March 22, 1960 P. FRIEDMAN ET AL 2,929,651

DOOR LOCK AND CLOSURE ASSEMBLY

Filed Nov. 26, 1956 2 Sheets-Sheet 1

FIG. 1

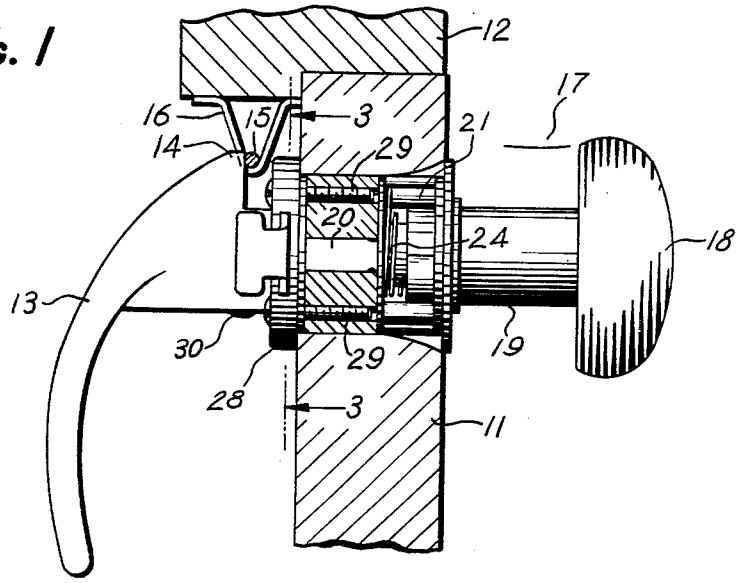


FIG. 2

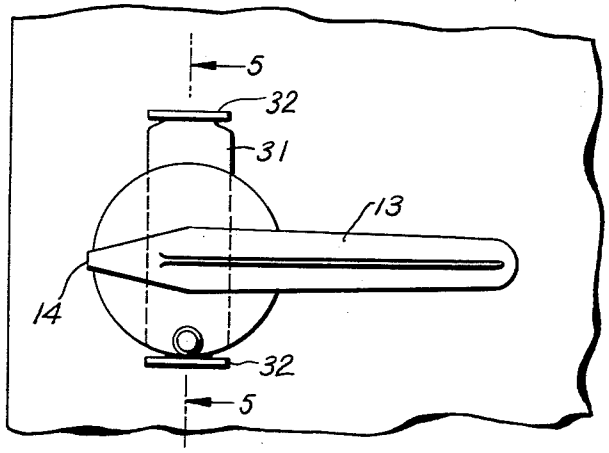


FIG. 3

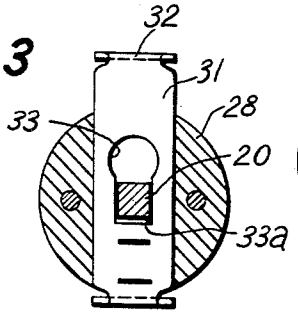
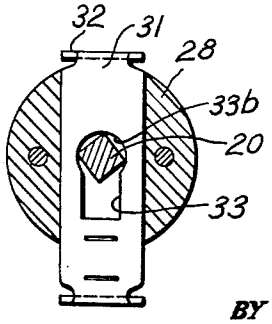


FIG. 4



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DOOR LOCK AND CLOSURE ASSEMBLY

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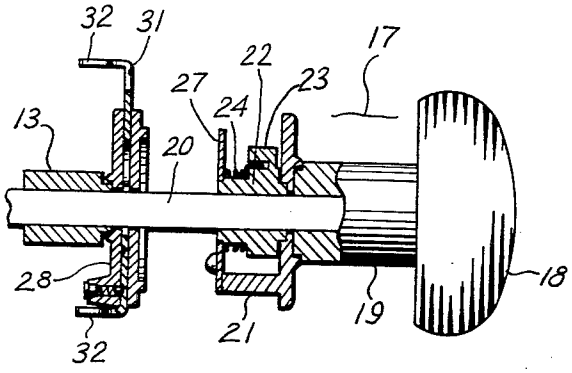

FIG. 5

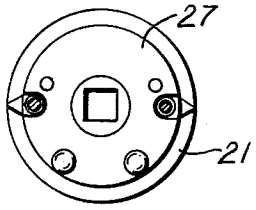

FIG. 6

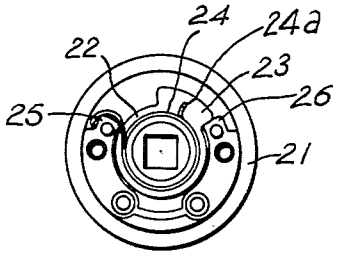

FIG. 7

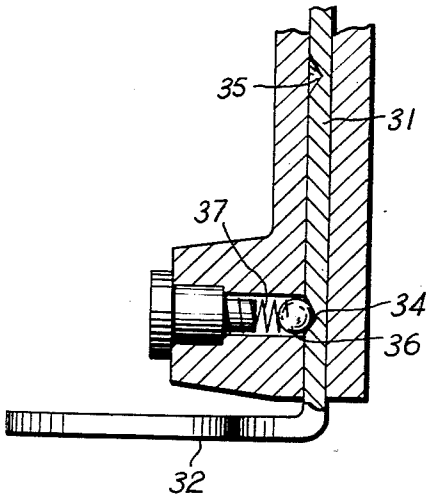

FIG. 8

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DOOR LOCK AND CLOSURE ASSEMBLY

Philip Friedman and George J. Friedman, New York, N.Y.; Iris Friedman and Hyman Orenstein, executors of said Philip Friedman, deceased, assignors to Rose Grossman, Ruth Stein, Iris Friedman, and Hyman Orenstein as trustees for Barry Friedman, and Iris Friedman and Hyman Orenstein as trustees for Robert Friedman, doing business as G.F.S. Investing Co., Brooklyn, N.Y.

Application November 26, 1956, Serial No. 624,472

1 Claim. (Cl. 292—228)

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

One of the objects of our invention is to provide a door lock and closure the installation of which will require drilling only one hole through the door.

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 especially suited to be adapted for use on outside screen doors and storm doors which are in common use today. Further objects and advantages of our invention will appear in the drawings and specifications herein. Similar numerals throughout 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, in which:

Figure 1 is a top plan view of our device showing it installed in a cross-section of a door with portions cut away to show the mechanism;

Figure 2 is a front plan view of the inner door handle;

Figure 3 is a cross-section along the lines 3—3 of Figure 1;

Figure 4 is the same view as shown in Figure 3 with the lock in a different position;

Figure 5 is a sectional view;

Figure 6 is a detail of the plate;

Figure 7 is a detail of the frame of the device; and

Figure 8 is a cross-section of a portion of the locking plate of the device.

Our device is used with a door **11** in a door frame **12**. The principle of our device involves a door closure which has an inner door handle **13** with a latch portion **14** adapted to engage the strike bar **15** of a strike plate **16**. When the handle **13** is turned approximately 90 degrees, it disengages the strike bar **15** and permits the door **11** to be opened. The entire device is made so that it will be easily installed through a single hole in the door **11**.

The device is made in three separate assemblies. There is an outer door knob assembly **17** which comprises a door knob **18** with an integral shank **19**. A shaft with square cross-section **20** is swedged into the shank **19**. A frame **21** is then placed over the shaft **20** and a stop ferrule **22** is inserted over the shaft inside the frame **21**. The stop ferrule **22** has a stop **23**, and a spring **24** is provided, one end of which is inserted in an opening **24***a* in the stop **23** and the other end of which rests on a shoulder **25** of the frame **21**. The purpose of the spring is to maintain the stop in normal position against the shoulder **26** of the

frame **21**. A back plate **27** completes the inner door knob assembly.

This entire assembly is placed through the door **11**. A lock plate assembly **28** is then placed over the shaft **20** and screwed to the frame **21** by means of screws **29**. The various parts of the lock plate assembly **28** and their functions will be described hereinbelow.

When the lock plate assembly **28** is screwed to the frame **21**, the lock becomes securely affixed to the door. The final step is to attach the inner door handle assembly which comprises the door handle **13** and a set screw **30**.

The lock plate assembly **28** is cast around a lock plate **31**. The lock plate **31** has thumb or finger portions **32** to permit the person desiring to lock or unlock the door to slide the lock plate up or down. There is a cut-out portion in the central part of the lock plate **33** which has a square end and a circular end. In Figure 3 of the drawings, the lock plate has been moved up so that the square end **33***a* of the opening **33** is in substantial relation with the shaft **20**. This prevents the shaft **20** from being rotated. It will be seen that where the shaft **20** cannot be rotated, the door handle **13** remains locked in a horizontal position and engages the strike bar **15**. The door **11** is locked into the frame **12**.

In Figure 4 of the drawings, the lock plate is moved down so that the shaft **20** is within the circular portion **33***b* of the opening **33**. The shaft **20** is then permitted to rotate and the user may turn either the inner handle **13** or the outer door knob **18** to disengage the latch portion **14** from the strike bar **15** and thereby open the door. Stops **34** and **35** have been provided on the lock plate **31** to cooperate with a ball bearing **36** to maintain the lock plate **31** in either locked or open position. The ball bearing **36** is forced against the stops **34** and **35** by means of a spring **37**.

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 claim following.

Wherefore, we claim:

A closure fastener for a swinging door comprising an outer doorknob assembly, a lock plate assembly, and an inner door handle asesmbly: the said outer doorknob assembly having a frame adapted to fit within a bore in the door, a knob rotatably attached to the said frame; a shaft fixed to the said knob and extending through the said frame and through and beyond the said bore in the door, a stop ferrule non-rotatably mounted on the said shaft and within the said frame having a stop extending radially therefrom and spaced between shoulders fixed within the said frame, a helical spring positioned around the said stop ferrule with one end of the spring anchored in the stop of the stop ferrule and the other end of the said helical spring engaging one of the said shoulders so that the spring will exert force against the shoulder which it engages and force the stop against the other shoulder when the closure fastener is in normal latching position, said lock plate assembly having a lock frame positioned around the said shaft, a lock plate slideably secured within the said lock frame having a finger operating portion and a central opening with approximately one half of said central opening being circular and approximately the other half being substantially square, a spring pressured bearing within the lock frame adapted to engage stops in

the said lock plate to maintain the round and square openings of the lock plate in position in relation to the shaft respectively, said inner door handle assembly having a handle affixed to an end of the shaft opposite the end affixed to the aforesaid knob of the outer door knob assembly, said door handle having a latch portion adapted to engage a strike bar mounted on the door frame of the said door when the door is in closed position; and means adapted to be positioned within the said bore in the swinging door to hold the said assemblies together.

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