Jan. 5, 1971 J. VAN LENGEN 3,552,158

FLUSH LATCH

Filed May 23, 1969 2 Sheets-Sheet 1

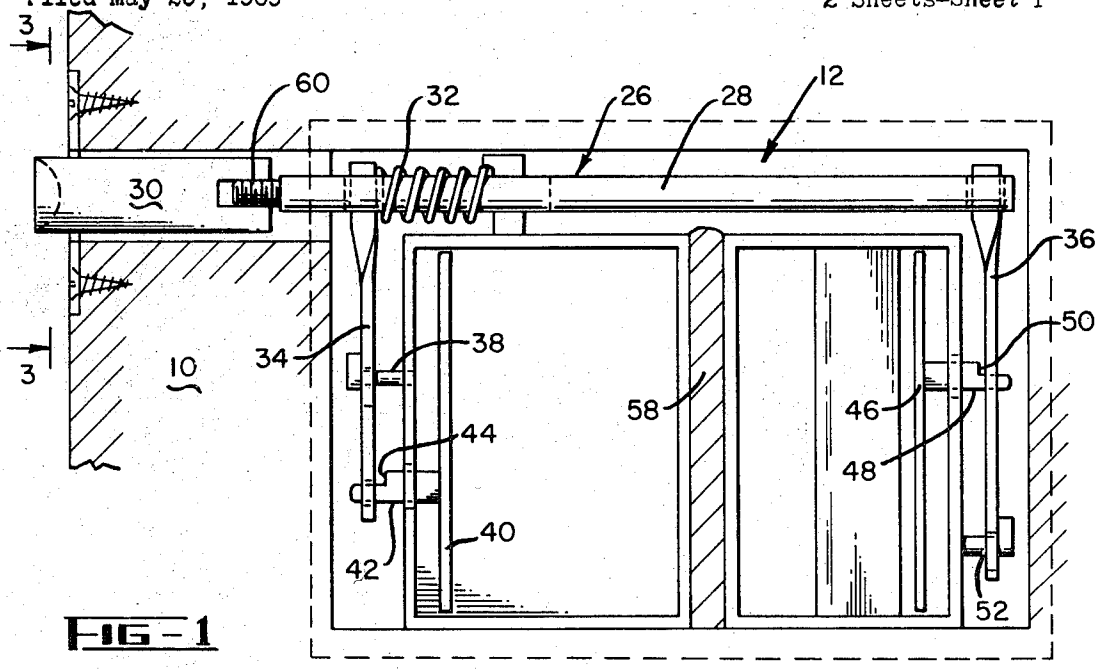


FIG-1

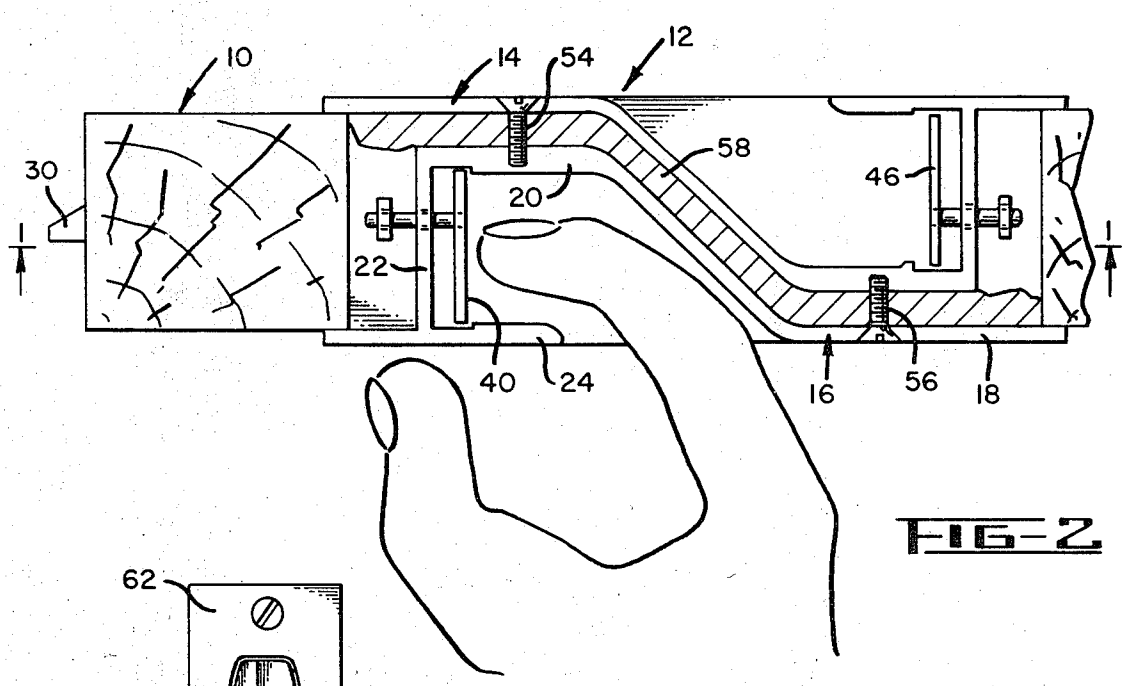


FIG-2

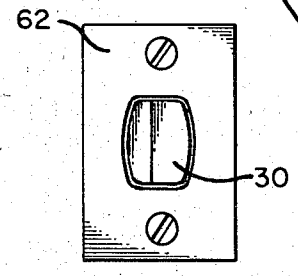


FIG-3

INVENTOR.
JOHAN VAN LENGEN

BY
ATTORNEYS

Jan. 5, 1971 J. VAN LENGEN 3,552,158

FLUSH LATCH

Filed May 23, 1969 2 Sheets-Sheet 2

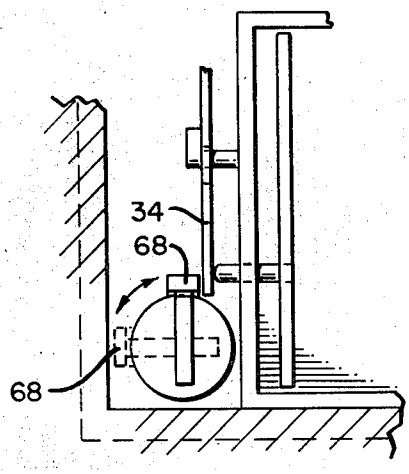


FIG-5

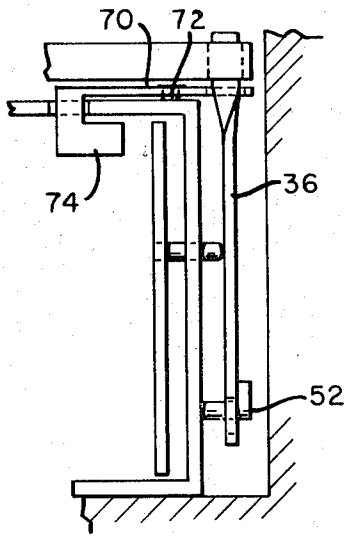


FIG-6

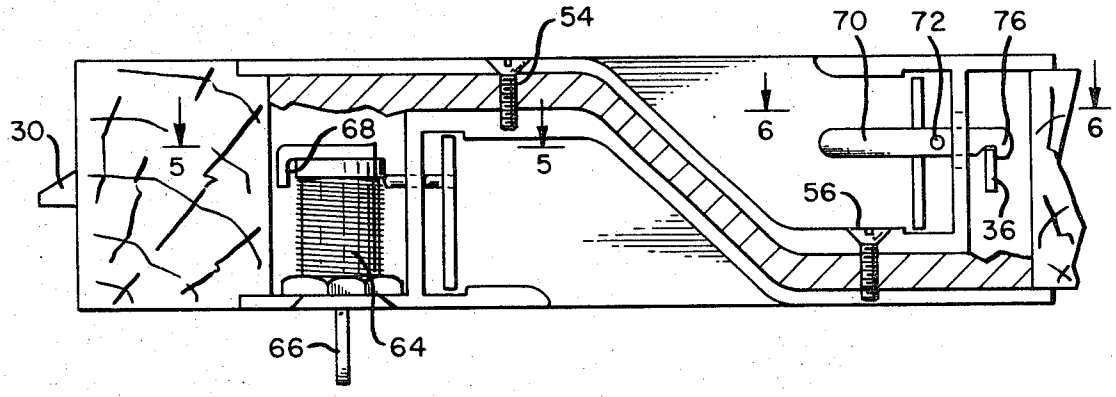


FIG-4

INVENTOR.
JOHAN VAN LENGEN

BY

ATTORNEYS

United States Patent Office 3,552,158
Patented Jan. 5, 1971

3,552,158

FLUSH LATCH

Johan Van Lengen, 2406 Washington St., San Francisco, Calif. 94115

Filed May 23, 1969, Ser. No. 827,277
Int. Cl. E05b 5/00, 9/02; E05c 1/16
U.S. Cl. 70—146 4 Claims

ABSTRACT OF THE DISCLOSURE

A flush latch is provided for a door which can be opened from either side by a simple scooping movement of the fingers. The flush latch allows doors to be stacked flat with the latch installed, lending itself to prefabrication. In accordance with one embodiment of the invention a key lock is also provided while in accordance with another embodiment a one-way lever lock is provided so that the door can be locked from one side by a simple movement of the lever.

SUMMARY OF THE INVENTION

Although flush latches have been proposed in the past, they have ordinarily been adapted only to doors which are opened from one side. In accordance with the present invention, a completely flush latch mechanism is provided wherein there are no protruding parts. This means that doors can be stacked flat and shipped in a conventional way. This allows the lock to be installed at the factory, saving labor costs at the construction site and is particularly important in the case of prefabricated housing.

The door latch of the present invention can be used on a door of any thickness without altering the hardware an any way except for the fact that clamping screws would be selected for the proper length, depending upon the thickness of the door.

The latch of the present invention is easy to install since it is held in place with only four screws. Further, all four of the screws can be inserted from one side so there are no exposed screws on an exterior surface of a door.

The latch of the present invention readily lends itself to cylinder or other conventional types of lock to provide a door which can be locked from the outside. Further, a simple lever locking device is provided so that the door of the present invention can be locked from one side. Such a lock might be used by itself for example on a bathroom, or, might be combined with a cylinder lock to provide a double locking action on exterior door.

The latch of the present invention also has the feature of an adjustable bolt so that the length of the bolt can be easily adjusted if shrinkage of the frame or door occurs after installation.

Other features of the invention will be apparent from the specification which follows.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side sectional view of a latch embodying the present invention. The view is generally on the line 1—1 of FIG. 2.

FIG. 2 is a plan view, partly in section of the latch.

FIG. 3 is an end view of the cover plate and bolt.

FIG. 4 is a plan view, partly in section, of a latch embodying the present invention showing both the use of an exterior cylinder lock combined with an interior type of lever lock.

FIG. 5 is a section on the line 5—5 of FIG. 4.

FIG. 6 is a section on the line 6—6 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings by reference characters there is shown a door generally designated 10, having the door latch of the present invention generally designated 12 mounted therein. The latch of the present invention includes a first frame member 14 and a second frame member 16 which are recessed into the door. These frame members serve as decorative plates and also to support the latch mechanism. These members 14 and 16 are mirror images of each other and are mounted in a complementary fashion as shown and only one will be described in detail. Thus, referring specifically to the member 16, it includes a flat section 18 which is mounted substantially flush with the surface of the door, an inwardly extending portion 20, an end portion 22 and an overhanging portion 24. The overhanging portion 24 serves as a grasping member so that after the bolt is released, as is hereinafter described, finger pressure may be exerted on it to open the door.

Mounted over the mechanism is a bolt generally designated 26 having an arm 28 and an adjustable end 30 which is normally held in the extended position by means of a spring 32. In order to actuate the bolt, lever arms 34 and 36 extend into slots in the bolt. The arm 34 is provided with a pivot 38 while a pressure plate 40 is mounted for sliding movement behind the overhang 24 and has an arm 42 thereon having a shoulder 44 adapted to press against the lower end of the arm 34. It is obvious that this constitutes a first class lever so that as the plate 40 is moved to the left, the bolt 26 will move to the right and thus be retracted.

On the opposite side of the structure, a similar plate 46 is provided which has an arm 48 extending therefrom with a shoulder 50 adapted to press against lever arm 36. Lever arm 36 is pivoted at 52 so that a third class lever is provided, whereby as the plate 46 is moved to the right, the bolt 26 will also move to the right and thus be retracted.

The frame members 14 and 16 are held together by the screws 54 and 56. A layer of insulation material 58 can be provided between the two frame members and the thickness of this material can be adjusted to accommodate doors of various thicknesses.

In this embodiment of the invention, the bolt end 30 is mounted on the rod 28 by the threaded connection 60. The bolt end 30, as can be seen in FIG. 3, is of rectangular or oval shape and the bolt end can be adjusted to take up for shrinkage or the like merely by removing the bolt cover plate 62 and turning the bolt end 30 in one direction or the other until the desired degree of extension is secured. Once this is secured, the cover plate 62 is reinstalled and prevents the bolt end from turning, maintaining the desired adjustment.

The structure thus far described is the basic latch structure and can be opened easily from either side and no locking mechanism has been provided. The structure shown in FIGS. 4 through 6 are substantially the same except that locking mechanisms have been included.

Referring to FIGS. 4 and 5, a structure is shown which is suitable for an outside door. Here a cylinder lock 64 has been mounted on the frame member, the lock having the usual key 66 and a locking arm 68. In FIG. 5, the lock is shown in the locked position in solid lines and here the arm 68 rests against the lower end of the lever arm 34 so that in this position, the bolt can not be retracted until the lock is released. The unlocked position is shown in dashed lines so that when the arm is in the position

shown at 68A, the mechanism is released so that the latch can operate as usual.

At the right hand side of FIG. 4 and in FIG. 6 another locking mechanism is shown which would be suitable for an interior door, such as a bathroom door, which is locked only from one side or which could be combined with the cylinder lock for use on an exterior door. Here an arm **70** is provided with a pivot **72**. One end of arm **70** has a tab **74** extending downwardly through the frame of the latch while the opposite end of the arm **70** is provided with a hook member **76**, adapted to grasp the lever arm **36**. Thus merely by moving the tab member **74** back and forth, the arm **36** can be either locked or released.

It is believed apparent from the foregoing that I have provided a simple yet effective flush mounted latch for a door.

A comparison of FIGS. 2 and 4 show that there are two separate ways of mounting the latch on a door. In FIG. 2, it will be noted that the frame members are slightly larger than the opening which has been cut in the door and therefore the latch does protrude by the thickness of the metal constituting the frame members. However, in FIG. 4 it will be seen the edges of the door opening have been rabbeted so that a completely flush mounting is provided. Also, it will be apparent from a comparison of FIGS. 2 and 4 that there are two different ways of mounting the plates together. In FIG. 2, the bolts **54** and **56** are inserted from opposite sides and this is entirely suitable for interior doors where no security is involved. However, for an exterior door, both bolts should be inserted from the same side as is illustrated by the bolt designated **56A** so that the latch cannot be removed from the lock side.

I claim:

1. A flush mounted door latch comprising in combination:

(a) first frame member mounted on first side of a door,

(b) a second frame member mounted on a second side of a door,

(c) each of said frame members having a recess with a grasping member partly overhanging said recess and having a flat section lying substantially flush with a door surface and opposite the grasping member,

(d) the two frame members being mirror images of each other with the recess on one member opposite the flat section on the other member and vice versa,

(e) a spring mounted bolt slidably mounted in said door,

(f) plates mounted for movement in the ends of each frame member, said plates being mounted behind the overhang of the grasping member,

(g) lever connections between said plates of said bolt whereby:

(h) said bolt can be actuated from either side of the door.

2. The structure of claim **1** wherein a key locking mechanism is provided mounted on one of the frame members, said key locking mechanism locking one of said plates.

3. The structure of claim **1** wherein a lever lock is provided whereby movement of said lever locks one of said plates.

4. The structure of claim **1** wherein the bolt is provided with a rod member and an end member threadably mounted together whereby the length of the bolt can be adjusted by turning the end member relative to the rod member, said end member having a noncircular shape whereby the desired degree of adjustment is retained by mounting a mating cover plate over the end member so that end member can no longer turn.

References Cited

UNITED STATES PATENTS

959,081	5/1910	Simmons	292—166
1,865,128	6/1932	McKinney	292—169.18X
2,492,322	12/1949	Russell	292—167

MARVIN A. CHAMPION, Primary Examiner

A. G. CRAIG, JR., Assistant Examiner

U.S. Cl. X.R.

70—208; 292—153, 166