

FIG. 1

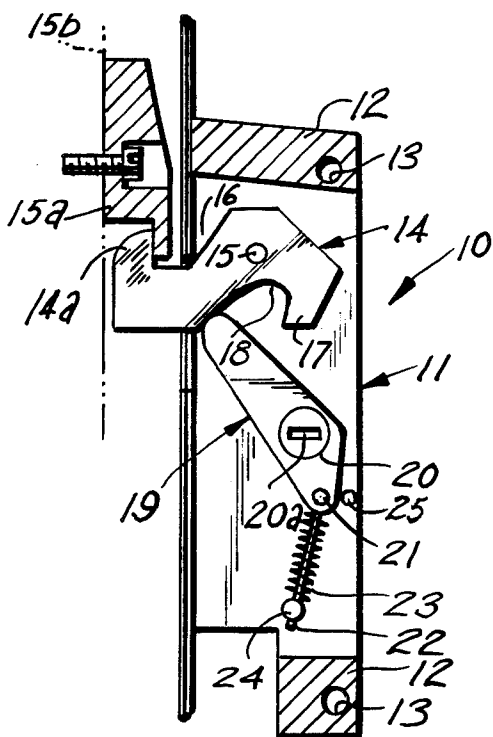


FIG. 2

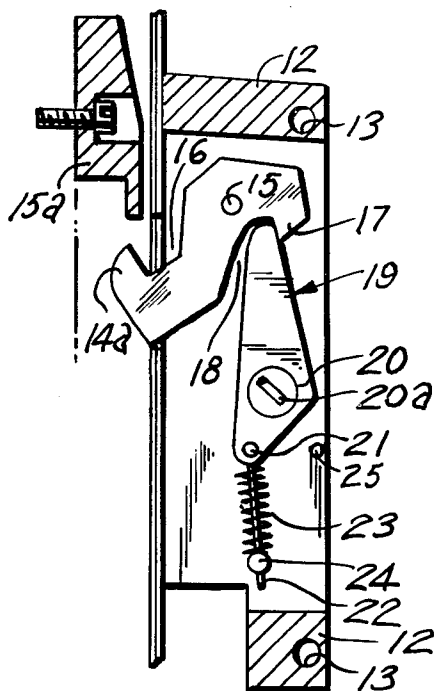


FIG. 3

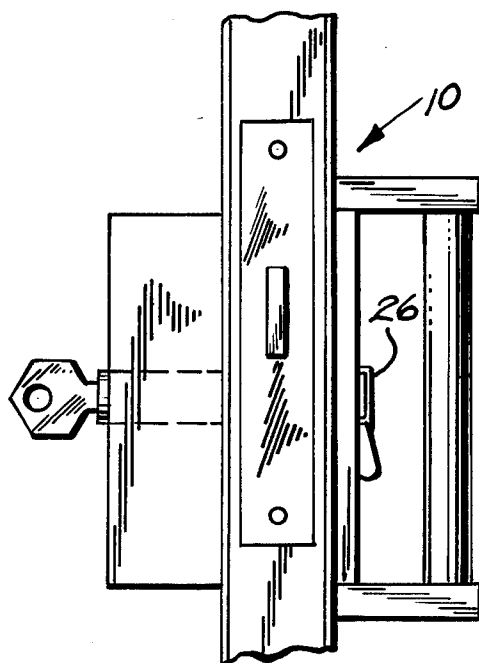
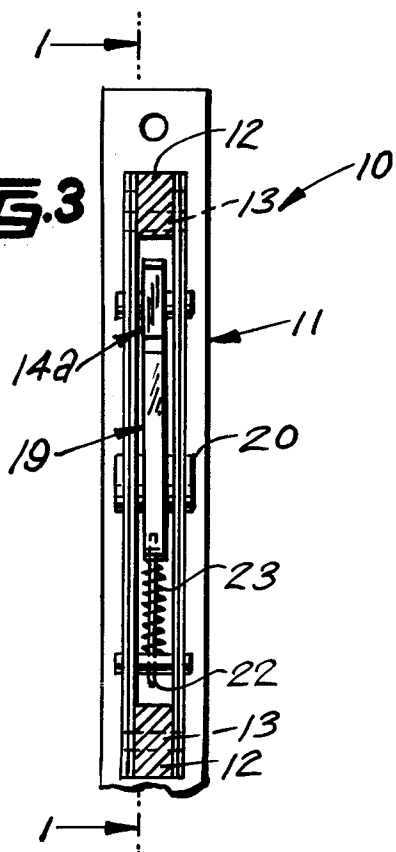


FIG. 4

LOCK FOR SLIDING DOORS

This invention relates to door locks, and more particularly to a lock for sliding doors.

It is therefore the principal object of this invention to provide a lock for sliding doors which will be of such structure, so as to prevent disengagement of the lock with a rhythmic motion of a bar on to the door a practice common in the unauthorized opening of sliding doors leading to a patio or balcony.

Another object of this invention is to provide a lock which will have spring loaded lever arm means which will prevent the disengagement of a latch plate when the door is locked.

A further object of this invention is to provide a lock of the type described, of which the lever arm will serve as a prop for the latch plate when the door is locked, the lock body including a stop pin so as to prevent overthrow of the lever arm.

A further object of this invention is to provide a two component latching device, the components being kept in proper relation to each other by an open recess in one component, namely the latch plate, receiving an end of the other component, namely the lever arm.

A further object of this invention is to provide a latching device including two independently pivotally mounted components, one being a latch plate with a conventional lip for engagement with a keeper or strike plate and the other being a lever arm serving as a prop for the latch plate when in the latching position.

A further object of this invention is to provide a latching device including two main components independently mounted with no mechanical linkage tying the two components together, one component being a lever arm, and further including a stop pin to limit travel of the lever arm to its latching position and a conventional overcenter loading spring to exert pressure on the lever arm against the stop pin.

A further object is to provide a latching device including two pivotally supported components whose pivot points and point of mutual contact form a 90° angle that is not altered by any means other than key or thumb turn operation, the bearing point not being altered by wear.

A further object is to provide a latching device including a latch plate and a lever arm, the latch plate being of solid construction, not being sliced, drilled or mutilated in any way by removal of metal for a mechanical tie with the lever arm thus maintaining sufficient strength to eliminate the necessity of any type of reinforcing device to save the structure from damage.

Other objects of the invention are to provide a lock which has a minimum number of parts, is simple in design, inexpensive to manufacture, rugged in construction, of such size and strength as to prevent damage by shock in use or misuse, easy to use and efficient in operation.

These and other objects will be readily evident upon a study of the following specification and the accompanying drawing, wherein:

FIG. 1 is a cross-sectional view taken along the line 1—1 of FIG. 3;

FIG. 2 is similar to FIG. 1, but shows the device in open position;

FIG. 3 is a rear end view of the device;

FIG. 4 is a fragmentary end view of a door showing the device installed thereon.

According to this invention, a lock 10 is shown to have a body 11 with spacers 12 having openings 13 the openings 13 provide for the entrance of threaded bolt fasteners that will hold the inside and outside handles of the lock 10, together.

A pivotable latch plate 14 is carried upon pin 15. Latch plate 14 includes a lip 14a defined by a recess 16 and the opposite end of latch plate 14 includes a lip 17 defined by recess 18. The lip 14a of latch plate 14, serves to engage the keeper or strike plate 15a mounted to the door jamb 15b. A pivotable lever arm 19 is secured fixedly to member 20 of the lock cylinder, and member 20 includes a rectangular slot 20a. A pin 21 through member 20, carries a rod 22 which is encompassed by means of a coiled spring 23, the rod 22 also extending through pin 24.

Looking now at FIGS. 1 and 2 of the drawing, it will be seen that body 11 of lock 10, is provided with a stop pin 25 against which lever arm 19 abuts when lock 10 is closed.

The lock cylinder (not shown) has a stem engaging lever arm 19 by means of the slot 20a, the stem also connecting with thumb turn type of knob or handle 26.

It will be seen that the spring 23 serves as means for adding pressure to the end of lever arm 19 in both, the open and closed positions.

It shall be noted that the particularly lock design herein described, makes possible for the shortest opening in the door stile in which the lock 10 is inserted.

Referring again to FIG. 1 of the drawing, it will be seen that one end of lever arm 19 engages the periphery of the recess 18, thus preventing the rotation of latch plate 14 and the disengagement of the lip 14a from the keeper or strike plate 15a secured to the door jamb 15b.

It shall also be noted that lock 10 is adaptable to various types of existing handles, by making small variations in the design of the components herein described, however, the principal of operation remains the same.

What I now claim is:

1. A latch mechanism for a slidable door comprising: a hollow body, a latch plate having lip means adapted to releasably grasp a keeper, first pivot means pivotally supporting said latch plate within said body, a lever arm, second pivot means pivotally supporting said lever arm within said body, the axes of the two pivot means being spaced and substantially parallel, said latch plate being defined in part by a peripheral recess generally facing toward said second pivot means and receiving the distal end of said lever arm, said peripheral recess being shaped in such a manner as to form a cam and follower relationship with said distal end of the lever arm so that pivotal movement of said lever arm will cause pivotal movement of said latch plate between a keeper grasping, or latching, position and an unlatching position, said peripheral recess also being shaped such that when the latch plate is in its latching position the lever arm will be in contact with a planar portion thereof, the planar portion lying in a plane containing the axis of said first pivot means and being perpendicular to a second plane containing the axis of said second pivot means and the point of contact of the lever arm with said planar portion, so that all external pressure applied directly to said latch plate in an attempt to pivot it toward its unlatching position will be applied through said lever arm directly to said second pivot means, manually accessible means for pivoting said

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lever arm, and stop means fixedly carried within said body and limiting pivotal movement of said lever arm in one direction to that position wherein the distal end thereof abuts said planar portion of said peripheral recess of said latch plate.

2. A latch mechanism as defined in claim 1 wherein said first pivot means includes a pin secured within said hollow body and snugly passing through the only opening through said latch plate.

3. A latch mechanism as defined in claim 1 wherein said second pivot means includes a cylinder fixedly secured to said lever arm with opposite ends thereof extending through opposed walls of said hollow body and said manually accessible means includes a key operated

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cylinder lock interconnected with one end of said cylinder.

4. A latch mechanism as defined in claim 3 wherein said manually accessible means further includes a thumb turn type of knob interconnected with the other end of said cylinder.

5. A latch mechanism as defined in claim 1 wherein said stop means is in the nature of a pin extend across said hollow body and secured to opposed walls thereof.

6. A latch mechanism as defined in claim 1 wherein said hollow body is adapted to be supported within a mortise in an edge of a stile of a slidable door.

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