into the slot 37 to engage the tumbler pin 39 and through the latter to raise the tumbler pin 28 against the action of spring 32 sufficiently to bring the tumbler pin 28 out of the channel 38.

The plunger 19, when moved toward the right, is to function substantially as a bolt and is to engage with the rear panel 11 (see Figure 1) to prevent relative movement between the two panels. In the rear panel 11, turning now to Figure 4, I provide a plunger-receiving member or bolt keeper preferably in the form of a metal socket generally indicated at 41. The member 41 which conveniently may be made of a suitable sheet metal is of a generally cylindrical shape, being fitted into a suitable round opening 42 in the panel 11, and being provided with a suitable flange 41^a adapted to rest against the front face of the panel 11. Preferably the member 41 is forced-fitted into the opening 42 in the panel 11. The inside diameter of the socket or keeper 41 is sufficiently great to snugly receive the right hand end of the plunger construction 19, as is clearly shown in Figure 5.

Within the socket 41 there is slidably mounted a piston-like member 43 provided with a slot 43^a (see Figure 8) into which is fitted a longitudinal extending and inwardly directed rib 41^b formed in the side wall of the socket 41, thus to prevent the member 43 from rotating while permitting freedom of movement of the member 43 within the socket member 41.

The member 43 carries an adjustably mounted stop member 44 conveniently taking the form of a screw having a slotted head large enough to slide freely within the socket 41, and having a threaded shank 44^a threaded into the member 43. A spiral spring 45 is interposed between the right hand end or closing wall of the socket 41 and the member 43 and tends to urge the latter with the parts carried thereby in a direction toward the left, the member 43 being prevented from coming

out of the socket 41 by any suitable construction such as, for example, a suitable inwardly directed bead 41^c extending about the socket 41 adjacent its left hand end. The spring 45 that normally holds the parts 43—44 in substantially the position shown in Figure 4 is, it may at this point be noted, stronger than the spring 36 (see also Figure 3) that holds the plunger 33 at the right hand end of the sleeve 23.

The stop member 44 is so adjusted, as by threading or unthreading it with respect to the non-rotatable piston-like member 43, that the left hand face of the stop member 44 falls substantially in the plane of the right hand face of the closing wall 35 (see Figure 3) of the sleeve 23 and hence of the plunger 19. Assuming the panels 11 and 12 to be unlocked so that access to the interior of the enclosure closed thereby may be gained, the lock mechanism occupies the position shown in Figure 3 in which, as already above pointed out, the plunger 19 is held in its left hand position by the tumbler pin 28, the latter effectively preventing the plunger 19 from being manually pushed either intentionally or accidentally in a direction toward the right. The panels 11 and 12 may thus be freely manipulated without any danger of the plunger 19 being moved so that it projects to the rear of the panel 11, as shown in dotted lines in Figure 2, in which position it would otherwise interfere with the free and independent actuation of the panels 11 and 12 and would cause marring of and damage to the rear panel 11 with respect to which it would thus form an obstacle.

When however it is desired to throw the plunger or bolt 19 into locking position, as when it is desired to cause the plunger 19 to enter the keeper 41 (Figure 4), the panels 11 and 12 are moved into appropriate closing and hence overlapping position, such as that shown in Figure 1, and in which position the plunger 19 is brought into alignment with the keeper or socket 41. However, in thus positioning the parts to be locked together, the stop member 44 (see Figure 4) has been moved into juxtaposition to the right hand end of the plunger 19 and effects a movement of the auxiliary plunger 33, within the sleeve 23, from its extreme right hand position as shown in Figure 3 to its extreme left hand position as shown in Figure 4. The members 44 and 33^f are preferably rounded over so as to insure a dependable camming action of the stop member 44 upon the member 33^f as the former is moved into juxtaposition to the plunger 19. This movement of the plunger 33 brings the cam-like portion 33^e of the plunger 33 into action upon the tumbler pin 28, causing the latter to ride upwardly out of the opening 27 in the sleeve 23 and into substantially the position shown in Figure 4. The tension of the spring 45 is sufficient not only to overcome the action of the spring 36 that acts upon the auxiliary plunger 33, but also to insure the lifting of the tumbler pin 28 against the action of its associated spring 32.

Preferably the plunger 33 partakes of a sufficient movement in a direction toward the left as will cause the cylindrical portion 33^a of the plunger 33 to be positioned substantially underneath the tumbler pin 28, and thus effectively hold the latter in its upper position; this preferable relation of these parts is clearly shown in Figure 4. Preferably also the lower end of the tumbler pin 28 is well rounded off to insure smoothness of coaction with the cam portion 33^e

and also to insure smoothness of subsequent action of certain other parts.

Thus the plunger 19 is caused to be released by the locking pin 28 and is in readiness to be moved in a direction toward the right, as viewed in Figure 4, and against the action of the spring 24. A simple manual pressure applied to the left hand or projecting end portion of the plunger 19 suffices to overcome the tension of the spring 24 and also of the spring 45 (see Figure 4), and cause movement of the plunger 19 and also of the stop member 44 into the position shown in Figure 5 in which the right hand end portion of the plunger 19 will be seen to have entered the keeper or socket 41, the spring 45, now more tensioned than normally, standing ready, however, to cause the stop member 44 to follow up a subsequent retrograde movement of the plunger 19.

During this movement of the plunger 19 toward the right, the opening 27 in the sleeve 23 and out of which the tumbler pin 28 has been lifted is moved out of coacting relation with the tumbler pin 28 and channel 38, in which is seated the tumbler pin 39, is brought into alignment with the channel 29 and hence into alignment with the tumbler pin 28. The latter, under the urge of spring 32 (see Figure 5) promptly enters the channel 38, thus dependably locking the parts in the position shown in Figure 5. With the parts in this position, spring 24 is under tension.

The tumbler pin 28, however, has thus been seated against the tumbler pin 39 so that, when it is subsequently desired to unlock the closure members 11 and 12, the insertion of the proper key 40 into the key slot 37 causes the tumbler pin 39 to be lifted into such a position that tumbler pin 28 is just lifted out of channel 38 in the plunger 19 whereupon the tensioned spring 24, supplemented in its action by the tensioned spring 45 in the keeper 41, is now freed to move the plunger to the left and into the position shown in Figure 4, spring 45 insuring that the stop member 44 follows up this movement. Tumbler pin 28 thus finds itself again related for coaction with the opening 27 in the sleeve 23, and it promptly enters this opening as soon as the latter is cleared by movement of the auxiliary plunger 33 in a direction toward the right and into the position shown in Figure 3, this action taking place as soon as one panel has been moved relative to the other sufficiently to bring the stop member 44 out of juxtaposition with respect to the right hand end of the plunger 19. Thus the lock mechanism is again dependably held in position where its accidental or unintended actuation cannot be effected; the panels 11 and 12 may be freely manipulated without giving rise to the possibility of projecting the bolt or plunger excepting when the panels are related to each other for locking together.

The mounting of the stop member 44 (see Figure 4) so that its position may be altered at will is of great practical advantage in that, particularly where one of the parts to be locked together is slidable with respect to the other, the mechanism may be readily accommodated to different spacings between the parts to be locked together. For example, the spacing between the sliding panels of different types of cabinets may readily vary, or by way of further example, the movable or slidable part may, in the course of use, change in its spaced relation to its coacting part, but nevertheless the intended action and functioning of the mechanism may be preserved

by simply repositioning the member 44 to meet any changes in the relation of the parts. This feature thus makes it possible to avoid the necessity of too great a nicety of fitting of the various parts of the lock mechanism not only with respect to each other but also with respect to the closure member or members to which they are related. It will be noted that, though the threaded inter-connection between the members 43 and 44 is preferably a relatively tight one, the use of a screw driver in the slot in the member 44 permits of the rapid predetermination of the position of the member 44, the member 43 being prevented from turning by the interfitting parts 43^a and 41^b (Figure 8).

It will thus be seen that there has been provided in this invention a lock mechanism in which the various objects hereinbefore noted, together with many thoroughly practical advantages, are successfully achieved. It will be seen that the mechanism is compact and rugged in construction, is thoroughly dependable in action, and is well adapted to meet the varying conditions of hard practical use.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In lock construction, in combination, a casing having a bolt, a keeper for receiving said bolt, a tumbler pin in said casing for coaction with said bolt in either of two positions of the latter, a key controlled tumbler pin for disengaging said tumbler pin when said bolt is in one position, means carried by said bolt adapted upon actuation to disengage said first mentioned tumbler pin from said bolt when the latter is in its other position, and means associated with said keeper for effecting actuation of said last mentioned means.

2. In lock construction, in combination, a casing having a bolt, a keeper for receiving said bolt, a tumbler pin in said casing for coaction with said bolt in either of two positions of the latter, a key controlled tumbler pin for disengaging said tumbler pin when said bolt is in one position, means carried by said bolt adapted upon actuation to disengage said first mentioned tumbler pin from said bolt when the latter is in its other position, said actuating means including a part projecting from said bolt, and means for actuating said projecting part when said bolt and said keeper achieve a certain relation with respect to each other.

3. In lock construction, in combination, a casing having a bolt, a keeper for receiving said bolt, a tumbler pin in said casing for coaction with said bolt in either of two positions of the latter, a key controlled tumbler pin for disengaging said tumbler pin when said bolt is in one position, means carried by said bolt adapted upon actuation to disengage said first mentioned tumbler pin from said bolt when the latter is in its other position, said actuating means including a part projecting from said bolt, and yieldable means projecting from said keeper for engagement with said projecting part when said bolt is in substantial alignment with respect to said keeper.

4. In lock construction, in combination, a casing having a bolt, a keeper for receiving said bolt, a tumbler pin in said casing for coaction with

said bolt in either of two positions of the latter, a key controlled tumbler pin for disengaging said tumbler pin when said bolt is in one position, means carried by said bolt adapted upon actuation to disengage said first mentioned tumbler pin from said bolt when the latter is in its open position, said means including a part projecting from said bolt, a spring for holding said part in projected position, and a member associated with said keeper for moving said part against the action of said spring when said bolt and said keeper achieve certain relative positions.

5. In lock construction, in combination, a casing having a bolt, a keeper for receiving said bolt, a tumbler pin in said casing for coaction with said bolt in either of two positions of the latter, a key controlled tumbler pin for disengaging said tumbler pin when said bolt is in one position, means carried by said bolt adapted upon actuation to disengage said first mentioned tumbler pin from said bolt when the latter is in its open position, said means including a part projecting from said bolt, a spring for holding said part in projected position, a member associated with said keeper and adapted to engage said projecting part, and a spring stronger than said first mentioned spring and acting upon said member to cause the latter to move said part against the action of said first mentioned spring.

6. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt, means relating said bolt and said casing for movement of the bolt manually into said keeper, means locking said bolt element in retracted position and against manual movement, and mechanism for releasing said bolt element from its retracted position, said mechanism including a part associated with said casing and a part associated with said keeper and adapted to coact with said casing part when said casing and keeper assume a predeterminable relation, thereby to permit said bolt to be manually moved into said keeper.

7. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt, means relating said bolt and said casing for movement of the bolt manually into said keeper, means locking said bolt element in retracted position and against manual movement, mechanism for releasing said bolt element from its retracted position, said mechanism including a part associated with said casing and a part associated with said keeper and adapted to coact with said casing part when said casing and keeper assume a predeterminable relation, thereby to permit said bolt to be manually moved into said keeper, and key-controlled means for effecting release of said bolt element from its projected position.

8. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a spring for holding said bolt element in retracted position, means for locking said bolt element in its retracted position and for locking it in its projected position, means controlled by the relative position between said bolt element and said keeper for releasing said bolt element and to permit the latter to be thrown against the action of said spring, and key-controlled means for releasing said bolt element from its projected position and to permit said spring to retract said bolt element.

9. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a spring for holding said bolt

element in retracted position, means for locking said bolt element in its retracted position and for locking it in its projected position, mechanism for releasing said bolt element from its retracted position, said mechanism including a part actuated by engagement with said keeper, and key-controlled means for disengaging said bolt element from its projected position and to permit it to be retracted by said spring.

10. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, cam means adapted upon actuation to move said tumbler pin out of said recess, and means associated with said keeper for actuating said cam means.

11. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, means movably carried by said bolt element and adapted upon movement to disengage said tumbler pin from said recess, and means dependent upon the relative position between said bolt element and said keeper for effecting movement of said movable means.

12. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, means movably carried by said bolt element and adapted upon movement to disengage said tumbler pin from said recess, and having a part projecting from said bolt element, and means associated with said keeper for engagement with said projecting part and effecting movement of said movable means.

13. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, spring opposed means for disengaging said tumbler pin from said recess, and means actuated by engagement with a portion of said keeper for actuating said spring opposed means.

14. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, spring opposed means for disengaging said tumbler pin from said recess, said spring opposed means having a part projecting from the end of the said bolt element, and means positioned in the path of keeper-entering movement of said bolt element for engaging said projecting part and actuating said spring opposed means.

15. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, spring opposed means for disengaging said tumbler pin from said recess, said spring opposed means having a part projecting from the end of said bolt element, movable means positioned in the path of keeper-entering movement of said bolt element for en-

gaging said projecting part, and spring means opposing movement of said last mentioned means in the direction of the keeper-entering movement of said bolt element.

16. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, a tumbler pin carried by said casing, said bolt element having a recess into which said tumbler pin enters to lock said bolt element in retracted position, spring opposed means for disengaging said tumbler pin from said recess, said spring opposed means having a part projecting from the end of said bolt element, and means positioned in the path of keeper-entering movement of said bolt element for engaging said projecting part and actuating said spring opposed means, said last mentioned means being spring opposed but with a greater tension than said spring opposed movable means associated with said bolt element.

17. In lock construction, in combination, a casing having a bolt element and provided with means for holding said bolt element in retracted position and means projecting therefrom for effecting a release of said bolt element, and means associated with the part to which the member carrying said casing is to be locked for engaging said projecting means upon said part and member occupying a certain relation to each other.

18. In lock construction, in combination a casing having a bolt element and provided with means for holding said bolt element in retracted position and means projecting therefrom for effecting a release of said bolt element, and a member adjustably mounted with respect to the part to which the element carrying said casing is to be locked for engaging said projecting means upon said part and said element achieving a certain relation to each other.

19. In lock construction, in combination, a casing having a bolt element and provided with means for holding said bolt element in retracted position and means projecting therefrom for effecting a release of said bolt element, a keeper having therein a spring opposed piston-like member, and a member adjustably mounted upon said piston-like member adapted to engage said projecting means upon said casing and keeper achieving a certain position with respect to each other.

20. In lock construction, in combination, a casing having a bolt element and provided with means for holding said bolt element in retracted position and means projecting therefrom for effecting a release of said bolt element, said projecting means being carried by said bolt element, a keeper, and spring opposed means positioned in the path of keeper-entering movement of said bolt element for engaging said projecting means.

21. In lock construction, in combination, a casing having a bolt element and provided with means for holding said bolt element in retracted position and means projecting therefrom for effecting a release of said bolt element, said projecting means being carried by said bolt element, a keeper, spring opposed means mounted in said keeper, and means adjustably carried by said spring opposed means adapted to engage said projecting means on said bolt element when the latter and said keeper achieve a certain relation to each other.

22. In lock construction, in combination, a casing having a projectible bolt element, locking means for holding said bolt in retracted and in

projected positions, means associated with said bolt element and having a part projecting from said bolt element for effecting release of the bolt element from its retracted position, and means for effecting release of said bolt element from its projected position. 80

23. In lock construction, in combination, a casing having a projectible bolt element, locking means for holding said bolt element in its retracted and projected positions, means operable from the keeper-entering end of said bolt element for effecting release of the latter from retracted position, and means operable for effecting release of said bolt element from its projected position. 85

24. In lock construction, in combination a casing having a spring retracted plunger-like bolt element movable through said casing and adapted to project either to one side or the other thereof, a keeper into which said bolt element enters when projected to one side of said casing, means for holding said bolt element in either retracted or projected positions, means operable from the keeper-entering end of said bolt element 90

for disengaging said bolt element from its retracted position, and key-controlled means operable from the other end of said bolt element for effecting release of the latter from its projected position. 80

25. In lock construction, in combination, a casing having a bolt element, a keeper for receiving said bolt element, means relating said bolt element and said casing for movement of the bolt element manually into said keeper, locking means coacting with said casing and said bolt element capable of locking said bolt element in either retracted position and against manual movement or in projected position, means responsive to a predeterminable relation between said bolt element and said keeper for releasing said locking means when the latter locks said bolt element in retracted position, thereby to permit said bolt to be manually moved into said keeper and hence into projected position, and key-controlled means for controlling said locking means when said bolt element is in projected position. 95

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