

Aug. 21, 1956

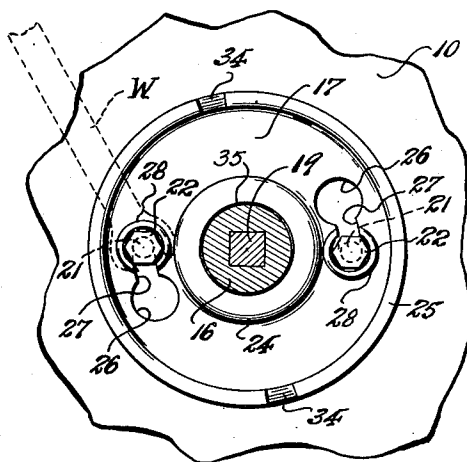
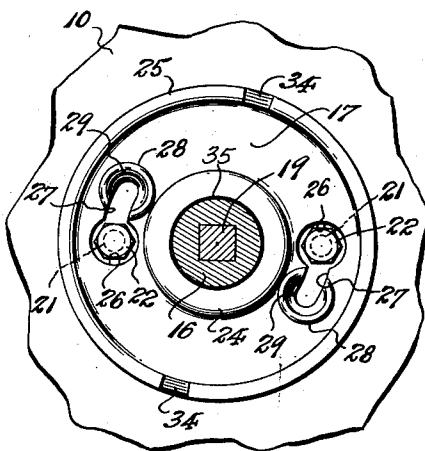
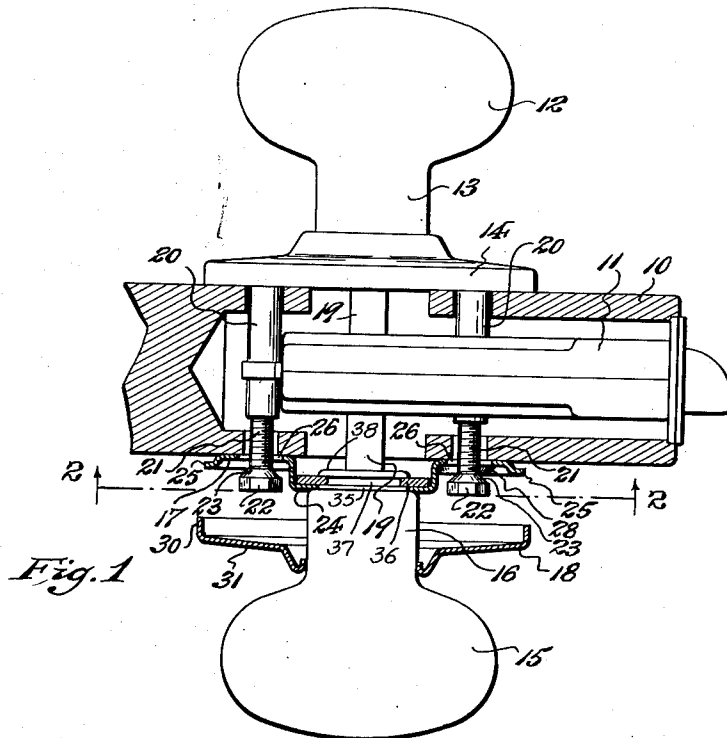
F. KAISER

2,759,754

KNOB ASSEMBLY FOR MORTISED DOOR LATCH

Filed Feb. 8, 1955

2 Sheets-Sheet 1



INVENTOR.
Fred Kaiser,
BY *George A. Richards*
Attorney

Aug. 21, 1956

F. KAISER

2,759,754

KNOB ASSEMBLY FOR MORTISED DOOR LATCH

Filed Feb. 8, 1955

2 Sheets-Sheet 2

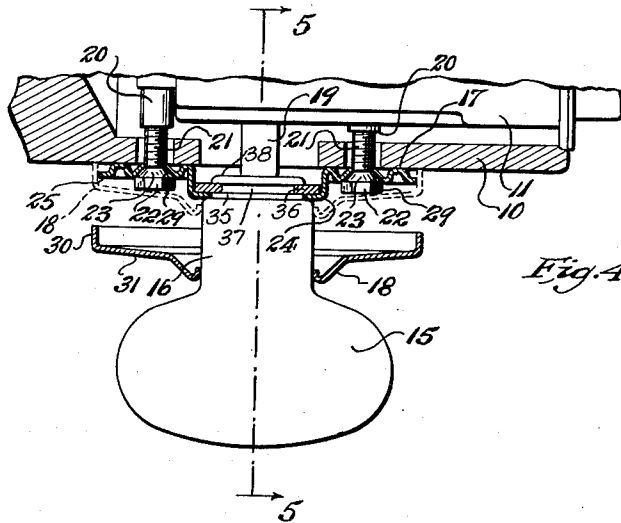


Fig. 4

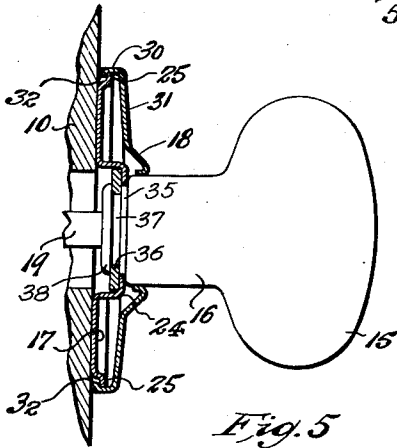


Fig. 5

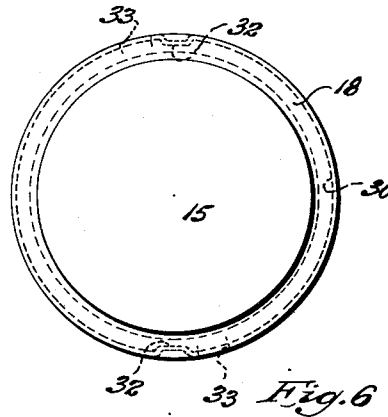


Fig. 6

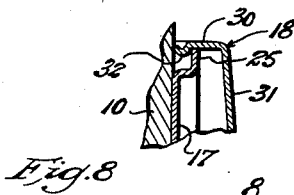


Fig. 8

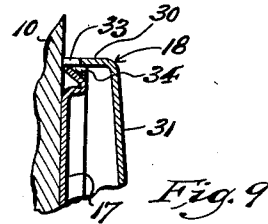


Fig. 9

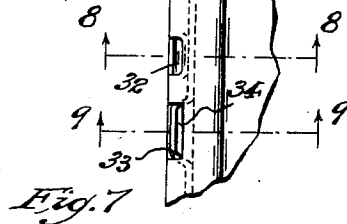


Fig. 7

INVENTOR.
Fred Kaiser,
BY *George H. Richards*
Attorney

1

2,759,754

KNOB ASSEMBLY FOR MORTISED DOOR LATCH

Fred Kaiser, Brooklyn, N. Y.

Application February 8, 1955, Serial No. 486,882

5 Claims. (Cl. 292—347)

This invention relates to mortised door latch mechanism, and has reference, more particularly, to the actuating knob assembly therefor which embodies improvements in means for fastening the same to a door in actuating relation to the latch mechanism mortised in the latter.

This invention has for an object to provide improved means for fastening together the door knobs and their roses, which are respectively disposed to project from opposite sides of a door, said fastening means being so constructed and arranged as to be wholly concealed by the knob roses, so that the latter are not marred by externally exposed parts thereof.

The invention has for a further object to provide improved fastening means for connecting together oppositely extending door knobs comprising internally screw-threaded bushing sleeves extending into the door from one knob and fastening bolts associated with the other knob for cooperation with said bushing sleeves, said fastening means not only being concealed, but the fastening bolts thereof being guarded by the rose of the latter knob against loosening and displacement from their operative fastening attachment to said bushing sleeves.

The above and other objects will be understood from a reading of the following description of this invention in connection with the accompanying drawings, in which:

Fig. 1 is a horizontal sectional view showing a latch mechanism and its actuating knob assembly, with parts in elevation and parts in section, and showing an anchor plate of one knob as initially engaged over the bolts of the knob assembly fastening means, preparatory to rotating said anchor plate to bolt head engageable position, the rose of said knob being withdrawn on the knob shank to expose said fastening bolts for manipulation; Fig. 2 is a sectional view, taken on line 2—2 in Fig. 1; Fig. 3 is a sectional view similar to that of Fig. 2, but showing the anchor plate rotated to bolt head engageable position; and Fig. 4 is a fragmentary sectional view, similar to that of Fig. 1, but showing the fastening bolts turned home in holding relation to the anchor plate, the knob rose being shown by full lines in withdrawn position to give access to the fastening bolts for manipulation thereof, and by broken lines in its inwardly moved final attached relation to the anchor plate.

Fig. 5 is a fragmentary vertical section, taken on line 5—5 in Fig. 4, showing the knob rose in its inwardly moved attached relation to the anchor plate.

Fig. 6 is an elevational view, viewed from the right in Fig. 5.

Fig. 7 is a fragmentary edge elevational view of the knob rose in attached relation to the anchor plate, this view being drawn on an enlarged scale; Fig. 8 is a fragmentary vertical section, taken on line 8—8 in Fig. 7; and Fig. 9 is a fragmentary vertical section, taken on line 9—9 in Fig. 7.

Referring to the drawings, in which like characters of reference are employed to indicate corresponding parts, the reference character 10 indicates a door in a mortised

2

opening of which is mounted a latch mechanism 11. The means for operating the door latch mechanism 11 comprises a door knob assembly provided by an outer door knob 12, the shank 13 of which is connected with a rose 14 in swiveled relation thereto, and an inner door knob 15, the shank 16 of which is connected with an anchor plate 17 in swiveled relation thereto, said inner door knob having a rose 18 through which the shank 16 extends. Extending axially between the outer and inner door knobs 12 and 15, and connected therewith so as to be rotated thereby, is a spindle 19. Said spindle 19 extends through the latch roll back cylinder cam (not shown) of the latch mechanism 11, in manner well known to the art, whereby the latch roll back cam cylinder can be actuated, by the turning of either door knob, so as to retract the door latch, and thus release the door for opening movement.

The means for securing the door knob assembly in mounted disposition on the door 10, and in operative relation to the latch mechanism 11 to be actuated thereby, comprising a pair of internally screw-threaded bushing sleeves 20, respectively laterally and oppositely offset relative to the axial spindle 19. Said bushing sleeves 20 are affixed to the rose 14 of the outer door knob 12 in any suitable manner known to the art, so as to be unitary therewith, and so as to extend therefrom into the door and through the latch mechanism 11 mortised therein. Threaded into the free end portions of the respective bushing sleeves 20 are the threaded shanks 21 of fastening bolts. Said fastening bolts are provided with polygonal heads 22 having conical inner end portions 23 by which the same are joined to the bolt shanks 21.

The anchor plate 17 of the inner door knob 15 is of novel construction, the same having an outwardly projecting, hollow, central perforate hub 24 to which the shank 16 of the knob 15 is suitably coupled in swiveling relation thereto. The means providing said swiveling connection, in an illustrative form thereof as shown, comprises a terminal arbor portion 35 of reduced diameter with which the inner end of the shank 16 is provided. The central perforation of the hub 24 of the anchor plate 17 receives said arbor portion, so that the anchor plate can be turned about the same. A keeper ring or washer 36 is engaged over a further diametrically reduced extension 37 of the arbor portion 35, to abut the inner face of the hub 24 of the anchor plate, and the free end of said extension is riveted over the ring or washer, as at 38, thus mounting the anchor plate in swiveling relation to the knob shank 16 so as to be unitary therewith. Said anchor plate is further formed to provide the same with an outwardly offset peripheral flange 25, which is disposed in an outwardly spaced plane parallel to the plane of the body of said anchor plate. The body of the anchor plate is provided with a pair of bayonet slot formations, which are laterally and oppositely offset relative to the center thereof at distance corresponding to the spacing of the above described bushing sleeves 20 and the fastening bolts 21 associated therewith. Each bayonet slot formation comprises an opening 26 of a diameter in excess of the maximum diameter of a head 22 of a fastening bolt. Leading from said opening 26 is an arcuate slot 27 of width corresponding to the diameter of the shank 21 of a fastening bolt. Said slot 27 terminates centrally within a raised boss 28, which is circumferentially spaced from said opening 26. Said boss 28 is interiorly formed to provide a female conical seat 29, which conforms to and is adapted to receive the conical inner end portion 23 of a fastening bolt head 22.

To apply and secure the door knob assembly to the door 10, the fastening bolts 21 are removed from the bushing sleeves 20, and thereupon the outer knob 12 is applied to the outer side of the door 10, with its rose

14 abutting the face of the latter, and with the bushing sleeves 20 extending into the door and through the latch mechanism. The outer knob 12 being thus positioned, the fastening bolts 21 are passed through the inner side of the door 10, and partially screwed into the bushing sleeves 20, so as to project therefrom exteriorly of said inner side of the door. The inner knob rose 18 is retracted on the knob shank 16, so as to be outwardly spaced away from the anchor plate 17. The anchor plate 17 is then rotated to bring the openings 26 of its bayonet slot formations into alignment with the projecting fastening bolts 21, whereupon said anchor plate is passed over the latter so as to abut the inner face of the door, and so that the heads 22 of the fastening bolts project outwardly through said openings 26 exteriorly of the anchor plate (see Figs. 1 and 2). This being done, the anchor plate is rotated relative to the projecting fastening bolts, whereby to pass the latter along the slots 27, until the bolt heads 22 are opposed to and aligned with the seats 29 in the bosses 28. The fastening bolts can now be turned home in the bushing sleeves 20, so as to engage the conical ends 23 of the bolt heads 22 in the seats 29 of the bosses 28, thereby not only securing the anchor plate against rotative shifts and displacement, but also holding the same, and the inner knob structure in attached relation to the inner face of the door (see Fig. 4). This can be done by inserting a suitable wrench W (see broken line representation thereof in Fig. 3) between the anchor plate and the retracted rose 18, for application to the bolt heads 22, and by manipulation of said wrench thereby turning home said fastening bolts to their aforesaid holding positions.

The inner knob rose 18 comprises a hollow shell having an annular peripheral flange or skirt 30 which projects angularly from its face wall 31. After the anchor plate 17 of the inner knob structure has been secured to the door 10 by the fastening bolts 21 in the manner above described, said knob rose 18 is moved inwardly along the knob shank 16 to abut the inner face of the door, and so that its flange or skirt 30 telescopes over the external margin of the anchor plate, thus enclosing said anchor plate and covering the heads 22 of the fastening bolts 21 (see broken line showing of said knob rose 18 in Fig. 4). The flange or skirt 30 of the knob rose 18 is provided with means to engage the outwardly offset peripheral flange 25 of the anchor plate 17, whereby to detachably secure said knob rose in its covering relation to the anchor plate. A preferred means for this purpose comprises a plurality of circumferentially spaced yieldable latch nosings 32, which are formed in connection with the marginal edge portions of the flange or skirt 30 of the knob rose. When said knob rose is pressed home to abut the inner face of the door 10, said latch nosings 32 snap over the free edge of the outwardly offset peripheral flange 25 of the anchor plate 17 (see Figs. 5 to 8 inclusive).

After the inner knob rose is secured in enclosing relation to the anchor plate 17, the face wall 31 of said rose will cover the heads 22 of the fastening bolts 21 in abutting relation thereto, thus stopping said bolts from backing away or loosening from their holding relation to the anchor plate 17, and therefore the door knob assembly will be firmly held in mounted relation to the door so as to be well guarded against any loosening from such relationship. The means for so holding the knob assembly in such mounted relation to the door is also entirely concealed, and the surfaces of the knob roses are unmarred by any exposed parts of the fastening means.

If it becomes desirable to gain access to the knob assembly fastening means for releasing the same preparatory to dismounting thereof from the door, the inner knob rose 18 must be outwardly retracted to give access to the fastening bolts. To facilitate releasing manipulation of the inner knob rose 18, the marginal portion of the flange or skirt 30 thereof, at points adjacent to the latch nosings 32, is provided with indented openings 33, and the out-

wardly offset peripheral flange 25 of the anchor plate 17 is provided with inwardly depressed socket formations 34, with which said openings 33 are aligned when the knob rose 18 is disposed in its attached relation to the anchor plate. To release the knob rose, a suitable prying tool, e. g., a screw-driver, is inserted through the openings 33, and purchased against the socket formations 34 of the anchor plate, whereupon the tool can be manipulated to apply prying leverage against the knob rose, whereby to spring away from the latch nosings 32 from their engaged relation to the anchor plate, and thus freeing the knob rose for outward retraction along the shank 16 of the inner knob.

Having now described my invention, I claim:

1. In the knob actuated latch mechanism for a door, a knob assembly including knobs respectively mounted on opposite sides of the door, said knobs having a latch mechanism actuating spindle extending therebetween, one said knob having a rose to rotatably support the same and adapted to abut one side of the door, internally screw-threaded bushing sleeves unitary with said rose to extend into the door toward the opposite side thereof, headed fastening bolts to extend through said opposite side of the door into threaded engagement with said bushing sleeves, the other knob having an anchor plate coupled to its shank by a swivel connection, whereby to rotatably support the same, said anchor plate being adapted to abut said opposite side of the door, said anchor plate having bayonet slots to pass the same over said fastening bolts and then by rotative movement of said anchor plate to position the same for engagement beneath the fastening bolt heads, a hollow rose slidably retractable on the shank of said last named knob, whereby, when retracted, to expose the headed fastening bolts for tightening manipulation, said hollow rose being inwardly movable along the shank of said last mentioned knob to abut said opposite side of the door in covering relation to the anchoring plate and in abutment against the heads of the tightened fastening bolts, and means to releasably attach said hollow rose to the anchor plate.

2. In knob actuated latch mechanism for a door, a knob assembly including knobs respectively mounted on opposite sides of the door, said knobs having a latch mechanism actuating spindle extending therebetween, one said knob having a rose to rotatably support the same and adapted to abut one side of the door, internally screw-threaded bushing sleeves unitary with said rose to extend into the door toward the opposite side thereof, headed fastening bolts to extend through said opposite side of the door into threaded engagement with said bushing sleeves, the other knob having an anchor plate coupled to its shank by a swivel connection, whereby to rotatably support the same, said anchor plate being adapted to abut said opposite side of the door, said anchor plate having bayonet slots to pass the same over said fastening bolts, and then by rotative movement of said anchor plate to position the same for engagement beneath the fastening bolt heads, a hollow rose slidably retractable on the shank of said last named knob, whereby, when retracted, to expose the headed fastening bolts for tightening manipulation, said hollow rose being inwardly movable along the shank of said last mentioned knob to abut said opposite side of the door in covering relation to the anchor plate and in abutment against the heads of the tightened fastening bolts, said anchor plate having a peripheral flange outwardly offset therefrom in a plane parallel thereto, said hollow rose having a skirt flange adapted to telescope over said peripheral flange of the anchor plate, and said skirt flange having yieldable latch nosing means to snap over the margin of said offset peripheral flange of the anchor plate whereby to releasably attach the hollow rose to the anchor plate.

3. In knob actuated latch mechanism for a door according to claim 2, means to facilitate release of the hollow rose from the anchor plate for withdrawal there-

5

from, said means comprising a prying tool admission opening indenting the skirt flange of the hollow rose, and said offset peripheral flange of the anchor plate having a depressed socket formation to which said admission opening is aligned.

4. In knob actuated latch mechanism for a door, a knob assembly including knobs respectively mounted on opposite sides of a door, said knobs having a latch mechanism actuating spindle extending therebetween, one said knob having a rose to rotatably support the same and adapted to abut one side of the door, internally screw-threaded bushing sleeves unitary with said rose to extend into the door toward the opposite side thereof, fastening bolts to extend through said opposite side of the door into threaded engagement with said bushing sleeves, said bolts having polygonal heads provided with conical inner end portions, the other knob having an anchor plate coupled to its shank by a swivel connection, whereby to rotatably support the same, said anchor plate being adapted to abut said opposite side of the door, said anchor plate having bayonet slots to pass the same over said fastening bolts, said bayonet slots terminating in bosses having inverted conical seats alignable by rotative movement of the anchor plate with said fastening bolts, whereby to be disposed beneath the conical inner end portions of the bolt heads for reception thereof when said bolts are turned home, a hollow rose slidably retractable on the shank of said last named knob, whereby when retracted, to expose the headed fastening bolts for tightening ma-

6

nipulation, said hollow rose being inwardly movable along the shank of said last mentioned knob to abut said opposite side of the door in covering relation to the anchor plate and so as to abut the heads of the tightened fastening bolts, whereby to stop the latter against loosening displacement from tightened condition, said anchor plate having a peripheral flange outwardly offset therefrom in a plane parallel thereto, said hollow rose having a skirt flange adapted to telescope over said peripheral flange of the anchor plate, and said skirt flange having yieldable latch nosing means to snap over the margin of said offset peripheral flange of the anchor plate, whereby to releasably attach the hollow rose to the anchor plate.

5. In knob actuated latch mechanism for a door according to claim 4, means to facilitate release of the hollow rose from the anchor plate for withdrawal therefrom, said means comprising a prying tool admission opening indenting the skirt flange of the hollow rose, and said offset peripheral flange of the anchor plate having a depressed socket formation to which said admission opening is aligned.

References Cited in the file of this patent

UNITED STATES PATENTS

1,653,512	Schlage	Dec. 20, 1927
2,491,783	Thomas	Dec. 20, 1949
2,634,151	Russell et al.	Apr. 7, 1953