Sept. 18, 1945. H. G. VOIGHT 2,385,173

DOOR LOCK

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Fig. 1.

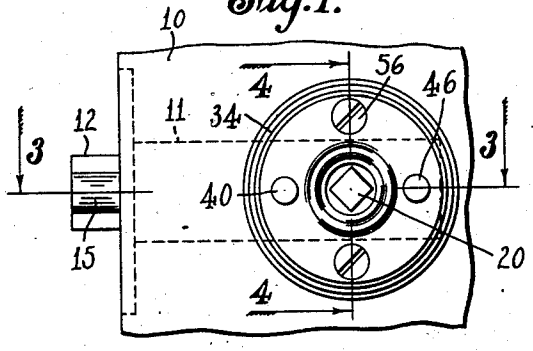


Fig. 2.

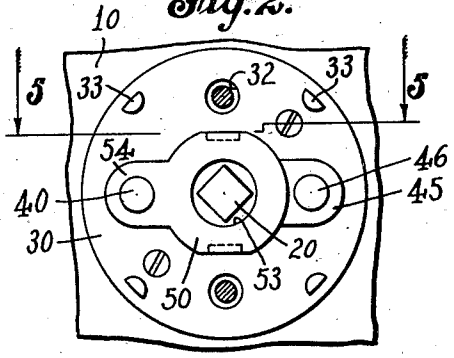


Fig. 3.

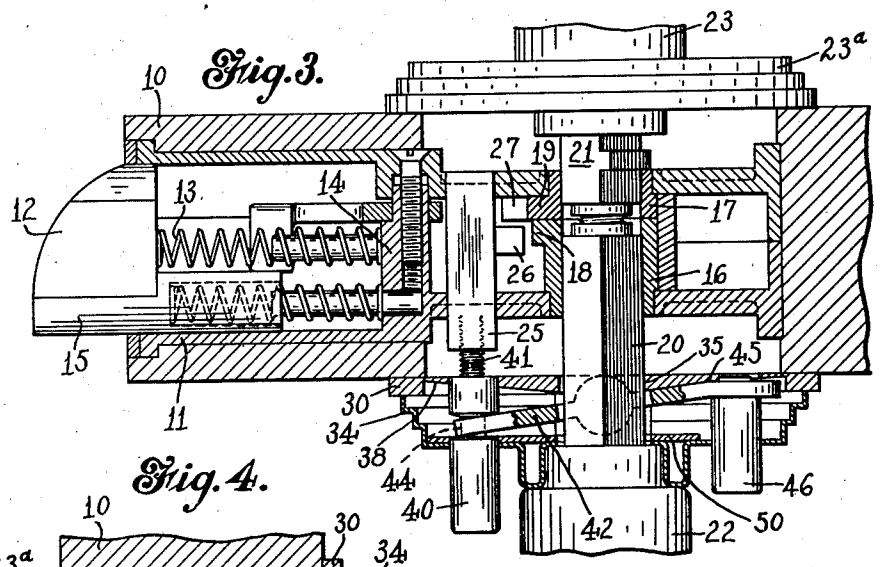


Fig. 4.

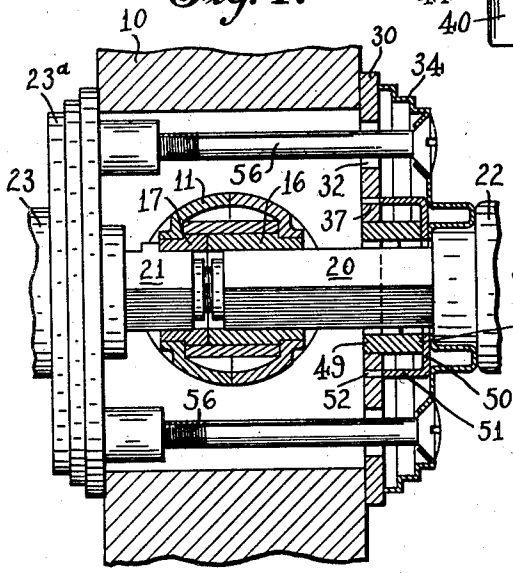
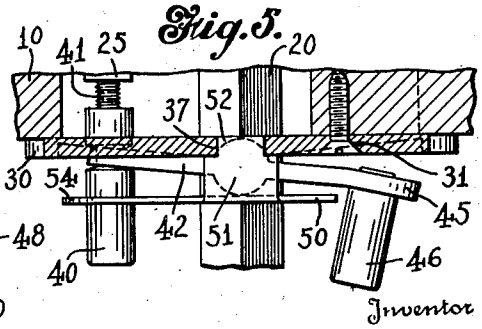


Fig. 5.



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Fig. 6.

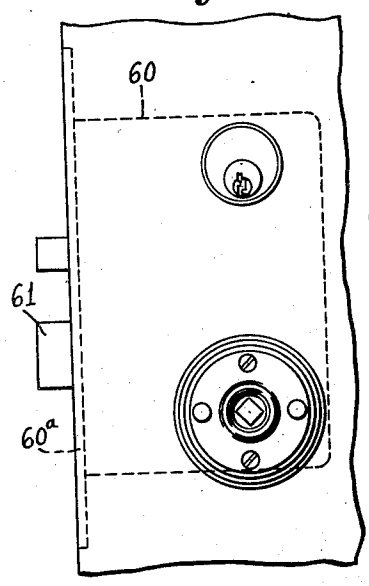


Fig. 7.

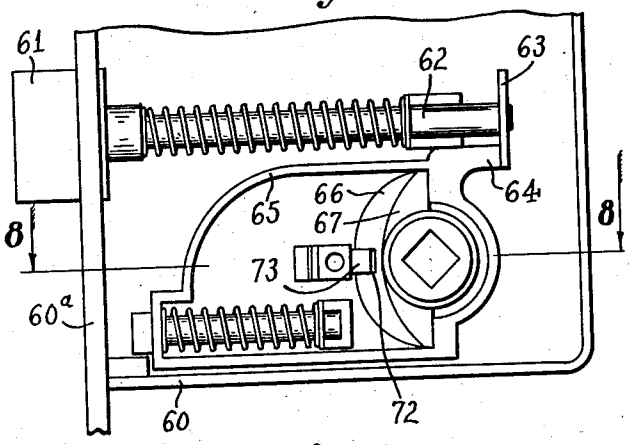


Fig. 8.

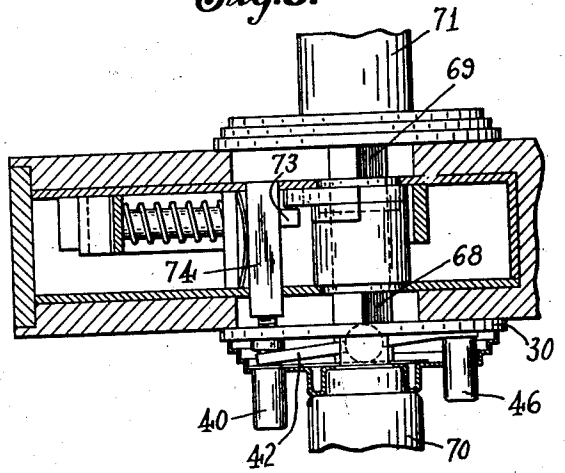


Fig. 9.

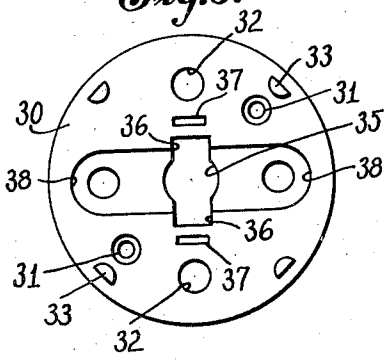


Fig. 10.

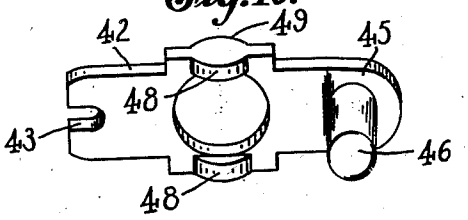
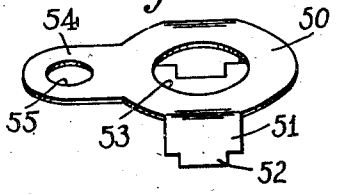


Fig. 11.



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UNITED STATES PATENT OFFICE

2,385,173

DOOR LOCK

Henry G. Voight, Hamden, Conn., assignor to Sargent & Company, New Haven, Conn., a corporation of Connecticut

Application August 21, 1943, Serial No. 499,439

2 Claims. (Cl. 292—169)

This invention relates to door locks or latches, and more particularly to a lock for the front door of a building, although it will be understood that it may be employed in any location in which is desired a lock having the novel characteristics embodied in the present structure.

The invention relates to a so-called tubular lock, and embodies improvements over the lock shown in my Patent No. 2,268,973, of January 6, 1942. The structure shown herein is also similar in some respects to that shown in my previous Patent No. 2,272,101, granted February 3, 1942.

In the embodiment shown the mechanism is provided with a latch bolt and also with a bolt-controlling or dogging plunger to dog the bolt when the door is closed against retraction by a tool inserted between the edge of the door and the door jamb. It is also provided with means to dog the outside knob against rotation, which means is constituted by a plunger accessible from the face of the door and guided in the walls of the case so that it may be pushed inwardly to dog the rollback of the outside knob.

In my previous patent referred to, No. 2,268,973, a walking beam structure is mounted in and carried by the inner rose member of the lock to operate this knob-dogging plunger. In some instances it is necessary that this plunger have a longer stroke than was permitted by the depth of the standard rose. In other words, as the walking beam was supported by and housed within the rose or between the outer surface of the rose and the door, the throw of the walking beam lever was limited by the depth of the rose, and in some instances the standard rose employed with other locks was not sufficiently deep to provide enough room to give the walking beam lever the throw required to effect a sufficient movement of the dogging plunger. In that event it became necessary to provide a special rose, or a rose of greater depth than was standard for the walking beam structure shown in that patent.

One object of the present invention is to overcome the disadvantages above referred to, and to provide a lock having a dogging plunger controlled by a walking beam mounted upon the outside of the door but so arranged that the standard rose may be employed, and at the same time the walking beam will be provided with the necessary movement or throw.

A still further object of the invention is the provision of a lock structure similar to that shown in my Patent No. 2,268,973, wherein the walking beam structure is mounted upon and carried by a plate secured to the door, instead of being mounted upon the rose, whereby the supporting plate may be recessed or cut away to give the walking beam an additional throw while the rose is abutted against the supporting plate so that the walking beam structure will be housed between the plate and the rose.

A still further object of the invention is the provision of a door lock having a device for dogging one of the knobs against rotation, the operation of which device is effected by a walking beam mounted within the inside rose member, the construction being so arranged that a rose of standard depth may be employed and at the same time the walking beam may be provided with the necessary movement or throw.

A still further object of the invention is the provision of a dogging mechanism of the type previously described, in connection with a mortise lock as distinguished from a tubular lock, shown in the prior patents referred to.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a front elevational view of a door having my improved lock applied thereto, the knob being removed for the sake of clearness;

Fig. 2 is a front elevational view of the supporting plate and walking beam structure, the rose having been removed to show the mechanism housed therewithin;

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

Fig. 4 is a sectional view on line 4—4 of Fig. 1;

Fig. 5 is a sectional view on line 5—5 of Fig. 2;

Fig. 6 is a front elevational view of my device applied to a mortise lock;

Fig. 7 is a detail view of the lower portion of the case of the mortise lock, the cover having been removed to show the interior construction;

Fig. 8 is a sectional view on line 8—8 of Fig. 7;

Fig. 9 is a front elevational view of the supporting plate upon which the walking beam structure is mounted;

Fig. 10 is a perspective view of the walking beam; and

Fig. 11 is a perspective view of the bracket which secures the walking beam structure to the supporting plate.

To illustrate a preferred embodiment of my invention, I have shown a portion of a door at 10, on which is mounted a lock comprising a tubular casing 11 having reciprocably mounted therein a bolt 12 normally urged outwardly by the bolt spring 13, which acts against the bolt

head and against a post 14 provided on the walls of the casing. The lock may also be provided with a bolt-controlling plunger 15 which serves, as shown in my Patent No. 2,272,101, above referred to, and as is well known in the art, to prevent the retraction of the bolt by a tool inserted between the edge of the door and the door jamb.

Rotatably mounted in the walls of the casing are inner and outer hubs 16 and 17 carrying rollbacks 18 and 19, respectively, which serve to retract the bolt in the usual way. These rollbacks are operated by inner and outer knob spindles 20 and 21, respectively, upon which are mounted inner and outer knobs indicated at 22 and 23. It will be understood that the spindles 20 and 21 are independently operable by their respective knobs so that either of the knobs may be rotated independently of the other to rotate the rollback carried thereby and retract the latch bolt 12. As the above-described structure and connections between the rollbacks 18 and 19 and bolt 12 may be identical with the corresponding parts shown in my previous patent referred to, it is deemed unnecessary to further illustrate them herein.

Slidably mounted in the opposite walls of the lock case 11 is a plunger 25 carrying a detent 26 adapted to engage in a recess 27 in a laterally extended portion of the rollback 19 operated by the outside knob, so that when the plunger is pushed inwardly from the position shown in Fig. 3, and the detent engages in the recess 27, the rollback 19 will be dogged against operation.

One feature of the present invention relates particularly to the structure for operating the plunger 25. For this purpose a plate 30 is mounted upon the door, and, as illustrated, is at the inner face of the door. This plate is of the form shown in Fig. 9, and is provided with openings 31 through which may be passed screws by which it may be secured to the door, and also with openings 32 for a purpose to be hereinafter described. Positioning lugs 33 are provided near the periphery of the plate to assist in locating thereon the hollow rose 34, which will be referred to hereinafter. The plate 30 is also provided with a central opening 35 for passage of the knob spindles, the ends of which are somewhat reduced in width with respect to the center thereof, as shown at 36, and with slots 37 above and below this opening. Also extending laterally from the opening 35 are recesses 38, the rear walls of which are inclined, as shown in Fig. 3, so that at their outer ends the recesses are deeper than at their inner portions adjacent the opening 35.

To manipulate the plunger 25 a push button 40 is secured thereto by means of the threaded connection 41, and connected to this push button is a lever or walking beam 42, shown more particularly in Fig. 10, having an open-ended recess 43 at one edge thereof to embrace a reduced portion 44 of the push button 40. The other end of the walking beam or lever 42 is bent slightly, as shown at 45, and to this end is secured a second push button 46, both of the buttons 40 and 46 projecting outwardly through openings in the rose 34.

Upon the walking beam lever 42 are provided semi-circular members 48 and 49, one pair of these members extending into the reduced ends 36 of the opening 35 of the plate 30, so that this member will be rockably supported on this plate. This member is held against the plate by a bracket 50, against which the other pair of semi-circular members 48 and 49 abut, the bracket being provided with lugs 51 having reduced end portions 52 forced into the slots 37 of the plate 30. This bracket is provided with a central opening 53 for passage of the knob, and a wing 54 containing an opening 55 through which the push button 40 passes and in which it is guided.

As seen from Fig. 4, the outer rose 23a may be secured in place by means of screws 56 passed through the door and through the inner rose 34, these screws passing through the openings 32 provided in the plate 30. With this construction the outer rose and knob which is rotatably secured thereto may be secured to the door from the inside, so that it may not be removed from the outside, the plate 30 not preventing this arrangement.

It will be obvious with this construction that the walking beam structure is mounted upon and carried by the plate 30 and not by the rose, as is the case in my prior Patent No. 2,268,973. It will also be apparent that in assembling the device, after the lock casing has been inserted through the edge of the door, the plate 30 with the walking beam structure mounted thereon may be secured to the face of the door, and the push button 40 rotated in the slot 43 to connect it with the plunger 25.

After the plate 30 has been secured in place the rose may be applied to the plate, the push buttons 40 and 46 sliding through the openings in the rose provided therefor, and the rose being centered and positioned upon the plate by the lugs 33, which contact the inner edge of the rim of the rose.

It will also be noted from Fig. 3 that this inner rim of the rose rests against the outer face of the plate 30 so that a small portion of this plate is visible beyond the edge of the rose. The exterior surface of the rose is stepped, as shown, and this exposed portion of the plate merely provides what appears to be an additional step so that it does not detract from the appearance of the lock. Moreover, it will be observed that, as shown in Fig. 3, the provision of the recesses 38 will permit the rear ends of the walking beam to pass beyond the outer surface of the plate 30 and lie in these recesses, so that the walking beam is provided with a greater throw than would normally be provided by the depth of the rose if the outer surface of the plate were unbroken. The plate 30 is relatively thick, and the recesses 38 thus provide a considerable additional throw for the lever 42, thus making it possible to use a rose 34 of standard form for a lock provided with a walking beam mounted or housed within the rose, which has not been possible heretofore.

In Figs. 6 to 8 of the drawings I have shown the present dogging structure applied to a standard mortise lock. As shown, this lock is provided with a case 60 in which is reciprocably mounted the latch bolt 61 having a stem 62 and crosshead 63, the latter being engaged by the end 64 of a retracting yoke 65, which yoke is actuated by inner and outer rollbacks 67 and 66. These rollbacks are operated by inner and outer spindles 68 and 69, respectively, upon which are mounted knobs 70 and 71, it being understood that the spindles are independently rotatable.

As shown, the rollback 66 extends beyond the rollback 67 and is provided with a recess 72 within which may engage a dogging detent 73 on a dogging plunger 74, similar to the plunger 25 shown in Fig. 3. The mechanism for operating the plunger 74 is the same as that shown in Fig. 3 and comprises the same walking beam structure mounted on and carried by the plate 30 and

housed within the rose **34**. A detailed description of this structure is, therefore, unnecessary.

It will also be understood that the dogging plunger **74** is slidably mounted in the opposite walls of the casing **60**, as shown in Fig. 8, so that it is properly guided in its in-and-out sliding movements.

In this manner my improved dogging mechanism may be readily applied to a standard mortise lock, in which event the mechanism for dogging the outer knob will be mounted at the inside of the door adjacent the inner knob spindle instead of being mounted, as has been the custom, at the edge of the door in the face plate **60a** of the lock case. Thus it will be unnecessary to open the door to set the dogging mechanism, even when a mortise lock is employed.

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. In a door lock, a case, a latch bolt reciprocably mounted in the case, inner and outer knobs operatively connected to the latch bolt to retract the same, a dogging member to dog the outer knob against rotation, said member being slidably mounted in the case for movement transversely to the bolt, a supporting plate secured to the inner face of the door, a hollow rose member having its base resting upon said plate to be spaced thereby from the face of the door, a walking beam, means rockably securing said walking beam to said plate between the latter and the face of said rose member, said walking beam being connected to the dogging member to operate the same, operating means for said walking beam extending through the face of the rose, and said plate being recessed at its outer face to receive the ends of the walking beam to permit a long throw of the latter relatively to the depth of the hollow rose member.

2. In a door lock, a case, a bolt reciprocably mounted therein, independently rotatable inner and outer knobs, mechanism connecting each of said knobs to said bolt for operation thereof, a dogging member slidably carried by the walls of the case to dog the outer knob against operation, a walking beam structure for operating the dogging means accessible for operation at the inside of the door when the latter is closed, a supporting plate secured to the inner face of the door, a hollow rose member having its peripheral edge resting against said plate, means rockably mounting said walking beam structure on said plate within said rose, said structure including a lever, and said plate being recessed on its outer face to receive the ends of the lever whereby the latter is permitted a relatively long throw, and operating means connected to the lever and projecting through the rose.

HENRY G. VOIGHT.