April 15, 1941. A. F. MANTZ 2,238,066

DOOR LOCK

Filed Oct. 1, 1938

Fig. 1

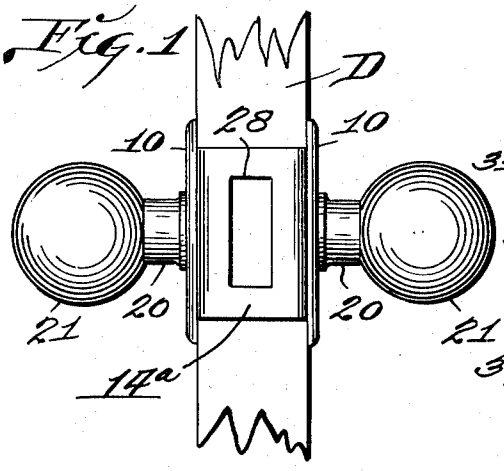


Fig. 2.

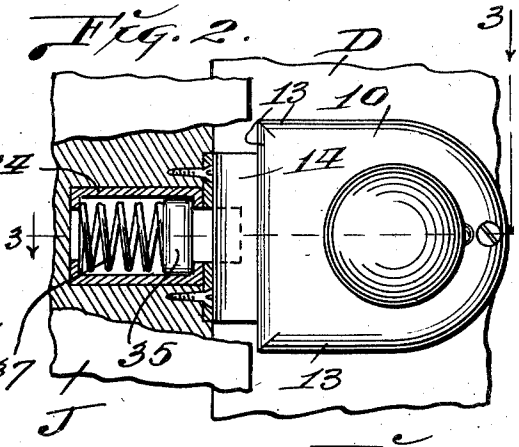


Fig. 4.

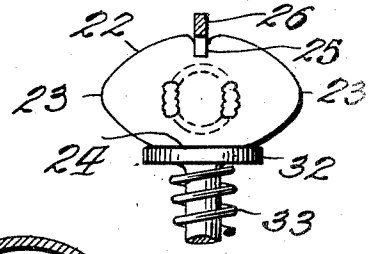


Fig. 3.

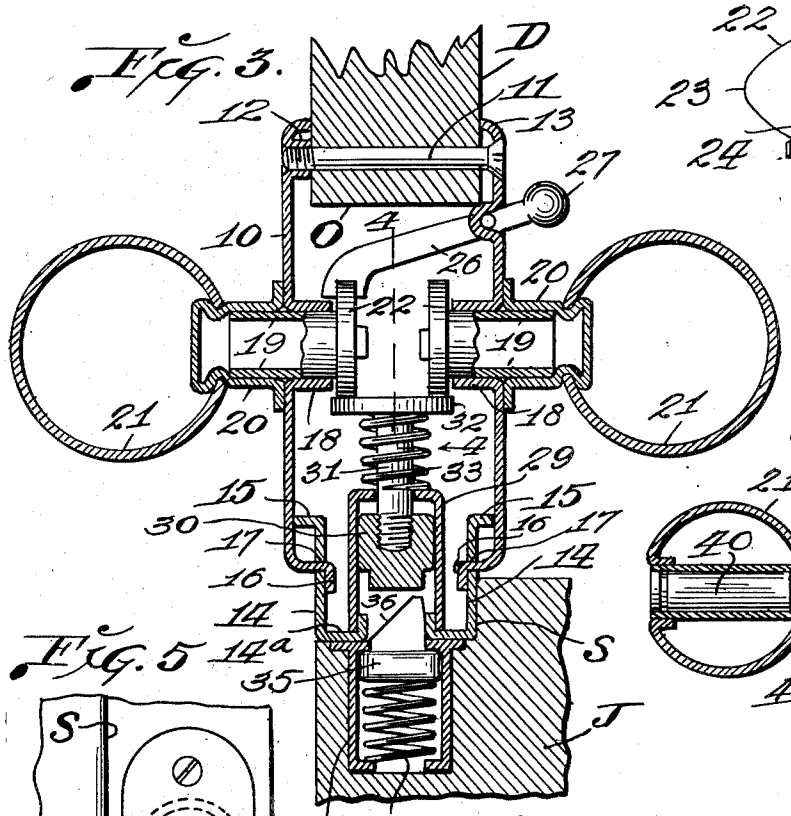


Fig. 6.

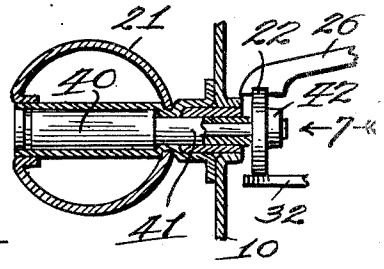


Fig. 5

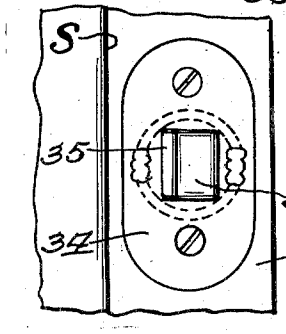
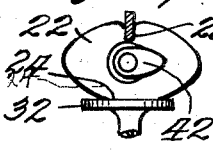


Fig. 7.



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DOOR LOCK

Aloysius F. Mantz, Los Angeles, Calif.

Application October 1, 1938, Serial No. 232,724

2 Claims. (Cl. 292—337)

My invention relates to a door lock and has for its principal objects, to provide a lock of relatively simple, practical and inexpensive construction, further, to provide a lock having few parts capable of being readily assembled and installed and further, to provide a lock that is reversible in order that it may be applied to doors that are mounted to swing toward either the right or left hand.

A further object of my invention is, to provide a door lock characterized by the mounting of the latch in the door jamb rather than in the door and the mounting of the keeper in the door instead of in the door jamb. This construction eliminates the possibility of the catching and tearing of clothing on the latch or any projecting portion of the keeper and, as the keeper is located in the jamb behind a shoulder it is practically impossible to pick the lock by the insertion of a thin implement or piece of material between the face of the lock housing and the jamb in which the latch is seated.

Further objects of my invention are, to provide a lock that comprises few parts and which can be installed without mortising of the door or the disassembling of the lock and which lock may be reversed for use by simply turning the lock end for end.

A further object of my invention is, to provide a lock wherein the housing that contains the main operating parts of the lock and which carries the knobs is secured to the door by means of a single screw or like fastening device.

A further object of my invention is, to provide a lock that is particularly applicable for the doors of bedrooms, bath rooms, dressing rooms, and the like, and the lock being of such construction as to conveniently receive a key actuated cylinder lock that is used for releasing an internally arranged latching member from the outside of the door.

With the foregoing and other objects in view, my invention consists in certain novel features of construction and arrangement of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a view looking against the edge of a door to which my improved lock is applied.

Fig. 2 is an elevational view partly in section showing my improved lock applied to a door and showing the latch housing that is embedded in the jamb in section.

Fig. 3 is an enlarged horizontal section taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail section taken on the line 4—4 of Fig. 3.

Fig. 5 is a view looking against the face of the latch and latch housing that are positioned in the door jamb.

Fig. 6 is a sectional view showing a key operated cylinder lock positioned in one of the door knobs.

Fig. 7 is an elevational view looking in the direction indicated by the arrow 7 in Fig. 6.

Referring by numerals to the accompanying drawings, 10, 10 designate escutcheon plates that are applied to the side faces of a conventional door D directly over a horizontally disposed U-shaped opening or notch O that is formed in the edge of said door and which receives the operating parts of the lock that are positioned between the plates 10.

The escutcheon plates 10 are rigidly secured to the door in position over the opening O by means of a screw 11 that passes through one of the plates through the door and, the threaded end of the screw being seated in a threaded collar 12 that projects inwardly from the other one of the plates 10. This screw is located just beyond the inner end of the opening O.

The marginal portions of the escutcheon plates 10 are turned inwardly so as to form rounded flanges 13, the edges of which bear against the faces of the door beyond the edge of opening O.

Detachably secured to the plates 10 and arranged between the ends thereof that are positioned adjacent the edge of the door are plates 14 that are slightly narrower than said plates 10, so that they occupy spaced positions in the outer portion of opening O and the outer ends of said plates coincide with the vertical edge of the door. The outer vertical edges of these plates 14 are connected by a vertically disposed plate 14a.

The inner end portions of these plates 14 are bent outwardly to form vertically disposed flanges 15 that bear against the inner faces of plates 10 and to hold the two sets of plates in assembled relation, ears or lips 16 that are formed on the front edges of plates 10 extend through slots 17 that are formed in the plates 14 and, said lips being bent into position so that they engage the inner faces of the plates 14 (see Fig. 3).

Projecting inwardly from the intermediate portions of the plates 10, are short tubular members 18 that provide bearings for tubular spindles 19 and, secured to the projecting outer ends of

said spindles 19 are thimbles 20, to each of which is rigidly fixed a knob 21.

Suitably secured to the inner end of each tubular spindle 19, is an eccentric 22 having diametrically opposite high end portions 23 and formed on the bottom of each eccentric is a flat surface 24. Formed in the top of the eccentric that is carried by the tubular spindle that carries the knob 21 on the outside of the door, is a notch 25 that is adapted to receive the inner end of a latch lever 26, the latter being pivotally mounted on the plate 10 that is applied to the inside of the door.

The outer end of this lever 26 carries a knob 27 that occupies a position adjacent the right hand side of the knob 21 that is arranged on the inside of the door and there is sufficient friction in the pivotal connection between lever 26 and the plate 10 on which it is mounted, to maintain the lever 26 in or out of engagement with the eccentric having the notch 25.

Formed in plate 14a that connects the outer ends of the plates 14 is an opening 28 and, secured to the inner face of plate 14a around the opening therein is an inwardly projecting housing 29. Arranged for horizontal sliding movement in the housing 29 is a block 30 that is carried by the outer end of a horizontally disposed plunger 31 and, the latter extends through the inner end wall of the housing 29.

Carried by the inner end of plunger 31 is a plate 32 that normally engages against the flat surfaces 24 of the eccentrics 22 and, arranged on the plunger and interposed between plate 32 and housing 29 is an expansive coil spring 33 that yieldingly retains said plate 32 in contact with the flat edges 24 of the eccentrics.

The door jamb J is provided with a shoulder S, against which the free edge of the door engages when said door is closed and, seated in said jamb between the shoulder S and the edge of the jamb is a housing 34 in which is arranged for sliding movement a latch 35 having a beveled face 36. Arranged within the housing 34 to the rear of latch 35 is an expansive coil spring 37 that normally forces the latch to its forward limit of movement within the housing 34 and, when so positioned the forward portion of said latch having the beveled surface 36 projects beyond the face of the jamb.

To install my improved lock, the entire structure enclosed and carried by the pairs of plates 10 and 14 is inserted in opening O and screw 11 is inserted through the inner ends of the plates 10 and the door 11 from the inside of the door, so that the threaded end of said screw engages the outer one of the plates 10. An aperture is formed in the jamb J for the reception of housing 14 that carries latch 35.

When the door to which my improved lock is applied is closed, the outer end of plate 14 on the inside of the door will strike against beveled face 36 of latch 35, thereby moving said latch into housing 34 against the yielding resistance offered by spring 37 and, when the door is fully closed and opening 28 aligns with latch 35 the latter will be forced outwardly by spring 37 through said opening 28 into the chamber within housing 29, thus securely holding the door in closed position.

If the person inside the room provided with the door that has been closed as just described desires to lock the door, knob 27 is engaged and actuated so as to move the free end of lever 26 into notch 25 in eccentric 22 and, as a result the outside knob 21 can not be rotated in either direction so as to open the door.

When it is desired to open the door from the inside, lever 26 is actuated so as to move the inner end thereof out of notch 25 and the knob on the inside of the door is now engaged and partially rotated in either direction approximately a quarter turn. As a result of this movement, the corresponding tubular spindle 19 is rotated and the corresponding eccentric is moved so as to bring one or the other of the high end portions 23 against disc 32 so as to move the same outward against the resistance offered by coil spring 33. As a result of this movement, block 30 is moved outward in housing 29 to engage and force latch 35 outwardly from the housing 29 through opening 28 into the latch housing 34 and, as the end of said block passes the outer face of plate 14a that connects the plates 14, the door may be opened, whereupon latch 35 will be moved outward to its limit of movement by spring 37 and, when the operator's hand is removed from the knob on the inside of the door, spring 33 will act to return block 30 and disc 32 to their normal positions.

To open the door from the outside, it is only necessary to engage and partially rotate the outer one of the knobs and thereby partially rotate the corresponding eccentric 22 to move disc 32 and block 30 outwardly and thereby move latch 35 into its housing.

In the construction illustrated in Figs. 6 and 7, a conventional key-controlled cylinder lock 40 is located in the knob on the outside of the door and, projecting from the inner end thereof into the lock housing through the corresponding eccentric 22 is a stem 41, the inner end of which carries a finger 42.

The insertion of the proper key in the lock 40 and the consequent rotation of stem 41 will swing finger 42 upward so as to disengage the end of the latching lever 26 from the notch in eccentric 22. The construction just described enables an ordinary door latch to be changed into a bath room or bedroom lock or into a key-controlled night latch.

Thus, it will be seen that I have provided a door lock that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

The lock comprises few parts capable of being readily assembled or taken apart and the lock may be installed without mortising or disassembling and may be reversed by merely turning the lock end for end or upside down.

The lock is secured to the door by a single screw and the mounting of the latch in the door jamb instead of in the lock housing minimizes the possibility of the lock being picked and the possibility of catching and tearing clothing on the projecting latch member is minimized.

It will be understood that minor changes in the size, form and construction of the various parts of my improved door lock, may be made and substituted for those herein shown and described, without departing from the spirit of my invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In a latch for a door provided in its edge with a notch, a pair of plates positioned on the side faces of the door and covering the notch therein, a single fastening member passing

through said door and plates for securing the latter to said door, a channel-shaped member positioned between the outer ends of said plates, there being an opening formed in the outer wall of said channel-shaped member, a housing arranged within said channel-shaped member around the opening therein and a spring pressed member arranged for operation in the housing that is positioned within said channel-shaped member.

2. A latch for a door as set forth in claim 1 and with readily releasable inter-engaging connections between the outer portions of said plates and the side walls of said channel-shaped members.

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