

May 13, 1952

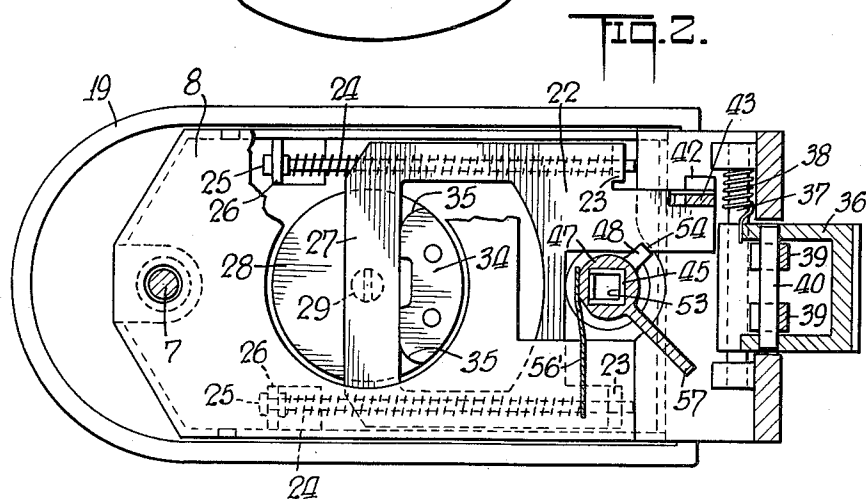
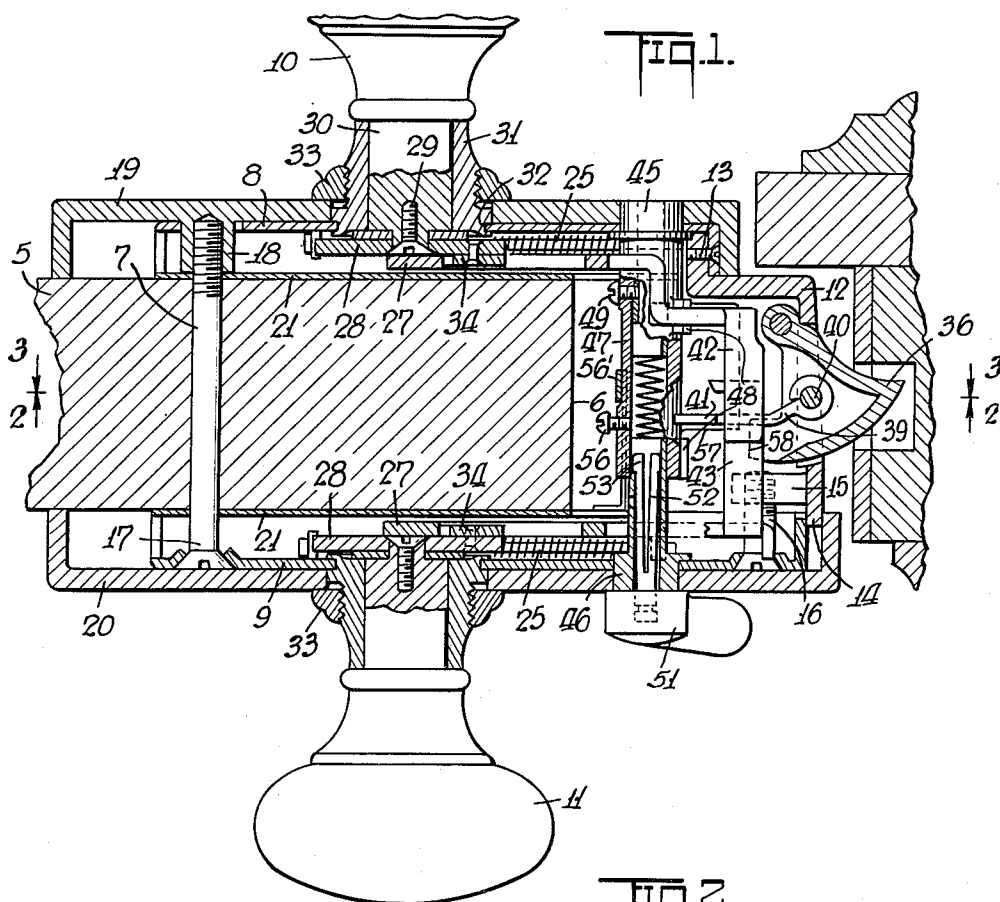
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2,596,949

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2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

FIG. 3.

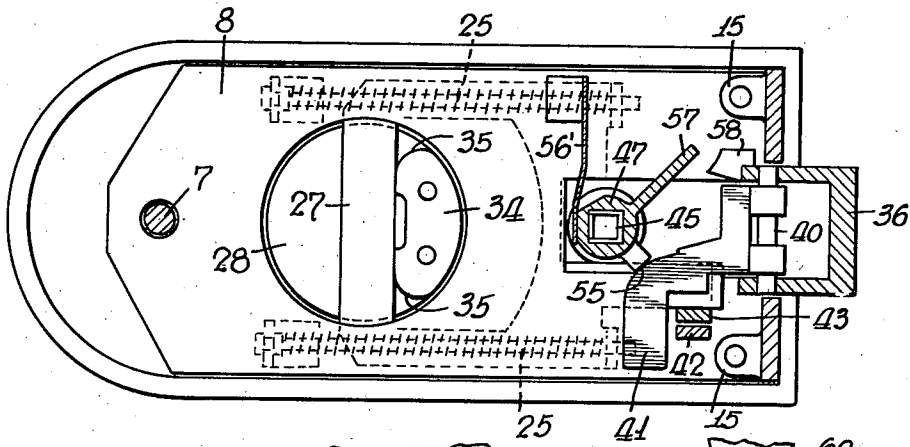


FIG. 4.

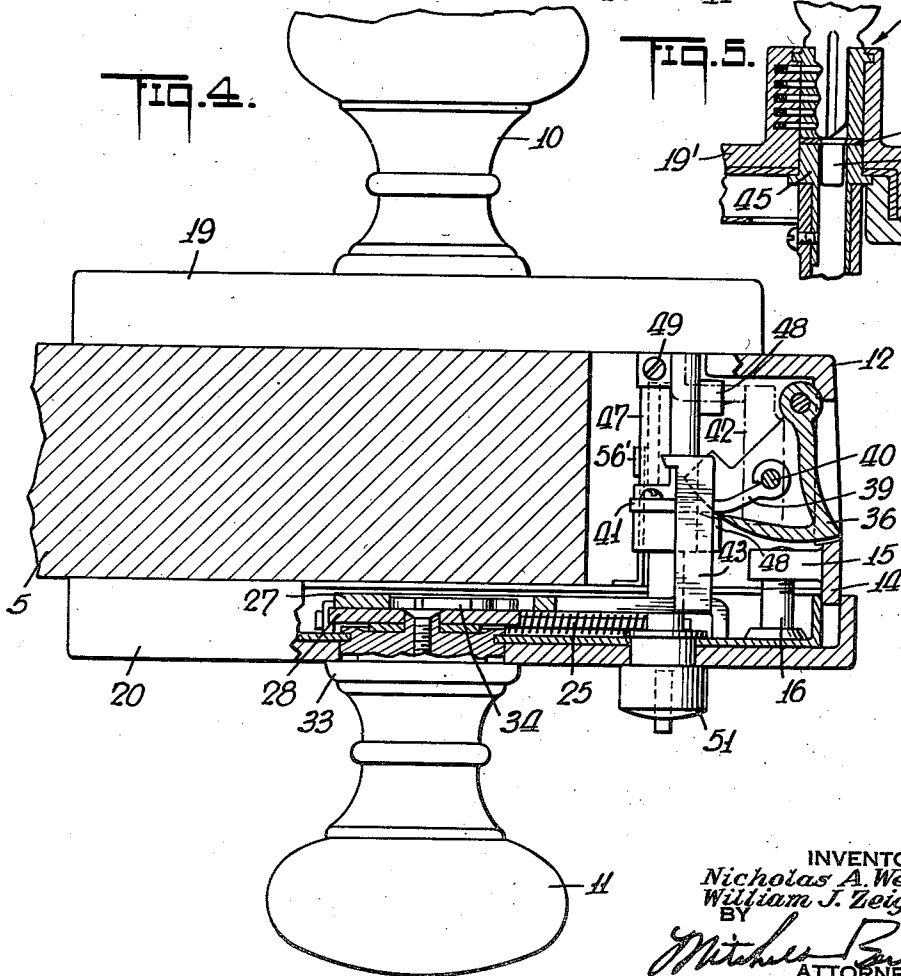
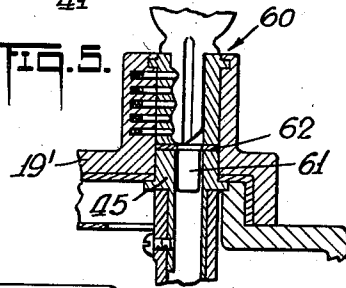


FIG. 5.



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4 Claims. (Cl. 292-222)

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Our invention relates to a lock particularly adapted for use on interior doors.

It is an object of the invention to provide an improved lock which is adaptable to doors in a wide range of thicknesses.

It is another object to provide a lock which may be applied to a door with a minimum of mutilation or weakening of the door.

Another object is to provide a lock in which a substantial part of the mechanism is positioned exteriorly of the door surface.

Still another object is to provide a lock in which the knobs will remain substantially free and be non-binding regardless of slight inaccuracies due to faulty installation.

Still another object is to provide a lock with no direct material connection between the knobs. Another object is to provide an improved latch or lock dogging means.

It is another object to provide improved dog means in a device of the character indicated arranged to be thrown to inoperative position when the latch is moved to retracting position.

Still another object is to provide improved dogging means readily set so that the latch may be dogged from either side of the door.

Another object is to provide a roll-back of improved form so as to avoid binding of a slide.

Other objects and various features of novelty of invention will be hereinafter pointed out or will be apparent to those skilled in the art.

In the drawings which show, for illustrative purposes only, a preferred form of the invention:

Fig. 1 is a horizontal section through a lock illustrative of the invention and showing parts in operative position relatively to a door and door jamb.

Fig. 2 is a sectional view taken substantially in the plane of the line 2-2 of Fig. 1.

Fig. 3 is a sectional view taken substantially in the plane of the line 3-3 of Fig. 1.

Fig. 4 is a view similar to Fig. 1 but illustrating the latch in retracted position, the dogging means having been moved to inoperative position.

Fig. 5 is a fragmentary view in section illustrating how a cylinder or other lock may be employed at the outside of the door.

My improved lock is intended to be applied to a door 5 and a substantial part of the mechanism is on the outside of the door. The only necessary mutilation of the door is a shallow notch cut therein back to about the point 6. A single hole 7 may be bored through the door for receiving a clamp screw as will be later described.

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The lock in the preferred form includes a pair of casings 8-9 which fit against opposite sides of the door and these casings carry latch slide mechanisms and outer and inner knobs 10-11.

A latch front 12 extends across the front of the door and is adjustable, for example, by being telescopically related to one or both of the casings 8-9. In the form illustrated, the latch front 12 is secured to the case 8 as by means of screws 13. The opposite side 14 of the latch front 12 is slidable relatively to the casing 9 and to the escutcheon or trim plate, as will be clear from Figs. 1 and 4. In order to secure the lock to the door (after the latter has been notched back to about the line 6) we preferably connect the casing 9 to the front 12. The latch front may have a pair of lugs 15 which may be threaded to receive securing screws 16, the heads of which may be countersunk in the casing 9, as will be seen in Fig. 1. When the lock is applied to a thick door the front 12 may be related to the inside latch case 9 about as shown in Fig. 1. When the lock is applied to a thinner door, the side 14 of the latch front 12 will be telescoped relatively to the case 9 so that both cases 8-9 may firmly abut the door and be held or clamped in place by the screws 16. A clamp screw 17 may have its head seated in a counterbore in the case 9 and extend through the hole 7 in the door; screw 17 may be threaded into a boss 18 on the inside of the outer escutcheon or trim plate 19. The boss 18 may extend through a hole in the case 8 and may abut the cover cap of the case 8. Thus, when the screws 16 and 17 are drawn up tightly, the lock as a whole will be firmly secured to the door. Furthermore, the screws 16 and 17 can be reached only from the inside of the door (when lock is applied as shown). As will be later described, the inner trim plate 20 may be loosened and swung around the knob so as to afford access to the screws 16 and 17.

The cases 8 and 9 are substantially identical except that the case 9 is longer than the case 8. Each case consists of a cup-shaped or flanged-plate member and may be closed by cover cap 21. Within each latch case is a slide 22, which may be formed of sheet metal and may be provided near the front with down-turned ears 23-23. These ears bear on compression springs 24-24 surrounding guide pins 25 carried by ears 26 in the casings and serving as abutments for the compression springs 24. Thus the slides are urged forwardly. The ears 23 on the slides may ride along the bottom of the cases 8-9 so as to guide the forward ends of the slides. The rear ends

or cross bars 27 of the slides rest on roll-back disks 28 and are slidably guided between those roll-back disks and the case covers 21.

The roll-back disks 28 are secured as by means of screws 29 to knob shanks 30. The knob shanks are freely rotatable in knob bushings 31 which may be riveted or otherwise secured to the casings, as indicated at 32. Bushing rings or nuts 33 threaded on the bushings 31 serve to hold the trim plate 19—20 in place over the casings, as will be clear. When the inner knob bushing ring 33 is backed off, the inner trim plate 20 may be moved outwardly relative to its knob shank and then swung about the knob shank 30 to give access to the heads of screws 16—17. The roll-back disks 28 carry roll-backs 34 riveted or otherwise secured thereto in position to engage the cross bars or rear ends of the slides 22 for retracting the slides by means of the knobs as will be clear. The operative portions 35 of the roll-backs are preferably of involute form so that during slide retraction the roll-backs move along the slide bars 27 with a maximum of rolling motion and a minimum of sliding motion so as to avoid cramping or cocking of the slides.

The latch 36 is illustrated as of the swinging type pivoted on a latch pin 37 held in lugs on the latch front and urged into outward or latching position by means of a coil spring 38 engaging the latch 36 and one of the lugs, as is common practice. The latch has a latch tail 39 carried by a latch tail pin 40. The latch tail 39 extends rearwardly and is provided with a transverse abutment arm 41 to be engaged by latch slide arms 42 (carried by the outside latch slide) and 43 (carried by the inside latch slide). It may be here stated that the slide casing caps 21—21 are provided with openings for the free passage and operation of the latch slide operating arms 42—43. Thus, when either knob is rotated one of the retracting arms will serve to retract the latch and, of course, when the door is slammed the latch will be retracted by its engagement with the strike plate, as is usual.

In order to dog the latch from the inside so as to prevent latch actuation by the outside knob, we have provided means such as a knob or thumb piece which is actuatable from the inside of the door, and the dogging means may be provided with means for emergency actuation from the outside and, in fact, may be provided with a cylinder or other lock so that the dogging means may be moved to dogging position and locked in that position from the outside of the door. However, for ordinary use on a bathroom or chamber door the dogging means will be actuatable only from the inside of the door except for emergency actuation from the outside of the door.

In the form illustrated, the cases 8—9 are provided with rotatable hubs or bushings 45—46 which extend inwardly between the lock casings, and a dogging means including a sleeve 47 is slidably mounted on the two hub ends. The hub ends are preferably angular in section as shown in Figs. 2 and 3, and the sleeve 47 is of similar internal section so that the sleeve may be slid along the hubs and may at all times be effectively locked against rotation relatively thereto. The sleeve 47 carries a dogging member or members 48, so positioned that when moved to proper position said member or members may dog either the inside or the outside slide depending upon the use and position of the lock as a whole. In the position illustrated in Fig. 1, the sleeve 47

is moved to its operative position in the direction of the outside latch slide and is secured in that position as by means of a screw 49 threaded into the end of the bushing 45. The bushing 46 has a corresponding threaded opening for receiving another screw 56 carried by the slide 47 so that when desired the sleeve 47 may be slid along and screwed directly to the hub 46.

A dogging knob or thumb piece 51 may have an angular extension 52 which may fit into the angular bore 53 of either of the hubs 45—46 whereby the latter may be turned by the dogging knob or thumb piece. In the form illustrated the dogging knob extension 52 is split so as to be resilient and a shouldered end 53 may slip behind the bottom end of a slot or cut off portion of the hub extension 45 or 46 as will be clear from Fig. 1. Thus, when the thumb piece 51 is turned to the position shown in Figs. 1 and 2, the dogging member 48 is moved into an angular notch 54 in the slide 22 so that the slide cannot be retracted by the outside knob 10. If the sleeve 47 carrying dog lug 48 is rotated clockwise as viewed in Fig. 2 the dog lug 48 is moved out of the notch 54 and the latch 36 may be freely retracted by the outside knob 10 and at all times by the inside knob 11.

When the sleeve 47 is moved to its other operative position close to the inside case 9 and secured in that position by means of the screw 56, the inside knob will be dogged by the dogging lug 48 or a similar lug properly positioned for engagement within an angular notch 55 of the inside slide 21 as will be clear from Fig. 3. The sleeve 47 may be resiliently held in either of its two operative positions as by means of a plate spring 56' which engages flats on the sleeve 47 as will be clear from the drawings.

Means have been provided for moving the dogging mechanism to inoperative position when the latch is retracted as by slamming of the door. Thus, it will be impossible for a person to lock himself out even though the dogging means may have been moved to dogging position when the door is open. Such a safety means may consist of an arm or plate 57 carried by the sleeve 47 and in position to be engaged by the rear end 58 of the latch 36. Thus, when the latch is retracted as by slamming the door, the arm or plate 57 will be moved clockwise as viewed in Fig. 2 and counter-clockwise as viewed in Fig. 3 so as to retract the dogging member 48 or the equivalent dogging member for the opposite slide.

The improved lock as described may be readily applied to either right or left hand doors by merely swinging the entire assembly about the knob as axis; that is to say, on both right and left hand doors the outside of the door is the same and the inside of the door is the same. For a reverse-bevel door the entire lock assembly is turned over so that what is now the inside knob will become the outside knob, and the sleeve 47 will be shifted and the dogging knob 51 engaged with the hub 45 instead of with the hub 46.

It will be obvious that in cases of emergency a square tool could be inserted in the hub 45 or 46 from the outside of the door so as to throw the latch dogging mechanism into inoperative position to permit entry into the room. In cases where it is desirable to lock a door from the outside, we may employ a cylinder lock as shown in Fig. 5. In that slight modification the outside trim plate would be modified so as to carry a cylinder lock 60. The key operated plug of the

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lock may have a loose extension 61 to fit the angular bore in the hub 45. This extension 61 may be resiliently secured to the plug of the cylinder lock by means of a spring or lost-motion connection 62 of well-known construction. Thus, if the outside slide is dogged by the cylinder lock while the door is open, the dogging means could still be thrown off automatically by the slamming of the door.

In the preferred form illustrated the latch front 12 is flush with the outside of the door as shown in Fig. 1 and is flush with the front edge of the door. The inside trim plate 20 overlaps the front edge of the door slightly and the edge 14 of the latch front telescopes between the in-turned flange on the trim plate 20 and the corresponding flange on the case 9. The strike on the door jamb may be of more or less usual form but may be set back so as to clear the front edge of the trim plate 20.

It will be seen that we have provided an exceedingly simple lock which may be applied to doors of various thicknesses. The door is mutilated to the minimum extent and there is no through spindle to contribute to the sticking of knobs in case of slight inaccuracies during installation. The lock is adaptable to right-hand, left-hand, and reverse-bevel doors. The latching member may be securely dogged from the inside and may be undogged in emergency from the outside. The dogging means is thrown to inoperative position by the slamming of the door.

While the invention has been described in considerable detail and a preferred form illustrated, it is to be understood that many changes and modifications may be made within the scope of the invention as defined in the appended claims.

We claim:

1. In a lock, casing means to embrace opposite sides of a door, latch-actuating means including independent slides carried by said casing means and arranged for actuating a latch, a pair of opposed spaced-apart axially aligned rotatable hubs carried by said casing means and facing in the direction of spanning the space between opposite sides of the door, dogging means carried at all times by said spaced apart hubs and having a length exceeding the span between said hubs but less than the thickness of the door, said dogging means being keyed to and adapted to slide on both said hubs when otherwise unsecured, means for selectively securing said dogging means in one axially adjusted position and for selectively securing said dogging means in another axially adjusted position along the alignment axis of said hubs, said dogging means including a dogging member in position to dog one of said slides when said dogging means is secured in said one position and in position to dog the other of said slides when said dogging means is secured in said other position.

2. In a latch, latch-casing means to be secured to opposite sides of a door, a latch, latch-actuating means including independent slides carried on opposite sides of said casing means so as to be mounted on opposite sides of the door and arranged for actuation of said latch, axially aligned dog-actuating means on opposite sides of said case means, dogging means keyed at all times to both said dog-actuating means and adapted to be selectively positioned along the alignment axis of said dog-actuating means, whereby when otherwise unsecured said dogging means may be moved transversely of the door carrying said latch, said

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dogging means including means for dogging one of said slides when said dogging means is in one selected position along said axis and for dogging the other of said slides when said dogging means is in another selected position along said axis, externally accessible rotatable manual means on one side of the door and engaged to one of said dog-actuating members so as to rotate said dogging means into dogging position, and cooperative means between a part of said dogging means and a part of said latch for rotating said dogging means to inoperative position upon retraction of said latch, said cooperating means being effective whatever the selected position of said dogging means on said axis, whereby the particular latch mechanism dogged by said dogging means may assuredly be thrown off upon a retraction of said latch, as when the door is closed.

3. In a lock, a pair of latch cases to be secured at opposite sides of a door, a latch associated with said latch cases, independent latch slides carried by said latch cases and having means cooperating with a part of said latch for retracting said latch, independent knobs for actuating said latch slides, a pair of rotatable hubs carried by said latch cases at opposite sides of the door and projecting inwardly axial alignment with each other, the inwardly projecting parts of said hubs being of substantially uniform cross-section, a dogging member having guiding means of cross-section to match the said uniform cross-sections of said hub projections, said dogging member being of a length intermediate the space between said hub projections and the total included span of the constant-cross-section parts of said hub projections when mounted on a door, whereby when otherwise unsecured said dogging member may be moved from one position to a second position along the projecting parts of said hubs, said dogging member being non-rotatably held on both said hubs, said dogging member including a part engageable with one of said latch slides to the exclusion of the other of said latch slides in one selected position of said dogging member along said hubs, and engageable with the other of said latch slides to the exclusion of said one latch slide when in another selected position along said hubs, means actuatable from one side of the door carrying said latch for rotating said dogging member for dogging one of said latch slides depending upon the position of said dogging member along said hubs, and means carried by said dogging member and cooperable with said latch so as to rotate said dogging member to inoperative position when said latch is retracted.

4. In a locking device of the character indicated, two latch-actuating assemblies to be mounted on opposite sides of a door, a latch including means to be actuated by both said latch-actuating means when assembled on the door, each of said assemblies including axially aligned rotatable dog-supporting means, and dogging means keyed to and at all times supported by both said dog-supporting means, said dogging means being adapted to be selectively positioned along the axis of said dog-supporting means, said dogging means being operable in one axially selected position thereof for selective dogging of one of said latch-actuating means to the exclusion of the other of said latch-actuating means, said dogging means being further operable in another axially selected position thereof for selective dogging of the other of said latch-actuating means to the exclusion of said one of said latch-actuating means, whereby for a variety of door thicknesses

to which said latch-actuating means may be applied, and whatever the hand of the door, said dogging means may at all times be selectably positionable for correct selective dogging engagement with one or with the other of said latch-actuating means.

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