April 18, 1933. J. V. EICHEL, JR 1,904,210

LOCK

Filed Aug. 25, 1931

Fig. 1.

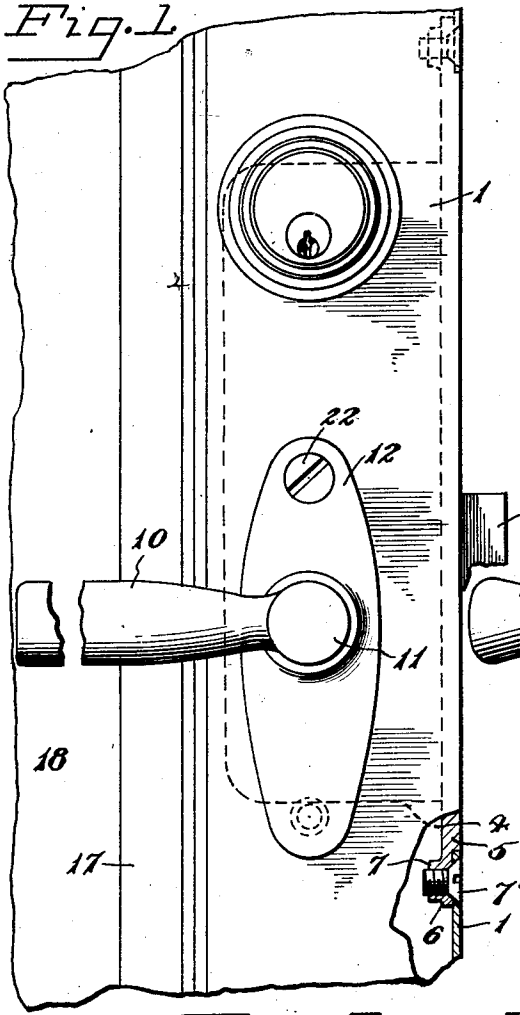



Fig. 2.

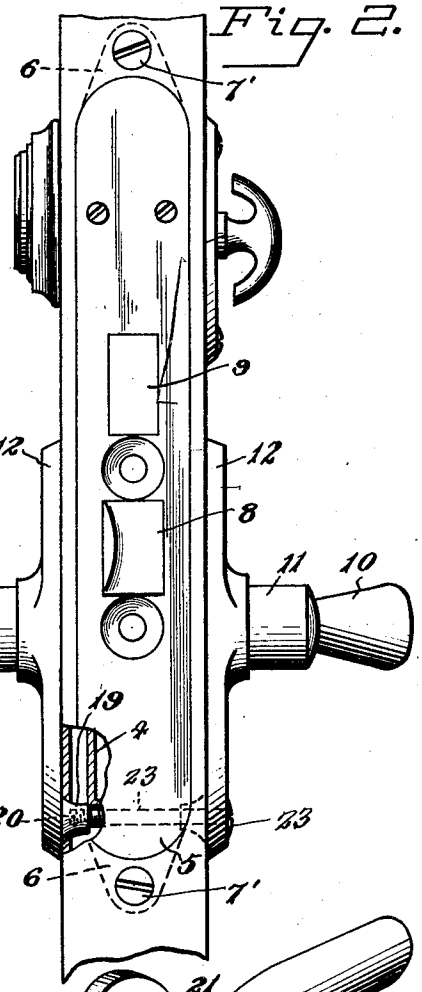



Fig. 3.

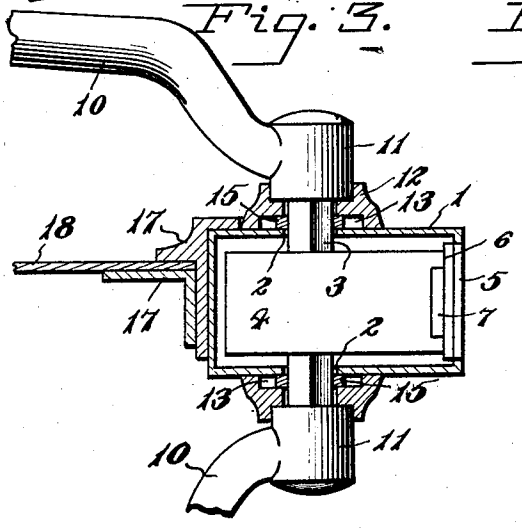
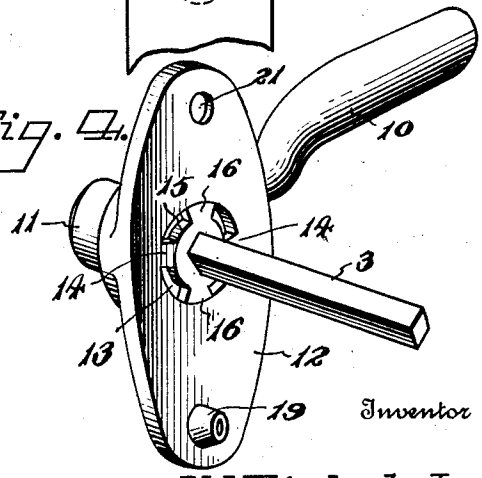



Fig. 4.




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# UNITED STATES PATENT OFFICE

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## LOCK

Application filed August 25, 1931. Serial No. 559,274.

This invention is a lock for application to metallic doors and has for its object the provision of a construction which will facilitate the installation of the lock and will provide for the firm securing of the lock in place without detracting from the appearance of the door. Another object of the invention is to provide simple and efficient means for preventing excessive strain upon the hub or other moving part of the lock. Other objects of the invention will appear incidentally in the course of the following description, and the invention resides in certain novel features which will be particularly pointed out in the appended claims.

In the accompanying drawing,

Figure 1 is an elevation, partly broken away, of a portion of a door having a lock embodying my improvements applied thereto,

Fig. 2 is an edge view of the same, partly broken away and in section,

Fig. 3 is a view showing the lock in top plan and the door in horizontal section,

Fig. 4 is a detail perspective view of the escutcheon and spindle of the lock.

In the drawing, the reference numeral 1 indicates a portion of a metallic door which may be of any approved detailed design and embodies a substantially rectangular stile, illustrated in the drawing. Alined axially in the opposite sides of the stile of the door are openings 2 which receive the spindle 3 of the lock, and the mechanism of the lock, which may be of any known or approved type, is contained within a lock case 4 which is secured within the stile of the door, as will be understood. The lock case includes a face plate 5 which is adapted to seat within a slot or opening provided therefor in the edge of the door and of the same contour as the face plate. The face plate is provided at its ends, as shown most clearly in Fig. 1, with offset extensions 6 adapted to seat behind the material of the door and against the end walls of the slot or opening therein so that the face plate will be flush with the edge surface of the door, and on the inner side of each extension 6 is an enlargement or boss 7 internally threaded and adapted to receive a screw 7′ inserted through an opening provided therefor in the edge of the door whereby to secure the lock in place, as will be understood upon reference to Fig. 1. It will be noted that the screws 7′ are provided with heads having beveled edges, and the opening provided in the door is correspondingly beveled, so that when the screw is turned home the face plate will be very effectually clamped to the door and the head of the screw will lie flush with the surface of the door.

As has been stated, the working parts of the lock may be of any approved type and the latch bolt 8 is retracted by rocking the spindle 3, being spring-projected in the usual manner. The lock is also provided with a locking, key-controlled bolt 9, but, as these parts are well-known, further reference thereto is deemed unnecessary. The spindle 3 may be of the through, split, swivel, or other known or approved type and is non-circular in cross section so that, when it is rocked, movement will be imparted to the parts engaged therewith and the bolt will be operated. The ends of the spindle project from the opposite sides of the lock case and through the openings 2 in the door and have secured upon their extremities handles 10 which may be of any convenient form and will be usually given a more or less ornamental appearance. Each handle has a hub portion 11 which rests within a recess or seat provided therefor in a boss on the outer side of an escutcheon 12, as shown clearly in Fig. 3. Each escutcheon is also provided in its inner face with a recess 13 of circular outline, and provided at diametrically opposite points with inwardly extending stop lugs 14, and the spindle is provided with cooperating stops which may be in the form of a collar or plate 15 having a generally circular contour and having diametrically opposite lugs 16 on its periphery which are adapted to impinge against either stop lug 14 and thereby limit the movement of the spindle. The parts are assembled in such relation that when the latch bolt 8 is fully retracted or fully projected, the lugs 16 will impinge against the lugs 14 and thereby prevent further rocking of the spindle and, consequent-

ly, will prevent breaking strain being imposed upon any of the parts of the lock.

In applying the lock to the door, the lock is inserted through the opening provided in the outer edge of the door and held in position with the ends of the face plate 5 bearing against the inner sides of the metal of the door at the ends of the opening. The securing screws 7′ are then inserted and the lock will be firmly held in place. The spindles, assuming split spindles to be used, are then assembled with the escutcheons and the stop plates 15 slipped over the ends of the spindles, and the spindles then inserted into the hub of the lock. Each escutcheon is provided on its inner face, adjacent its lower end, with a boss, one escutcheon having an opening therethrough alining with the bore of the boss 19 thereon while the boss 20 on the other escutcheon forms an internally threaded socket, and at the upper end of each escutcheon is an opening 21 provided to receive a screw 22 which has threaded engagement with the stile of the door whereby the escutcheon will be secured in place. The length of the escutcheons is such that the bosses 19 and 20 clear the lower end of the lock case and a through bolt 23 is inserted through the boss 19 and engaged in the boss 20 to fasten the parts together and in place.

The door may have beads or molding 17 supporting a panel 18 of glass or other material.

The handles are secured to the spindles in any well known or approved manner, my usual practice being to cast each half spindle in a handle.

It will be readily noted that the device is very simple and compact and may be readily fitted within the door and, when in place, will be firmly secured without detracting from the appearance of the door.

Having thus described the invention, I claim:

1. In a lock, a spindle of non-circular cross section, an escutcheon providing a bearing for the spindle and having a recess in its inner face concentric with the spindle and provided with inwardly projecting diametrically opposite lugs on its wall, and a plate fitted on the spindle and adapted to fit within said recess and provided with diametrically opposite projecting lugs on its periphery to engage the lugs in the recess and limit the movement of the spindle.

2. In a lock, a spindle of non-circular cross section, escutcheons having openings therein for the reception of the adjacent ends of the spindle and provided on their outer faces with bosses having seats formed therein constituting bearings, handles secured to the spindle and provided with hubs journaled in said bearings, there being recesses in the inner faces of the escutcheons concentric with the spindle and having their walls provided with oppositely disposed lugs, and plates fitted on the spindle and fitting within said recesses, said plates being provided with oppositely disposed lugs adapted to engage the lugs in the recesses for limiting turning movement of the spindle.

In testimony whereof I affix my signature.

JOHN V. EICHEL, JR. [L. S.]