Nov. 23, 1954 L. H. FISLER ET AL 2,694,919

DOOR LOCK

Filed Feb. 19, 1952

Fig. 1.

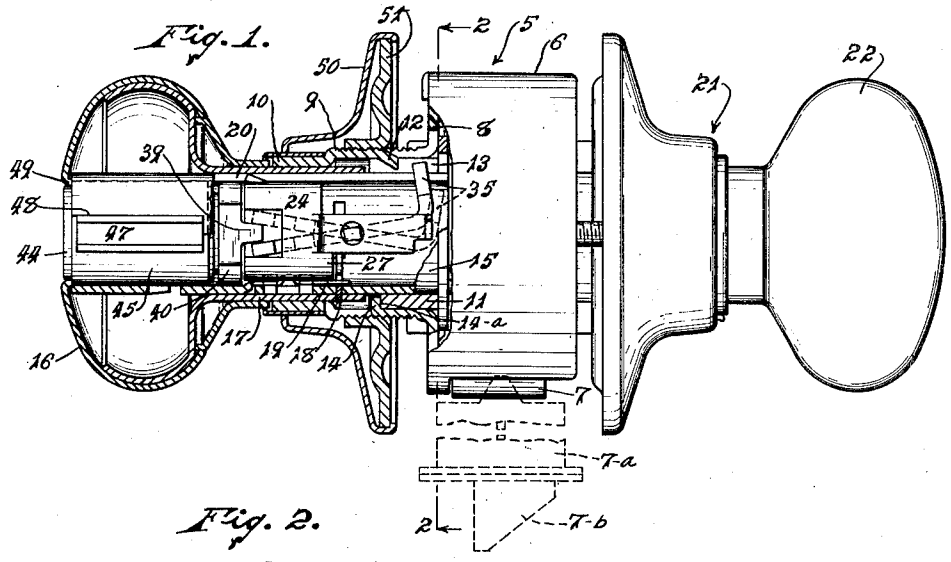


Fig. 2.

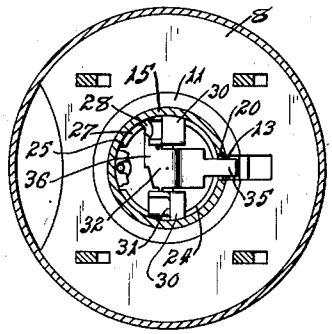


Fig. 3.

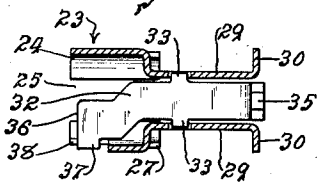


Fig. 5.

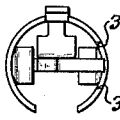


Fig. 4.

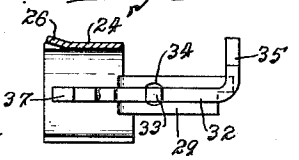
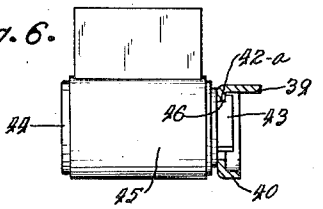


Fig. 7.

Fig. 6.



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DOOR LOCK

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Application February 19, 1952, Serial No. 272,338

7 Claims. (Cl. 70—216)

This invention relates to a door lock and more particularly to a door latch operating mechanism including novel dogging means for rendering the said mechanism inoperative to retract the latch bolt.

The present invention is embodied in a door latch operating unit of the cylindrical type, such as disclosed in the co-pending application of Leland H. Fisler et al., Serial No. 269,168, filed Jan. 31, 1952, and has, as one of the objects, the provision of a door lock having means therein for dogging the outer operating member of the lock against operation from the outer side of the door.

A further object of this invention is the provision of a door lock having key actuated means in the outer operating member for dogging said operating member against operation.

A still further object of this invention is the provision of a door lock which is primarily intended for use on classroom doors, in schools and the like, and in which the outer operating member may be rendered inoperative from the outer side of the door while the inner operating member remains operative at all times to retract the latch bolt.

Another object of the invention is to provide a simple and inexpensive dogging mechanism which may be readily incorporated in a door latch operating unit for transforming the said device into a classroom door lock wherein the outer operating member may be dogged, by key-actuated means, against operation from the outer side of the door.

Further objects and advantages of this invention will be more clearly understod from the following description and the accompanying drawings in which:

Fig. 1 is a plan view of a cylindrical door lock, partly in central horizontal section, illustrating the construction of the dogging mechanism contained therein.

Fig. 2 is a sectional end view, on line 2—2 of Fig. 1, further illustrating the construction of said dogging mechanism.

Fig. 3 is a side view, partially in central vertical section, of the dogging unit employed in the lock.

Fig. 4 is a plan view thereof, partly in central horizontal section.

Fig. 5 is an end view of said dogging unit.

Fig. 6 is a side view of the actuating means for the dogging member in said dogging unit.

Fig. 7 is an exploded perspective view illustrating the parts of the dogging mechanism in the respective positions which they occupy in the lock.

Referring to the drawings, the numeral 5 denotes a cylindrical door lock which, for the purpose of illustration is of the type disclosed in said co-pending application; said lock being insertable into a hole extending transversely through the face of a door. The door lock includes a casing 6 which contains suitable mechanism for slidably supporting a retractor 7 to which a conventional latch unit, indicated at 7–*a* and contained within a hole extending through the edge of the door, is attachable to permit operation of the latch bolt 7–*b* in said unit in the conventional manner. The casing 6 includes an outer end plate 8 having an integral tubular sleeve 9 projecting therefrom; the outer portion 10 of said tubular sleeve being of a reduced internal diameter.

A bearing 11 is positioned within the inner portion of the sleeve 9 and is prevented from rotating relatively to said sleeve by means of a tab 12 that is bent inwardly from said sleeve into a slot 13 extending longitudinally through said bearing 11. Axial movement of the bearing relatively to the sleeve 9 is prevented by means of of a finger 14 which is bent inwardly from said sleeve and is received in a notch 14–*a* in the end of the bearing.

The said bearing 11 rotatably supports the inner end of an outer tubular knob spindle 15 and is provided with a suitable rollback portion for actuating the retractor 7 to withdraw the latch bolt 7–*b*. The said spindle 15 carries an outer knob 16 having a shank portion 17 which extends over said tubular spindle and is rotatably supported in the reduced portion 10 of the sleeve 9 to provide a bearing for the outer end of said rotatable spindle 15. The said outer knob is retained on the spindle by a suitable knob retainer 18 that is mounted in the spindle and projects radially therefrom, through a slot in the knob shank, under the influence of a spring 19 which is secured to the said spindle as clearly disclosed in the above mentioned co-pending application. The spindle 15 has a slot 20 which extends throughout its entire length and, in its normal position, the said slot is in alignment with the slot 13 in the non-rotatable bearing 11.

The lock casing also supports an inner actuating mechanism, generally indicated at 21, which is substantially the same as the outer operating mechanism above-described and includes an inner knob 22 for rotating a spindle to operate the retractor 7 in the same manner as the outer operating mechanism, but independently thereof.

Our novel dogging means for preventing operation of the outer actuating mechanism comprises a dogging unit 23 including a tubular supporting member 24 which is received and positioned within the tubular spindle 15 and has a slot 25 therethrough to prevent interference of said supporting member with the structure in the spindle 15 which supports the spring 19. A finger 26 is bent outwardly from said member and projects into the slot 20 in the spindle to thereby prevent rotation of said supporting member relatively to the spindle. One side of said supporting member 24 is extended, as indicated at 27, and engages an ear 28 which is bent inwardly from the spindle 15 for supporting the knob catch 18 to thereby provide a stop for the dogging unit to limit its inward movement relatively to the spindle.

The supporting member 24 has a pair of diametrically opposed arms 29—29 extending longitudinally from the inner end thereof; said arms being bent inwardly from the material forming the member and having oppositely extending foot portions 30—30 bent at right angles thereto as indicated in Figs. 3 and 7. The ends 30–*a*—30–*a* of said foot portions conform to the shape of the spindle 15 and engage the inner surface of said spindle to provide a support for the dogging unit. The lower foot portion 30 is cut away, as at 31, so as to avoid interference from the knob catch 27 as the dogging member is inserted into the spindle from the outer end thereof.

A dogging bar 32 is pivotally mounted between said arms 29—29 by means of lugs 33—33 which project from the opposite sides of said bar into holes 34—34 in said arms. A finger 35 extends perpendicularly from the inner end of said dogging bar 32 and said finger is adapted to pass through the slot 20 in the spindle 15 and into the slot 13 in the bearing 11. The outer end portion of said bar is laterally offset, as at 36, and has an abutment 37 projecting therefrom into a notch 38 in said tubular supporting member 24. The sides 38–*a*—38–*a* of said notch provide stop surfaces which are engageable by the abutment 37 to limit the pivotal movement of said dogging bar.

The dogging bar 32 is actuated by means of a lug 39 which extends from the edge of a cup-shaped driving member 40, that is rotatably carried by the spindle 15, into the tubular supporting member 24 wherein it is adapted to engage the opposite sides of the offset portion 36 of the dogging bar to rock said bar about its pivot into locked and unlocked positions. The bottom wall 41 of said driving member 40 has an opening 42 therethrough which receives a lug 43 projecting from the end of the key plug 44 of a conventional cylinder lock 45. The lug 43 has a notch 46 therein which receives the upper edge 42–*a* of the opening 42, as clearly illustrated

in Fig. 6, to prevent disengagement of said driving member from the key plug when in operating position in the spindle **15**. The cylinder **45** is positioned within the spindle **15** and the pin chamber **47** thereon projects from the cylinder through a notch **48** in the end of the spindle and into the outer knob **16**. The engagement of said pin chamber with the sides of the notch **48** in the spindle prevents rotation of the cylinder relatively to the spindle. The cylinder is axially positioned with respect to the spindle **15** by an inwardly extending lip **49** around the marginal edge portion of an opening in the knob **16** through which the key plug extends to thereby render it accessible for key operation from the outer side of the lock.

The dogging mechanism above described is inserted into the basic latch operating unit **5** through the outer end of the spindle **15** and is retained therein by the outer knob **16** which is secured to the spindle **15** by the knob retainer **18**. Access to the knob retainer **18** is prevented, when the lock is in position on a door, by a decorative rose **50** that is permanently secured to a clamping plate **51** which is threaded to the sleeve **9**.

It will be noted from Fig. 1 that, when the dogging bar is in locked position, the finger **35** thereon projects through the slot **20** in the spindle **15** and into the slot **13** in the non-rotatable bearing **11** that is positioned in the sleeve **9**. Rotation of the spindle by the outer knob **16** is thereby prevented and the outer operating mechanism is, in this manner, rendered inoperative to retract the retractor for withdrawing the latch bolt **7**–*b*. The retractor may, however, be actuated by turning the inner knob **22** since the inner operating mechanism controlled by said knob operates independently of the outer operating mechanism. It will therefore be understood that, should the outer spindle be locked against operation, a person on the inside of the room will still be free to leave the room since the latch bolt may be withdrawn by operating the inner knob **22**.

In order to move the dogging bar from dogging position, as illustrated in full lines in Fig. 1, into unlocked position, as illustrated in dotted lines therein, the proper key is inserted into the key plug **44** and the said plug is rotated counter-clockwise for 360 degrees, thereby rotating the driving member **40** to move the lug **39** into engagement with the opposite side of the offset portion **36** of the dogging bar **32** and thereby rock said bar about its pivot into the position illustrated in Fig. 1 wherein the finger **35** is withdrawn from the slots **13** and **20** respectively and is positioned within the spindle.

Movement of the dogging bar **32** is limited by the engagement of the abutment **37** with the sides **38**–*a*—**38**–*a* of the slot **38** to thereby provide a stop which will prevent further rotation of the key plug and will indicate that the dogging bar has been moved to locked or unlocked position and that the key may be removed from the key plug. Should it be desired to withdraw the latch bolt after the dogging bar has been moved to unlocked position, it is only necessary to continue the rotation of the key after the abutment **37** has engaged the side of the notch **38** to thereby transfer the rotary motion of the key plug to the spindle through the engagement of the finger **26**, which projects from the supporting member **24**, with the sides of the slot **20** in the spindle.

It will be understood that the use of a dogging member as above described is not necessarily limited to a cylindrical door lock, which was shown herein to illustrate the invention, but can be used in any other type of door lock without departing from the scope of the invention.

We claim:

1. For a door latch operating mechanism including a tubular spindle having a slot therethrough which is normally in register with a slot in a stationary portion of the mechanism, a dogging unit insertable into said spindle through the end thereof, the said unit including a tubular supporting member having a projection thereon which enters said slot to prevent rotation of the supporting member relatively to the spindle, a dogging bar pivotally mounted on said supporting member and having a finger thereon, an abutment on said dogging bar engageable with stop means on said supporting member, and rotatable key actuated means insertable into said spindle and operable to rock the said dogging bar about its pivot to move said finger into and out of said slots for respectively dogging and undogging said spindle; the engagement of said abutment with said stop means limiting the movement of the dogging bar to either of its positions.

2. For a door latch operating mechanism including a tubular spindle having a slot therein normally in register with a slot in a stationary portion of the mechanism, a dogging bar, means on said bar intermediate its ends for pivotally mounting it in said spindle, a finger portion extending from the inner end of said bar, a lateral extension on the opposite end of said bar, an abutment at the end of said extension, stop means in said spindle engageable by said abutment, means for rocking said bar about its pivot to move said finger into and out of said slots to respectively dog and undog said spindle, the engagement of said stop means by said abutment limiting movement of said bar to either of said positions.

3. For a door latch operating mechanism including a tubular spindle having a slot therein which is normally in register with a slot in a stationary portion of the mechanism, a dogging unit including a supporting member adapted to be inserted into said spindle, means on said member engageable with said spindle for preventing relative rotation thereof, a dogging bar movably mounted on said supporting member and having a finger portion thereon, driving means for actuating said dogging bar to move said finger into and out of said slots to respectively dog and undog said outer spindle and stop means on said supporting member engageable by said dogging bar to limit movement thereof to either of said positions.

4. For a door latch operating mechanism including a tubular spindle having a slot therein normally in alignment with a slot in a stationary portion of the mechanism, a dogging unit comprising a supporting member adapted to be inserted into said spindle, means on said supporting member engageable with said spindle for preventing relative rotation thereof, a dogging bar pivotally mounted intermediate its ends on said supporting member and having a finger projecting from the inner end thereof; said finger being normally in alignment with said slots, an abutment on the outer end of said bar, stop means on said supporting member engageable by said abutment and means for rocking said bar about its pivot to move said finger into and out of said openings to respectively dog and undog said spindle; the engagement of said abutment with said stop means limiting movement of the bar to either of said positions.

5. The subject matter set forth in claim 4 wherein said stop means includes a notch in the wall of said supporting member into which said abutment projects, the sides of said notch providing spaced stops which are engageable by said abutment to limit movement of said dogging bar to either of its positions.

6. For a door latch operating mechanism including a tubular spindle having a slot therein normally in alignment with a slot in a stationary portion of the mechanism, a dogging unit including a tubular supporting member adapted to be inserted into said spindle, means on said supporting member engageable with said spindle for preventing relative rotative thereof, a pair of diametrically opposed arms projecting from said supporting member; a dogging bar pivotally mounted intermediate its ends between said arms, a finger projecting from the inner end of said dogging bar, an abutment on the other end of said dogging bar projecting into a notch in said tubular supporting member, and means for rocking said bar about its pivot to move said finger into and out of said slots to respectively dog and undog the spindle; the engagement of said abutment with the sides of said notch in the supporting member limiting the movement of the dogging bar to either of its positions.

7. The subject matter of claim 6 wherein said last-mentioned means include a cup-shaped driving member that is adapted to be rotatably carried within said spindle and has a lug projecting therefrom into engagement with the outer end of said dogging bar and a key-operated lock having a rotatable key plug therein to which said driving member is secured.

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