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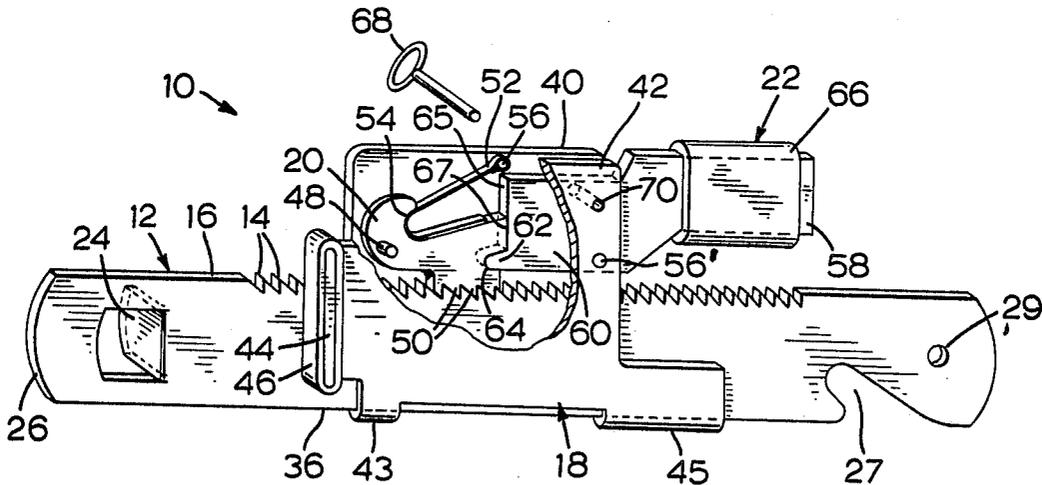
[54] **INSIDE DOOR LOCK**
1 Claim, 2 Drawing Figs.

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 [51] Int. Cl..... **E05c 19/18**
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ABSTRACT: An auxiliary lock for locking a door securely against a door jamb having a lock blade with a lug struck out near its outer end for engagement with the jamb, and a plurality of serrated teeth along one edge of the blade which are engaged by complementary teeth carried by a pivoted ratchet pawl mounted on a body member which is slideably mounted on the blade. The body member has an integral shoulder which engages the inside of the door, and also a rearwardly extending pivoted lever which when depressed disengages the ratchet pawl from the teeth to permit removal of the body member.



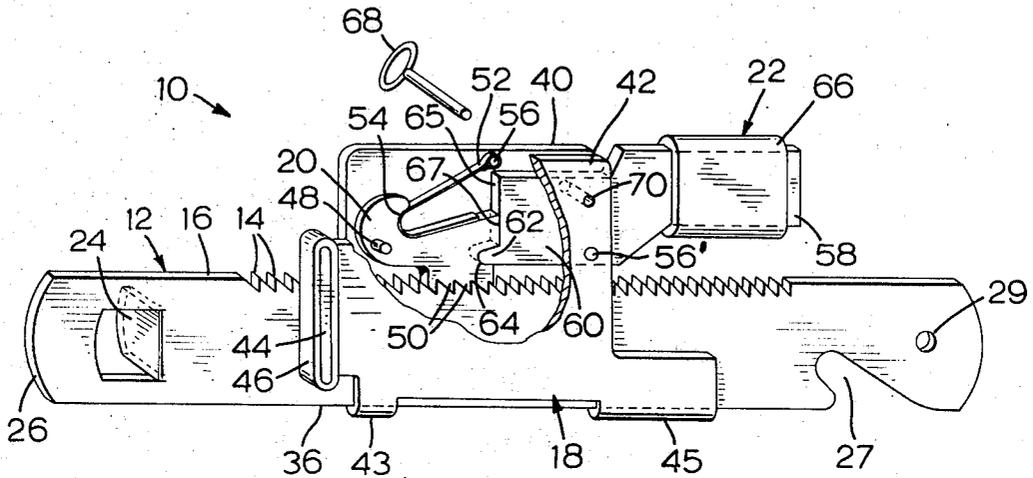


FIG. 1

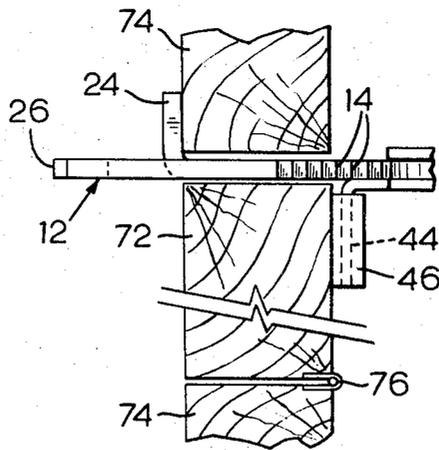


FIG. 2

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INSIDE DOOR LOCK

This invention relates generally to locking mechanisms and in particular to an inside lock for locking a door against a door jamb.

A door can be locked from the inside using a chain, bolt or the like which is intended to be operated only from the inside of the door. These devices must be attached to the door or the door jamb by screws or the like and are intended to be permanently attached. The device of the present invention is adapted to hold a door securely closed without being permanently attached to the door or the door jamb.

A preferred embodiment of the device comprises a lock blade having a lug near its outer end for engaging with the outside surface of a door jamb, and having a row of ratchet teeth along one edge. A body member is slideably mounted on the blade and includes a ratchet pawl for engaging the ratchet teeth of the blade to positively locate the body member on the blade. A rearwardly extending lever is pivotally attached to the body member for disengaging the ratchet pawl from the ratchet teeth to facilitate removal of the body member, and a shoulder is formed integrally on the body member to engage the inside surface of a door. When the device is in place, the lug on the blade bears against the outside surface of the door jamb, and the shoulder on the body member is held tightly against the blade by engagement between the ratchet pawl and the ratchet teeth of the blade, so that the door is effectively prevented from being opened from the outside. To disengage the device, the lever of the body member is depressed, thereby permitting the body member to be disconnected from the blade to permit the door to be opened.

In the drawings which illustrates a preferred embodiment of the invention:

FIG. 1 is a schematic view, partly broken away, of an inside door lock according to the invention; and

FIG. 2 is a plan view of part of the inside door lock in position on a door.

Referring to FIG. 1, an inside door lock is generally indicated by the numeral 10 and consists of an elongated lock blade 12 having a set of ratchet teeth 14 along an upper edge 16. A body member 18 is slideably engaged on the lock blade 12 and includes a spring-loaded ratchet pawl 20 for engaging the ratchet teeth 14. The body member 18 also includes a rearwardly extending pivotally attached handle 22 which is operatively connected to the spring-loaded ratchet pawl 20 for disengaging the ratchet pawl 20 from the teeth 14.

The lock blade 12 is constructed with a lug 24 pushed out adjacent a leading or outer end 26. The blade ratchet teeth 14 are formed part way along the blade upper edge 16 to coact with teeth in the ratchet pawl 20, as will be described below. Also formed in the lock blade 12 are an aperture 29 which is utilized to hang the lock when it is not in use, and a bottle-opening means 27 both of which are provided for convenience only.

The body member 18 is formed from a single piece of material folded into a U-shape and having a first side 40 and a second side 42 with a pair of strap portions 43 and 45 linking the sides 40 and 42 to form the U-shape. The body member 18 is mounted slideably on the blade 12, as illustrated, with the straps 43 and 45 resting against the lower edge 36 of the blade 12. The body member 18 includes a shoulder 44 formed integrally with the body member second side 42 and is bent to extend at right angles to the body member 18 in a direction opposite to that of the lug 24. A shoulder bumper 46 of rubber or other suitable resilient material covers the shoulder 44 to prevent damage to the door when the lock is in use and to help in adjusting the lock as described below. The body member 18 is preferably formed with the strap 45 extending rearwardly past the rearward vertical limit of the body member sides 40 and 42 and substantially below the handle 22 so that a user can place his thumb on the handle 22 and his finger under the strap 45 when operating the lock.

The ratchet pawl 20 is pivoted at 48 between the body member sides 40 and 42 and is formed with teeth 50 spaced rearwardly of the pivot 48. The pawl teeth 50 are engaged

with the ratchet teeth 14 on the blade 12. Above the blade ratchet teeth 50, and rearwardly of the pawl pivot 48, a U-shaped spring 52 is seated in a ratchet pawl curved portion 54. The spring 52 is anchored at a pin 56 which extends between the body member sides 40 and 42 and is tensioned such that it provides a downward force on the ratchet pawl 20 at all times. As will be seen from the drawing, the blade ratchet teeth 14 are formed with vertical forward faces and sloping rearward faces. The pawl teeth 50 are formed with a complementary shape to that of the blade teeth 14 thus allowing the body member 18 to be pushed forwardly while the ratchet pawl 20 jumps from tooth to tooth on the blade 16, but preventing the body member 18 from moving rearwardly (unless the handle 22 is depressed). A rearward force applied to the body member 18 would turn the ratchet pawl 20 about the pivot 48 and force the pawl teeth 50 into more solid engagement with the blade teeth 14.

The handle 22 is connected pivotally between the body sides 40 and 42 at 56 with a first handle portion 58 extending rearwardly from the pivot 56' and a second handle portion 60 extending forwardly of the handle pivot 56'. The second handle portion 60 includes a forwardly extending projection 62 which extends into a ratchet pawl recess 64. The handle 22 has a forward edge 65 which engages with a rearwardly facing ratchet pawl edge 67 when the blade 12 is removed, thereby preventing the spring 52 from pushing the ratchet pawl 20 out of engagement with the handle 22. The first handle portion 58 is covered near its rearwardly projecting end with a sleeve 66 of rubber, plastic or the like.

The handle 22 may be retained in its locked position as shown in FIG. 1 by a key 68 which can be inserted through aligned apertures 70 in the sides 40 and 42 and in the handle 22. The key 68 locks handle 22 to the body member sides 40 and 42 and prevents an intruder from sliding a tool between the door jamb and the door to lift the handle 22.

Downward pressure against the handle 22 will rotate the handle 22 about its pivot 56'. The projection 62 engaged in the recess 64 will simultaneously lift the ratchet pawl 20 to disengage the pawl teeth 50 from the blade teeth 14, thereby allowing the body member 18 to be moved rearwardly along the blade 12 as desired. The pawl teeth 50 will remain disengaged from the blade teeth 14 as long as pressure is applied on the handle 22. However, when pressure on the handle 22 is released, the spring 52 will force the ratchet pawl 20 toward the blade 12 and into the locked position shown in FIG. 1.

FIG. 2 illustrates the device 10 in use in locking a door 72 with a door jamb 74. The blade lug 24 is located on the outside face of the door jamb 74 and the body member shoulder 44 is located on the inside face of the door 72. The blade 12 extends between the door jamb 74 and the door 72. If a would-be intruder attempts to open the door 72 about its hinge 76, he will be unable to do so since the body member 18 is locked in place by engagement between the lug 24 and the jamb 74, and the shoulder 44 and the door 72. Should the intruder then attempt to move the handle 22 to disengage the ratchet pawl 20 he will be unable to do so because of the key 68 which locks the handle 22 in place. When the user wishes to remove the device, he removes the key 68, depresses the handle 22 to release the ratchet pawl 20, and slides the body member 18 backwards off the blade 12. He then opens the door 72 and recovers the blade 12.

The area of the blade 12 including the blade leading end 26 and the lug 24 is preferably tempered to improve the strength of the blade 12 in that area. This will help to reduce the risk that an intruder may break or bend the lug 24. It is important that the device should be tight on the door 72 to make it difficult for an intruder to place an implement such as a crow bar under the lug 24 to break it. For this reason the teeth 14 on the blade 12 should have as small a pitch as practicable such as 10 teeth to the inch. The bumper 46 helps to ensure that a user can apply the device to a door tightly since the bumper is resilient and will accept a limited compression while the ratchet pawl 20 is engaged in the blade ratchet teeth 14.

One of the features of the lock is that the handle 22 is located in a convenient position relative to the body member 18 and it does not interfere with the door 72 when in use. The force required at the handle to unlock the lock is small although a large force would be required to force the body member 18 rearwardly of the blade 12.

We claim:

- 1. Apparatus for locking a door against a door jamb and comprising:
 - a. an elongated longitudinal blade having a lug projecting laterally therefrom adjacent a forward end of said blade, said blade having a row of ratchet teeth along at least part of a first longitudinal edge, each of said ratchet teeth having a forward face lying in a transverse plane which is generally at right angles to said first longitudinal edge;
 - b. a body member adapted to slideably receive said blade, said body member having a shoulder projecting laterally therefrom adjacent a forward end of said body member, said lug and said shoulder extending at substantially right angles and in opposite directions so that when said body member is connected to said blade and the locking apparatus is in place, the lug bears against the jamb and the shoulder bears against the door to hold the door closed;
 - c. a ratchet pawl having a plurality of teeth adjacent a rear end of said pawl for engaging the said ratchet teeth, said

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- d. spring means attached to the body member and adapted to bias said ratchet pawl for maintaining said ratchet pawl teeth in engagement with said ratchet teeth; and
- e. a handle pivotally attached to said body member and extending rearwardly from said body member, said handle being pivotally attached to the body member rearwardly of the ratchet pawl and comprising; a front end; a projection extending forwardly from the front end of the handle and engaged in the ratchet pawl recess; and a rear end portion, whereby upon moving the rear end portion of said handle towards said blade, said projection and said rear end of the pawl move away from the blade to move the ratchet pawl out of engagement with the ratchet teeth on said blade to permit the body member to be moved rearwardly on the blade.