Aug. 5, 1958 G. W. WARDWELL, JR 2,846,255

DOOR LOCKS

Original Filed June 28, 1954 2 Sheets-Sheet 1

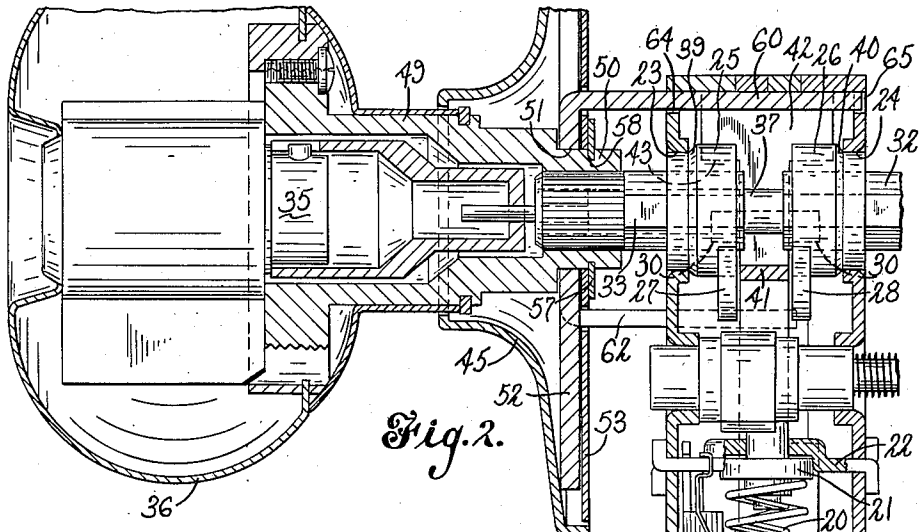
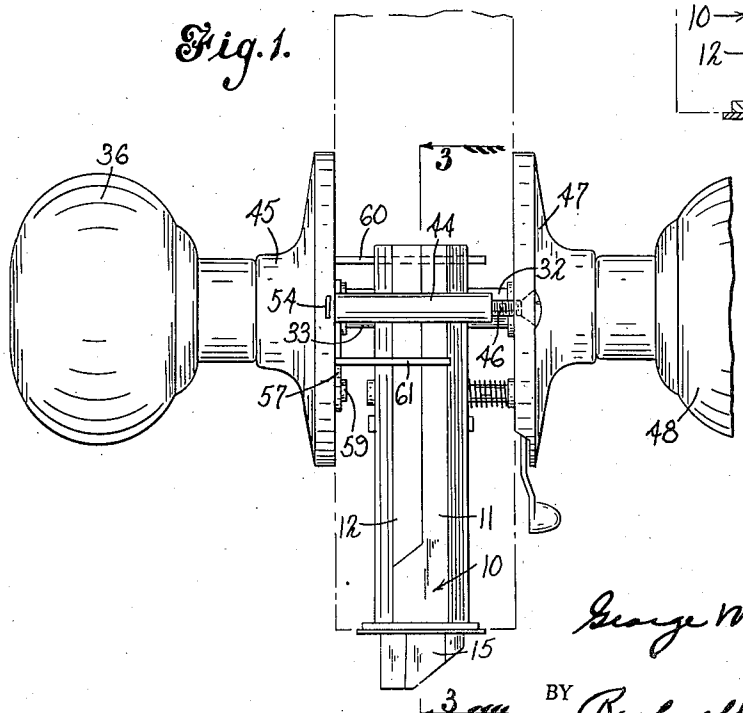


Fig. 2.

Fig. 1.



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Fig. 3.

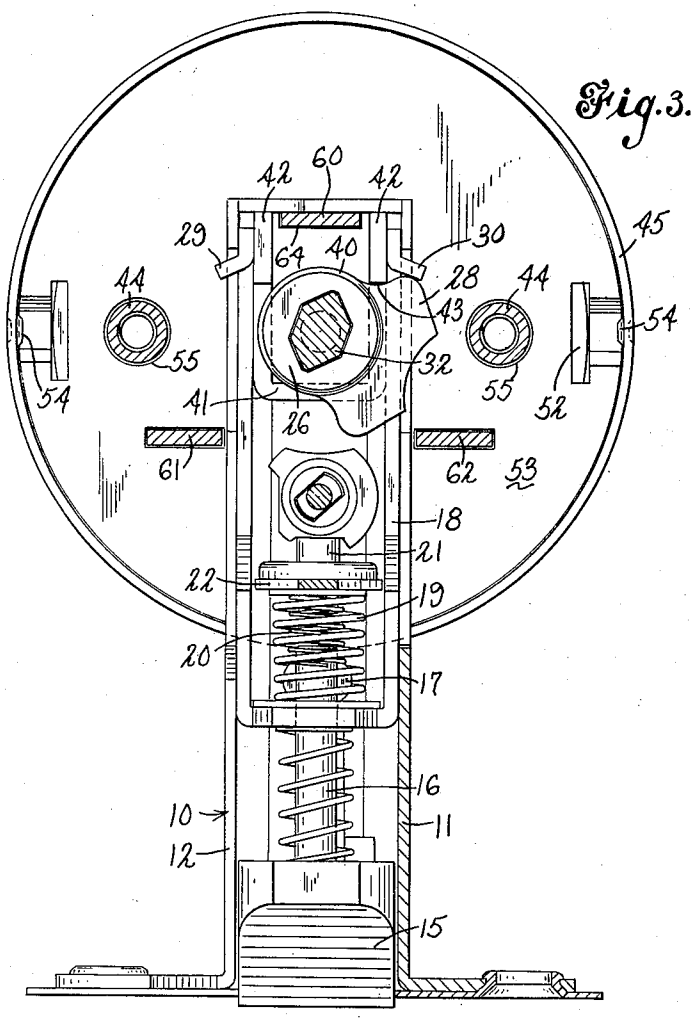


Fig. 4.

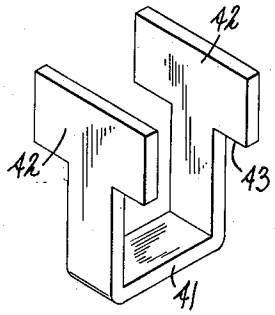


Fig. 5.

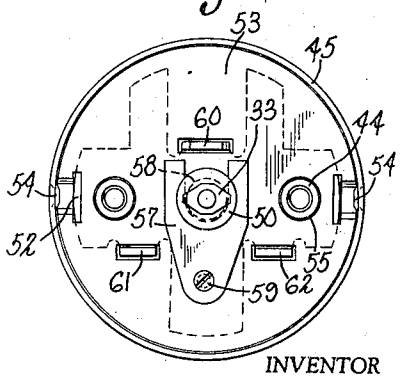
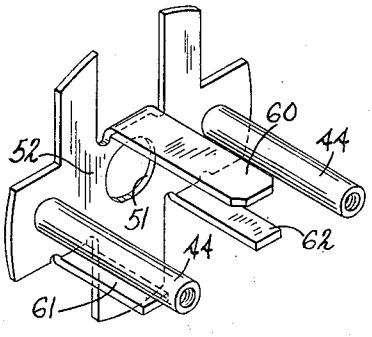


Fig. 6.



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United States Patent Office 2,846,255 Patented Aug. 5, 1958

2,846,255

DOOR LOCKS

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Original application June 28, 1954, Serial No. 439,528, now Patent No. 2,800,347, dated July 23, 1957. Divided and this application January 30, 1957, Serial No. 637,258

6 Claims. (Cl. 292—169)

This invention relates to a door lock and the present application is a division of my application, Serial No. 439,528, filed June 28, 1954, resulting in Patent No. 2,800,347, July 23, 1957. This application relates particularly to the mechanism for mounting the lock case, a substantially tubular lock case in this instance, in the door and properly aligning it both as to its vertical and horizontal positions by means secured to the knob structure. It also relates to the rollback mechanism for actuating the bolt and means for spacing the rollbacks apart, which rollbacks are rotatably mounted in the case.

As illustrated the lock mechanism is enclosed in a casing which may be inserted into an opening bored through the edge of the door, and the knob structure may then be applied to the face of the door, the knob spindle passing through a transverse opening bored from one face of the door to the other, the spindle slidably and nonrotatably engaging the rollback which operates the bolt.

The mechanism is such that it may be economically constructed and comprised of relatively few parts and the aligning means attached to the knob structure or rose with which the knob is associated so engages the lock case as to positively align it in its proper position as will be hereinafter explained.

One object of the invention is the provision of novel means to align the lock mechanism with the knob and knob spindle associated therewith.

A still further object of the invention is to provide a door lock mechanism wherein the lock casing inserted in an opening bored through the edge of the door is aligned by prong members secured to the rose associated with the knob, which prong members engage the case of the mechanism.

Still another object of the invention is to provide improved means for checking the rotation of the rollbacks which serve to withdraw the latch and of spacing the rollbacks within the lock case, it being understood that these rollbacks are rotatably mounted in the walls of the case.

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 top plan view of a door lock embodying the invention;

Fig. 2 is a horizontal sectional view through the outer knob and lock case, the lock mechanism being shown in top plan view;

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

Fig. 4 is a detail perspective view of the rollback-spacing means;

Fig. 5 is a front elevational view of the outer knob structure removed from the door; and

Fig. 6 is a perspective view of the aligning plate showing the aligning prongs which engage the lock case.

To illustrate a preferred embodiment of my invention

I have shown a door lock structure comprising a lock case **10** which, as illustrated, is usually made in two parts **11** and **12**. The lock mechanism comprises a latch bolt **15** having a stem **16**, the stem being provided with lugs **17** which are adapted to be engaged by a retractor yoke **18**. A relatively strong spring **19** acts against the retractor yoke while a weaker spring **20** acts against the stem **16** of the bolt to urge these members to protracted position. Both of these springs act against a spring stop **21** guided against a retaining member **22** rigidly fixed to the casing.

Rotatably mounted in openings **23** and **24** at opposite sides of the casing are rollback hubs **25** and **26**, these hubs being provided with rollbacks **27** and **28** which, as shown in Fig. 3, engage lugs **29** and **30** on the legs of the retracting yoke **18** in order to retract the bolt.

The inside knob spindle is shown at **32** and is nonrotatably engaged with the hub **26** while the outer knob spindle is shown at **33** and is nonrotatably engaged with the hub **25**. The hubs may, of course, rotate independently of each other.

A key-operated lock mechanism designated generally at **35** is mounted in the outside knob **36**, this key-operated mechanism also actuating the reduced end **37** of the inner knob spindle **32** so that the door may be operated by the key when the bolt is locked or dogged against operation as explained in my previous application above referred to.

The rollbacks **25** and **26** are provided with shoulders **39** and **40** which engage the inner walls of the case about the openings **23** and **24** and the rollbacks are spaced apart and held against inward movement by a U-shaped spacer member **41** positioned in the case between these hubs (Figs. 2 and 4). Each of the legs of this U-shaped member is provided with a laterally projecting rear end portion **42** which, as shown in Fig. 2, stands adjacent the rear end of the case. When either of the rollbacks is rotated to engage one of the lugs **29** and **30** of the retractor yoke in order to retract the bolt, it will engage the front edge of the laterally projecting member **42**, as shown at **43** in Fig. 3. Thus the member **42** will serve as a stop to limit the turning of the rollbacks and likewise the turning of the knobs. Therefore, the spacer member **41** not only serves to space apart the rollback hubs and hold them in place, but also serves to limit the rotation of the rollbacks and thus takes the strain applied to the knob so that this strain will not have to be borne by the retractor.

As shown in Figs. 1 and 3, a pair of screw sockets **44** project from the rose **45** of the outer knob and screws **46** inserted through openings in the rose **47** of the inner knob **48** are threadedly received in these sockets to secure the knobs in place with their spindles **32** and **33** extending into the lock casing **10** to engage the hubs **25** and **26** of the rollbacks. Means for aligning the case **10** with the knobs and their spindles is associated with the outer knob structure which will now be described.

As shown in Fig. 2, the outer knob is provided with a shank **49** to which the knob is secured, this shank passing through an opening in the rose **45**. This shank is provided with a reduced end **50** having a bearing in a circular opening **51** provided in an aligning or bearing plate **52**. This aligning plate is disposed within the rose **45** and it is secured to the rose by a retaining plate **53** (Figs. 2 and 5) placed flatwise against the plate **52** and held in place by having portions of the rose staked over its periphery as shown at **54** in Fig. 3. This holds the plate **53** and also the aligning plate **52** assembled with the rose.

The screw sockets **44**, as shown in Fig. 6, are secured to and project outwardly from the aligning plate **52** and

project outwardly through openings **55** in the securing plate **53**.

The knob shank **49** is telescopically received in the rose assembly as above described and a key **57** (Fig. 5) is inserted into an annular groove **58** in the shank to hold the knob assembled with the rose and at the same time permit rotation of the knob shank with respect to the rose, the aligning plate **52** furnishing the bearing for the knob shank. The key **57** may be held in place by a screw **59** threaded into the aligning plate **52**. Therefore, the knob and rose structures are secured to the door by means of the sockets **44** and screws **46**.

As shown in Figs. 2, 3 and 6, the aligning plate **52** is provided with three aligning prongs **60**, **61** and **62**. These prongs project outwardly through openings in the retaining plate **53**, as shown in Fig. 5. The prongs **61** and **62** lie above and below the lock case **10** respectively so as to align the case vertically with the knob and rose assemblies. The prong **60**, as shown more especially in Figs. 2 and 3, extends through openings **64** and **65** in opposite walls of the lock case and aligns the latter horizontally with the knob and rose assemblies so that the knob spindles will properly register with the openings in the inside and outside rollback hubs **25** and **26**.

While I have shown and described one embodiment 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. A door lock comprising a casing having a latch bolt reciprocably mounted therein, a knob and rose assembly having a spindle adapted to enter the casing, means operatively connecting said spindle to the bolt to retract the same, said assembly comprising a knob and a knob shank secured thereto, said spindle being secured to the knob shank, a bearing plate carried by the rose and having an opening providing a bearing for the knob shank, means securing said plate to the rose, means for preventing removal of the knob shank from the plate, and said bearing plate having aligning prongs projecting therefrom to engage the casing and align it both vertically and horizontally with the spindle.

2. A door lock comprising a casing having a latch bolt reciprocably mounted therein, a knob and rose assembly having a spindle adapted to enter the casing, means operatively connecting said spindle to the bolt to retract the same, said assembly comprising a knob and a knob shank secured thereto, said spindle being secured to the knob shank, a bearing plate carried by the rose and having an opening providing a bearing for the knob shank, means securing said plate to the rose, the said means for operatively connecting said spindle to the bolt including a pair of spaced rollbacks and a yoke operated by the rollbacks and connected to the bolt, a U-shaped spacer member disposed in the case between said rollbacks to space them apart, said bearing plate having aligning prongs projecting therefrom to engage the casing, and one of said prongs projecting into the casing between the legs of said spacer member.

3. A door lock mechanism comprising a case, a latch bolt reciprocably mounted therein, a pair of spaced rollbacks rotatably mounted in the walls of the case, a yoke operated by the rollbacks and connected to the bolt to retract the same, a spacer member between said rollbacks to space them apart, and means on said spacer member to engage the rollbacks and limit the rotation thereof, knob members adapted to be secured one upon each side of the door for operating said rollbacks, an aligning member secured to one of said knob members and projecting into the case, said spacer member being of U-shaped form, and said aligning member extending between the legs of the spacer member.

4. A door lock as in claim 1 wherein one of said aligning prongs is received within an opening in the lock casing adjacent the rear end thereof, and a pair of said prongs are disposed forwardly of said one prong and spaced vertically from each other to engage the upper and lower walls of the casing respectively.

5. A door latch mechanism comprising a case, a bolt reciprocably mounted therein, a spindle extending into the case and in a direction transverse to that of the movement of the bolt, a rose at the face of the door, a knob associated with the rose having a shank operatively connected with the spindle, a bearing plate carried by the rose having a bearing for the knob shank, aligning prongs carried by and projecting inwardly from the bearing plate to engage the case and align it with the spindle both vertically and horizontally, and a second plate secured to the rose to secure the aligning plate thereto.

6. A door latch mechanism comprising a case, a bolt reciprocably mounted therein, a spindle extending into the case and in a direction transverse to that of the movement of the bolt, a rose at the face of the door, a knob associated with the rose having a shank operatively connected with the spindle, a bearing plate carried by the rose having a bearing for the knob shank, aligning prongs carried by and projecting inwardly from the bearing plate to engage the case and align it with the spindle both vertically and horizontally, a second plate secured to the rose to secure the aligning plate thereto, and means to hold the shank against longitudinal movement with respect to the aligning plate to secure the rose to the shank.

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