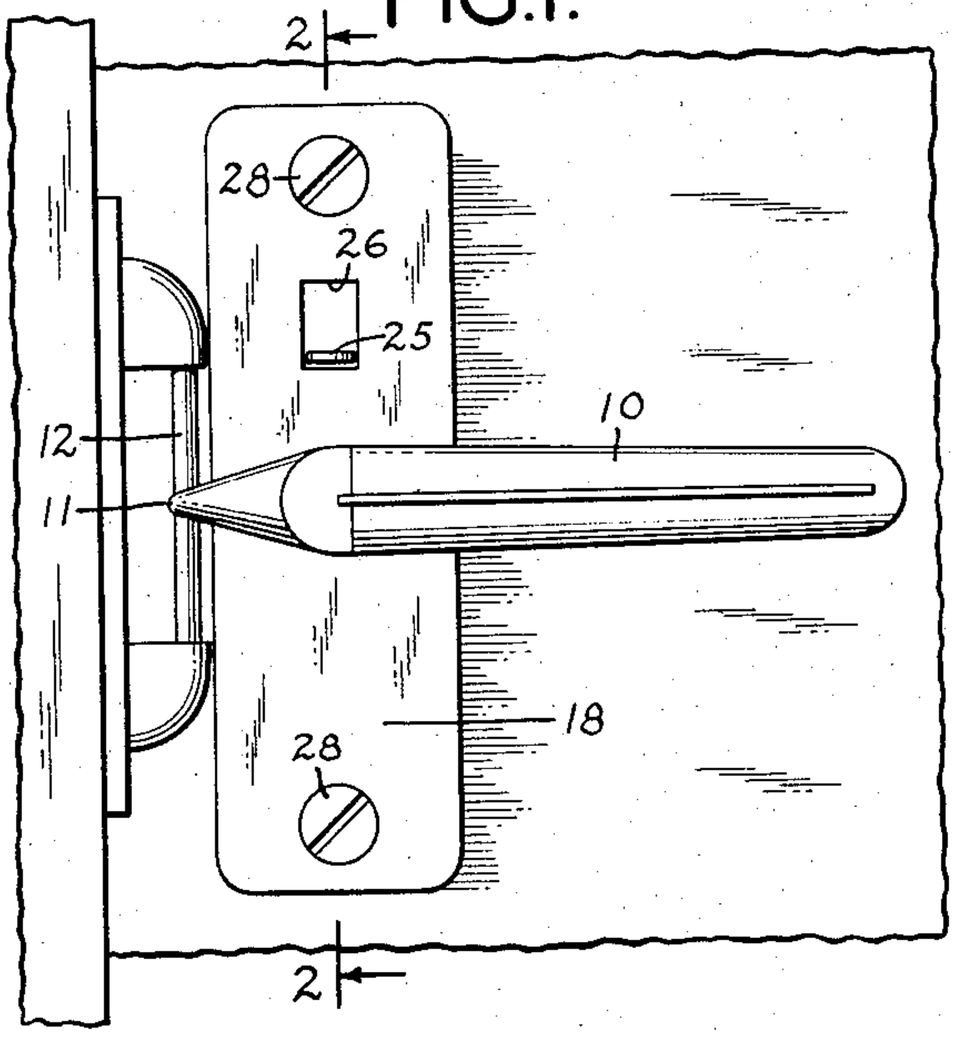
Feb. 17, 1959 P. FRIEDMAN ET AL 2,873,990

CLOSURE FASTENER

Filed Nov. 6, 1956

FIG.1.



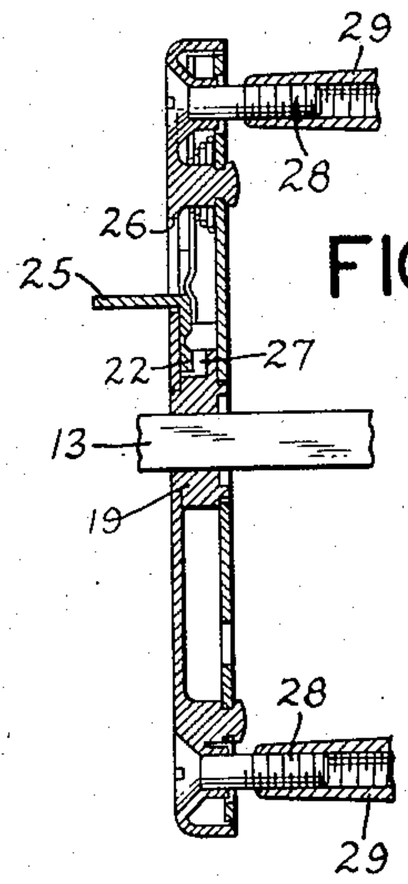


FIG.2.

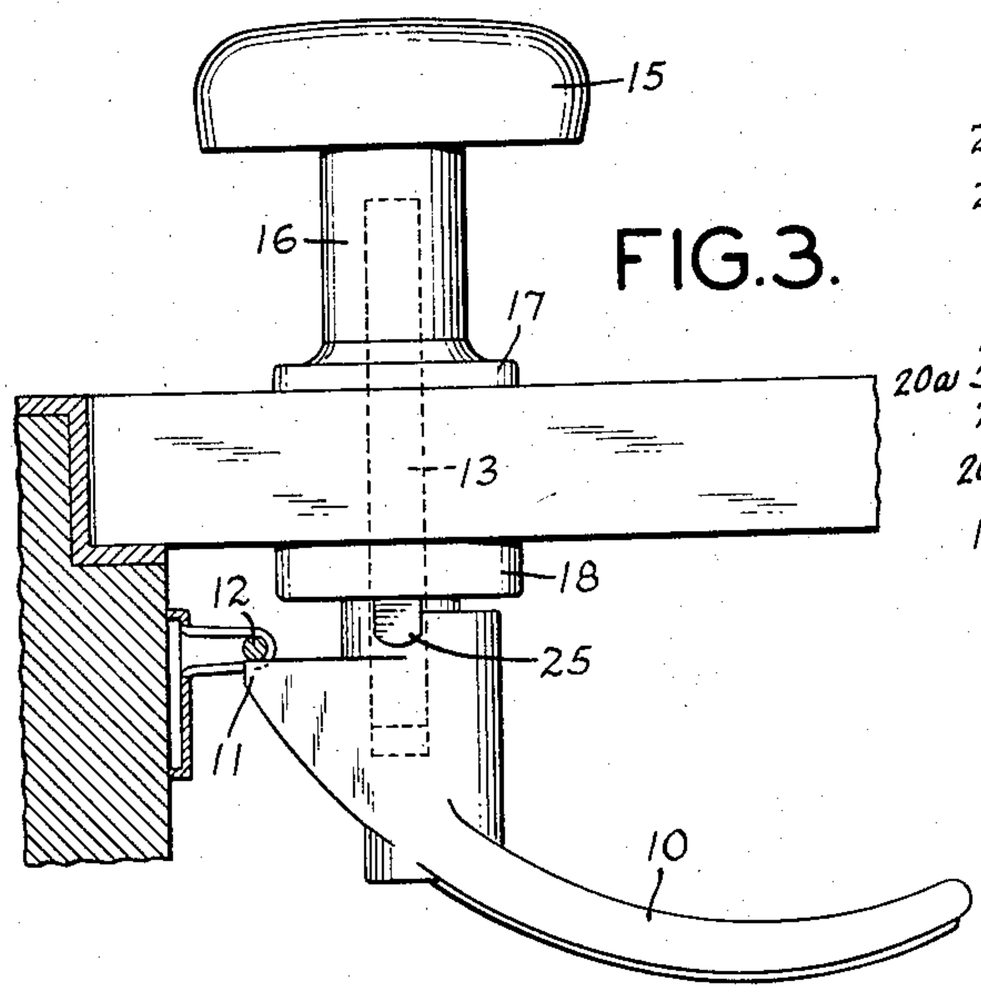


FIG.3.

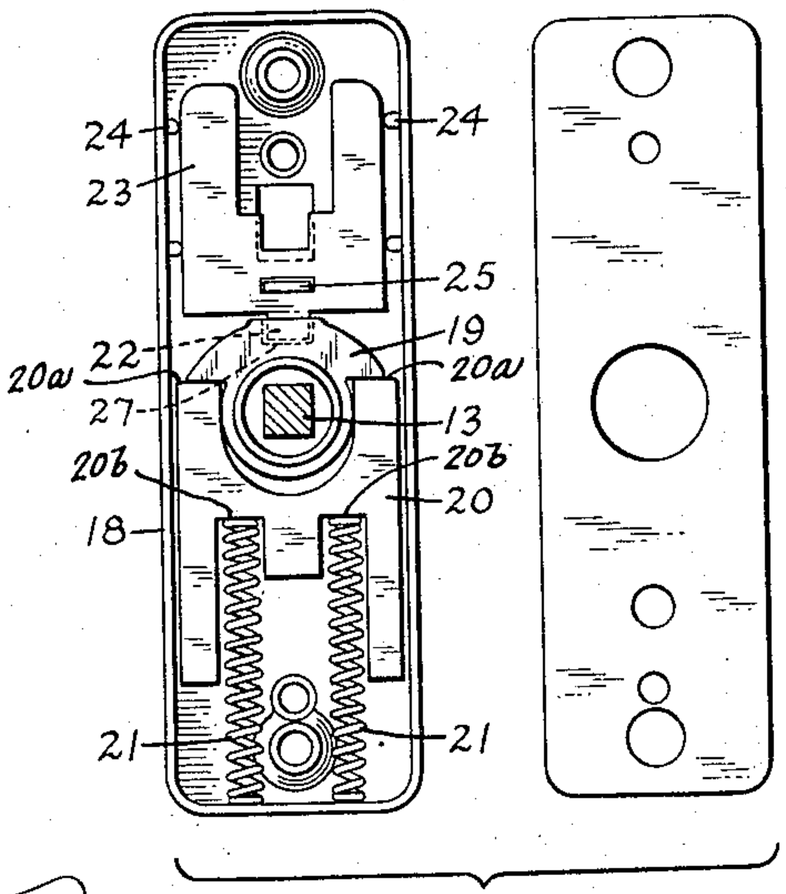


FIG.4.

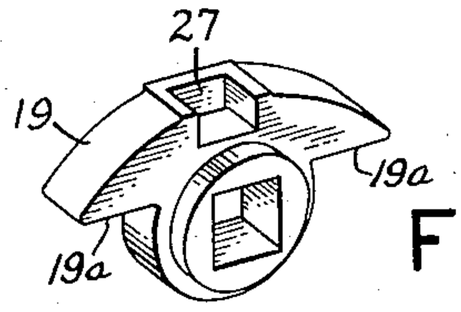


FIG.5.

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CLOSURE FASTENER

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Application November 6, 1956, Serial No. 620,660

2 Claims. (Cl. 292—228)

Our invention relates to a new type of closure fastener and lock designed for use on a door.

One of the objects of our invention is to provide a door lock which is contained entirely within the door knob and is operated by a removable key, the installation of which will necessitate the drilling of only one hole through the door frame.

It is a further object of our invention to provide such a door lock which is fool-proof, easy to install and simple to operate.

A further object of our invention is to provide such a lock and closure fastener especially suited to be adapted for use on outside screen doors and storm doors which are in common use today. Our invention eliminates many of the necessary parts of a tumbler-type lock which is ordinarily used on such doors and is easier to install than the present tumbler-type locks currently in use. Further objects and advantages of our invention will appear in the drawings and specifications herein. Similar numerals through the several views of the drawings refer to similar parts of our invention. We attain the objects and advantages of our invention by the device illustrated in the accompanying drawings.

Figure 1 is a side plan view of our device showing it mounted on the inside of a door and door frame with portions of the door and frame cut away;

Figure 2 is a cross-section along the lines **2—2** in Figure 1;

Figure 3 is a top plan view;

Figure 4 is a plan view of the inside frame of our device with the plate removed showing the locking mechanism; and

Figure 5 is the stop ferrule of our device.

This door fastener operates on the principle of a door handle **10** with a latch portion **11** adapted to engage a strike bar **12**. The latch portion **11** may be disengaged from the strike bar **12** by rotating the door handle **10** approximately 90 degrees. The device is constructed around a shaft **13** which has a square cross-section. The shaft **13** is inserted into an outer door knob assembly **14** which comprises a door knob **15**, a shank **16**, and an outer plate **17**.

The locking mechanism is contained in a frame **18** which is attached to the inner side of the door and which fits over the shaft **13**. A stop ferrule **19** goes over the shaft **13** and fits within the frame **18**. The stop ferrule **19** has a pair of shoulders **19***a*. A stop slide **20** slides within the frame **18**, and has stop faces **20***a* and spring seats **20***b*, and is forced by springs **21** against the stop ferrule **19**. The pressure of the stop slide **20** against the stop ferrule **19** maintains the shaft **13** in a position as shown in Figure 4 of the drawings.

If either the door knob **15** or the handle **10** is turned to disengage the latch **11**, it causes the stop ferrule **19** to rotate and press against the stop slide **20** depressing the

springs **21**. As soon as the pressure is removed from the door knob **15** or the door handle **10**, the shaft **13** is returned to normal position by the stop slide **20**. At the top of the stop ferrule **19**, there is a seat **27** which receives the tip **22** of a lock catch mechanism **23**.

The lock catch mechanism **23** slides on beads **24** inside the frame **18** and it is actuated by a control tab **25** which protrudes from the frame **18** through the opening **26**. The tab **25** may be moved up and down within the limits of the opening **26** pushing the lock catch mechanism **23** up and down and moving its tip **22** within the seat **27** of the stop ferrule **19** and out again thereby locking and unlocking the lock.

The handle **10** is placed on the shaft **13** and may be swedged on to the frame **18**. The entire door lock is screwed on the door by means of screws **28** which fit into threaded portions **29**. The threaded portions **29** are a part of the front plate **17**. Thus, it will be seen that in order to install the lock a hole of one-half inch in diameter or less is needed for the shaft **13** and two holes of approximately three-eighths of an inch or less for the screws **28**. This feature makes it very easy to install our fastener on a door since most other fasteners which have door knobs and handles on both sides of the door require a much larger opening to be either drilled or gouged through the door if it is a wooden door and require tools not ordinarily found around the home as well as skill not ordinarily found in the average householder.

While we have described the preferred form of our invention, there may be other forms in which our invention may be embodied without leaving the scope of the invention and we do not want to be limited to the exact details as set forth herein but wish to be protected for all constructions within the limitations of the claims following.

Wherefore, we claim:

1. In a closure fastener for a swinging door: a hollow frame; an outer knob connected to an inner handle by a shaft extending through the said hollow frame, a ferrule, within the hollow frame, non-rotatably mounted on the shaft having a pair of shoulders spaced on opposite sides of the shaft; a stop slide slideably mounted within the frame, with cross sectional dimensions substantially the same as the inside dimensions of the hollow frame, provided with stop faces at one end thereof adapted to bear against the shoulders on the ferrule, and at least one seat for a compression spring, said seat having a bearing surface at least as wide as the diameter of the spring; at least one compression spring bearing against the seat in the said stop slide at an end remote from the stop faces and against a portion of the hollow frame; and the said inner door handle having a nosed latch portion adapted to engage a strike rod mounted on the door frame for the said door when the door is in closed position; whereby the action of the spring and stop slide yieldably maintain the latch portion of the handle in latched position.

2. A closure fastener as defined in claim 1 having a stop seat on the ferrule disposed between the shoulders on the ferrule and a lock within the hollow frame comprising a slideable member having an operating tab and a latching tip adapted to fit into the mentioned stop seat.

References Cited in the file of this patent

UNITED STATES PATENTS

1,768,193	De Vita	June 24, 1930
2,707,121	Behnke	Apr. 26, 1955
2,733,089	Grevengoed	Jan. 31, 1956
2,796,272	Quinn	June 18, 1957
2,837,364	Loeb	June 3, 1958