

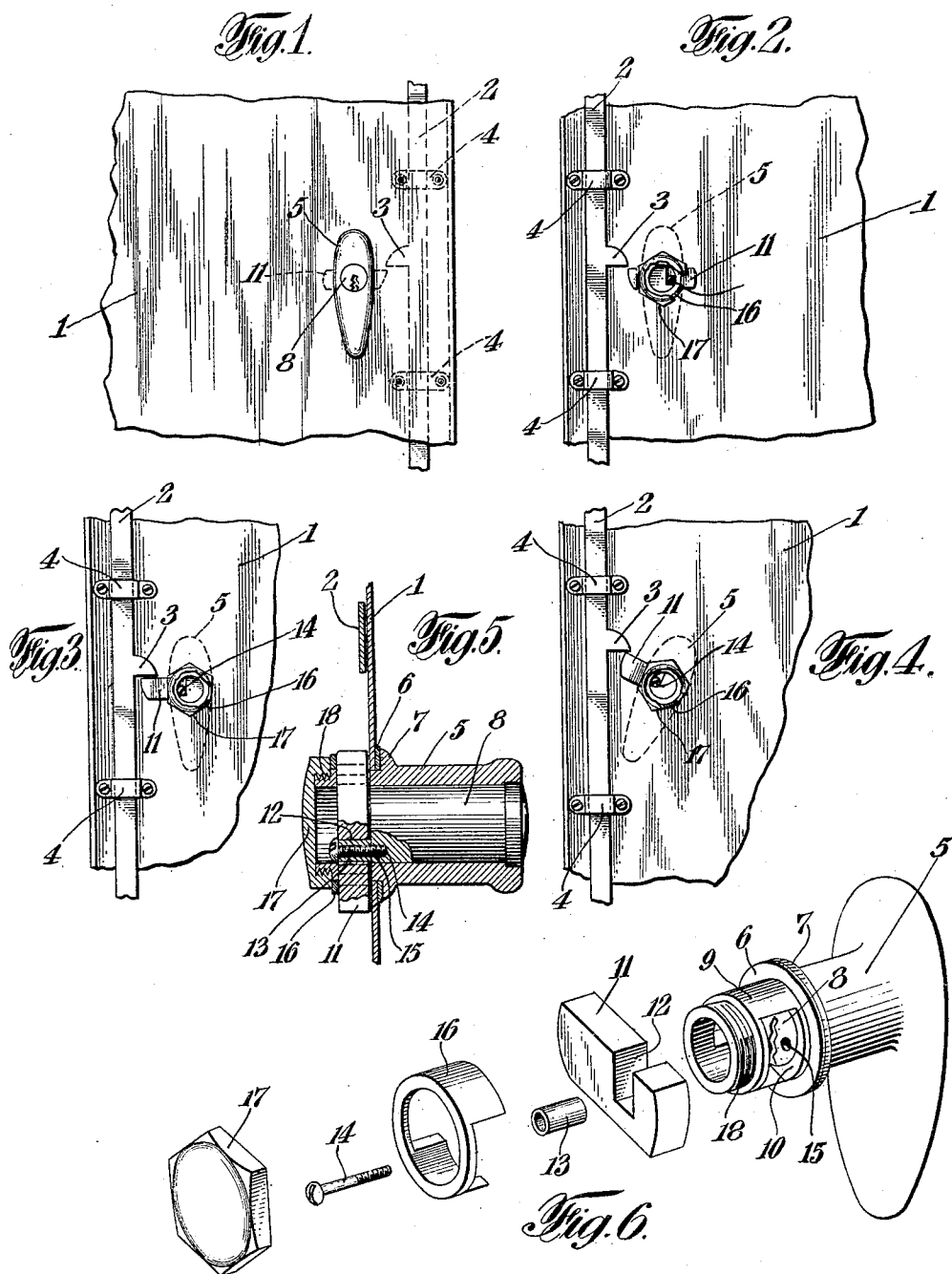
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LOCKING DEVICE

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UNITED STATES PATENT OFFICE

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LOCKING DEVICE

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My invention relates to locking devices and more particularly to a device wherein a handle containing the lock mechanism revolves freely in the locked position without connection with the bolts or locking members and which connects with and actuates the locking bolt in the unlocked position.

I am aware that there are cylinder locks carried in the handles of doors which are fixed to the locking bolt so that when once locked, the handle is held in position and cannot be turned until unlocked. The disadvantage of this construction, especially as applied to automobile and locker doors, is that the lock may be broken and the door opened by using a wrench or pipe on the handle to obtain the necessary leverage.

To avoid these disadvantages and prevent damage to the lock and the opening of the door, I provide a locking device in which the handle revolves freely in the locked position and one where, when once locked, there is no connection between the locking mechanism proper and the bolt or locking members. The two become independent and no force or means applied to the handle can move or affect the bolts and, short of destroying the door itself, they cannot be withdrawn without actuating the lock cylinder with its proper key.

As stated, my locking device is particularly useful in automobile and locker doors but it will be obvious that its use has a wider scope; being adaptable to the closure for any opening as will be clear from the following specification and drawing.

In the drawing:

Fig. 1 is a sectional elevation of a portion of a locker door with a preferred form of my invention applied.

Fig. 2 is a rear view of Fig. 1.

Fig. 3 shows the device ready for unlocking.

Fig. 4 shows the device at the completion of the unlocking operation.

Fig. 5 is a sectional elevation through the handle.

Fig. 6 is an exploded view of the parts composing the lock mechanism and handle.

I have chosen to illustrate my invention by

applying it to a locker door such as is indicated at 1. Mounted on this door is a locking bolt or locking means 2 having a lip or projection 3. This bolt may be retained by the guides 4 or other suitable means which would permit of a sliding movement of the bolt and they may be welded, riveted or otherwise attached. Adjacent to this bolt is located the handle or actuating means 5 which mounts the locking mechanism proper, so arranged as to control the locking bolt. This handle passes through an opening in the door as shown, there being a washer 6 between the shoulder 7 of the handle and the abutting face of the door. Except for the cylinder 8 (which is preferably constructed substantially as shown in Letters Patent No. 1,514,659 of November 11, 1924) and which lies in the outside portion of the handle, all the parts of the locking mechanism are concealed behind the door. The chamber which contains the cylinder 8 is prolonged through the extension 9 of the handle and this extension has a transverse cut 10 in which slides the bar or movable member 11. This bar 11 has a cut 12 and is retained in cut 10 of the handle by sleeve 13 through which passes screw 14 to enter cylinder 8 at the drilled and tapped hole 15 that is eccentric with respect to the axis of the cylinder. Consequently any rotation of the cylinder 8 will give a corresponding reciprocating motion to the bar 11. Over the extension 9 and fitting around the bar 11 is the spacing sleeve 16 while the nut 17 fits on the threaded portion 18 of extension 9. The spacing sleeve 16 serves to draw and to hold the handle 5 firmly in the door 1 when the nut 17 is turned down but no pressure is exerted on the bar 11 or on the other parts.

The mechanism is assembled by first putting bar 11 in cut 10 and registering cut 12 of the bar with hole 15 of the cylinder. After this, the screw 14 with its sleeve 13 is inserted and turned home in hole 15. Sleeve 16 is slipped over extension 9 and the whole tightened down by nut 17.

As already stated, any rotation of cylinder 8 will cause a reciprocating motion of

bar 11 because of screw 14 being eccentric with respect to the axis of the cylinder. In the illustration of my invention just described, I have indicated the locking bolt 2 as being gravity operated, although it will be obvious that many other types of such bolts may equally well be used. Therefore, in the locked position, the bolt 2 will fall into the strikes of the locker frame and the sliding bar 11 will be in its retracted position as shown in Figs. 1 and 2. The handle 5, with its assembled locking mechanism, rotates freely but the bar 11 being out of contact with lip 3 of the locking bar, no matter how much or in what direction the handle is rotated, the door remains locked. Nor can the handle be forced to damage or break the lock; the handle moves independently of and out of contact with the locking bar and the locking mechanism always moves with the handle.

To open the door, the key is inserted and the cylinder 8 partially rotated. This throws the sliding bar 11 out due to the eccentric action of sleeve 13 so that the parts will be in the positions shown in Fig. 3 with bar 11 under lip 3 of the locking bolt. Now if the handle 5 be turned, the bolt 2 will be raised as shown in Fig. 4 and the door unlocked. The bar 11 may be retracted by cylinder 8 either before or after the door is closed; in the former case, it would be necessary to make provision for raising the locking bolt before it could fall into the strikes of the frame. In the latter case, the locking bolt is raised by the handle and then the cylinder is turned to retract the bar 11. Upon withdrawing the key, the handle 5 and the locking mechanism will again rotate freely and independently of the locking bolt 2.

From the foregoing it will be seen that my locking device embodies new and novel advantages not found in similar devices in that, in the locked position, there is no connection between the locking bolt or bolts and the locking mechanism proper and the handle. No force can be applied to the handle which will in any way affect the locking bolts. In fact, the handle, the locking mechanism or both could be so damaged as to be useless without the door being opened. In addition, the door structure is greatly simplified by having only a single opening to accommodate the handle and a total absence of rivets, welds, brackets or other supporting or attaching means which could be chiseled from the outside and removed. A further advantage is that all working parts, other than that part of the handle carrying the cylinder, are located on the inside and are inaccessible for any purpose. This is a distinct advance and one that gives much added safety inasmuch as practically all locker doors have some means to actuate the lock-

ing bolt from the outside while such means are not necessary in my construction.

Furthermore, the entire handle with the locking mechanism can be instantly removed by taking off the nut 17. This is of great advantage in simplifying repairs, replacements, quickly changing cylinders or other servicing.

I am aware that many changes and variations may be made in my invention without departing from the spirit thereof and I desire to include all such changes within the scope of my claims.

I claim:

1. In a locking device for closure members, having a bolt movably mounted upon one face thereof, means for operating the bolt comprising a sleeve-like handle mounted upon the face of the door opposite the bolt and having a portion thereof projecting through the door, said projecting portion of the handle having a transverse slot therein, a bolt-actuating bar slidably mounted in said slot to extend transversely of the handle, a cylinder rotatably mounted in the handle, and a direct connection between said bar and cylinder whereby the bar may be moved transversely of the handle into and out of position to engage the bolt when the cylinder is turned relatively to the handle.

2. In a locking device for closure members, having a bolt movably mounted upon one face thereof, means for operating the bolt comprising a sleeve-like handle mounted upon the face of the door opposite the bolt and having a portion thereof projecting through the door, said projecting portion of the handle having a transverse slot therein, a bolt-actuating bar slidably mounted in said slot to extend transversely of the handle, a cylinder rotatably mounted in the handle, a direct connection between said bar and cylinder whereby the bar may be moved transversely of the handle into and out of position to engage the bolt when the cylinder is turned relatively to the handle, said handle having a flange thereon to engage one face of the door, and a sleeve secured on the projecting end thereof to engage the other face of the door to hold the handle in place.

3. In a locking device for closure members, having a bolt movably mounted upon one face thereof, means for operating the bolt comprising a sleeve-like handle mounted upon the face of the door opposite the bolt and having a portion thereof projecting through the door, said projecting portion of the handle having a transverse slot therein, a bolt-actuating bar slidably mounted in said slot to extend transversely of the handle, a cylinder rotatably mounted in the handle, a direct connection between said bar and cylinder whereby the bar may be moved transversely of the handle into and out of position to engage the bolt when the cylinder is

turned relatively to the handle, said handle having a flange thereon to engage one face of the door, a sleeve secured on the projecting end thereof to engage the other face
5 of the door to hold the handle in place, and said sleeve being provided with slots registering with the slot in the handle member through which said bolt-actuating bar moves.

10 In testimony whereof, I have signed my name to this specification this 9th day of August, 1928.

ANDREW GAHAGAN.

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