Aug. 8, 1961 F. A. BROWNING 2,995,395

LOCK

Filed Nov. 20, 1958

FIG. 1

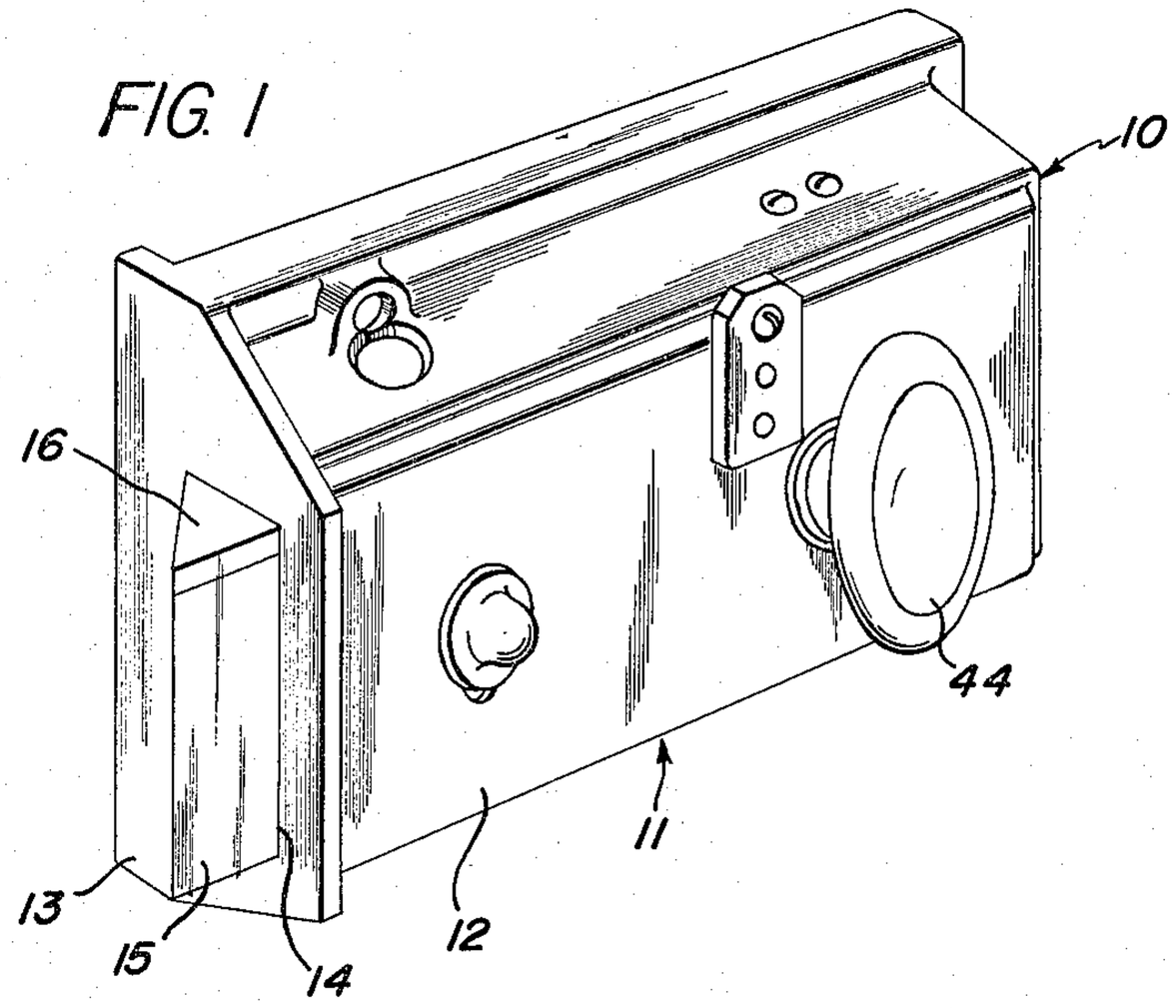


FIG. 2

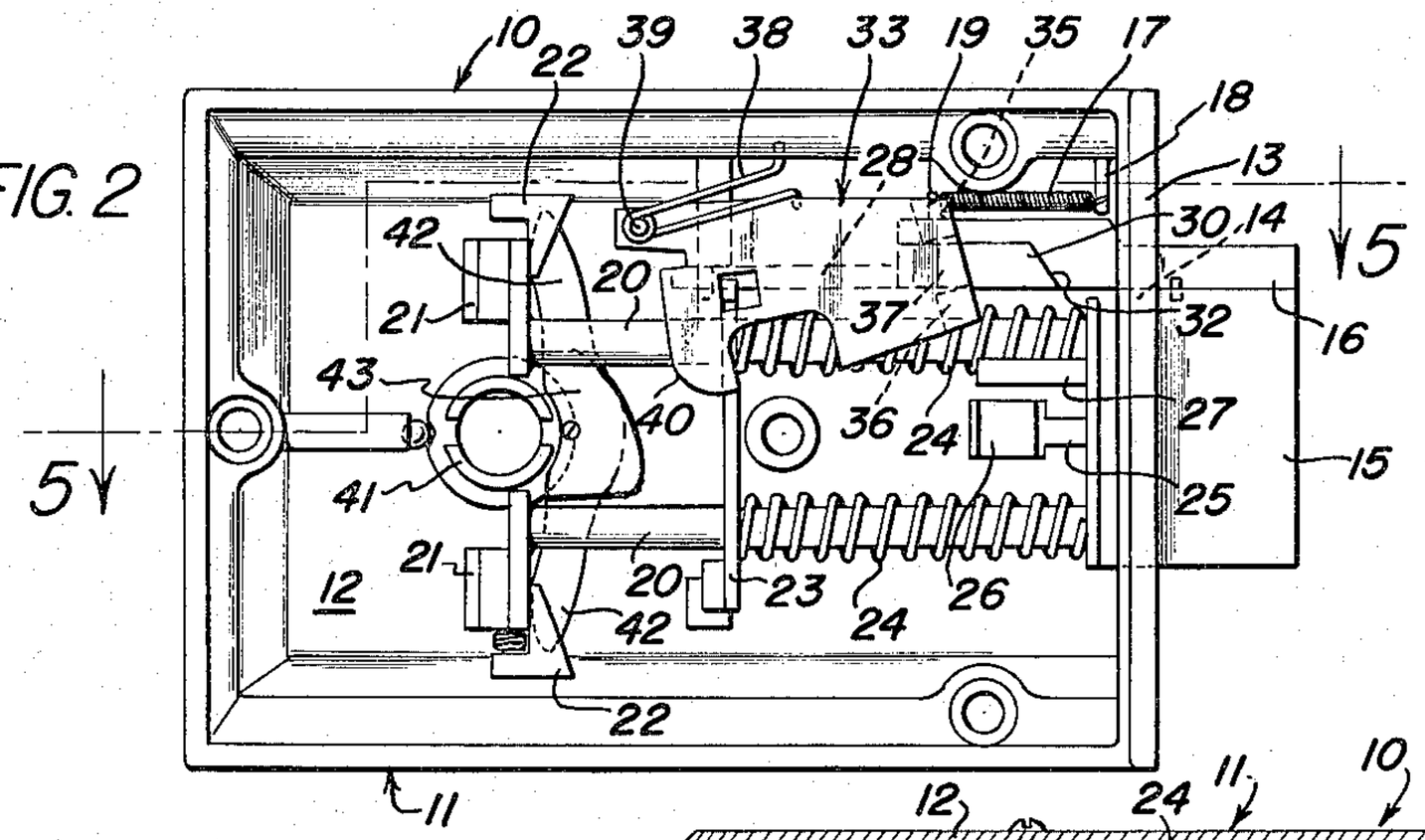
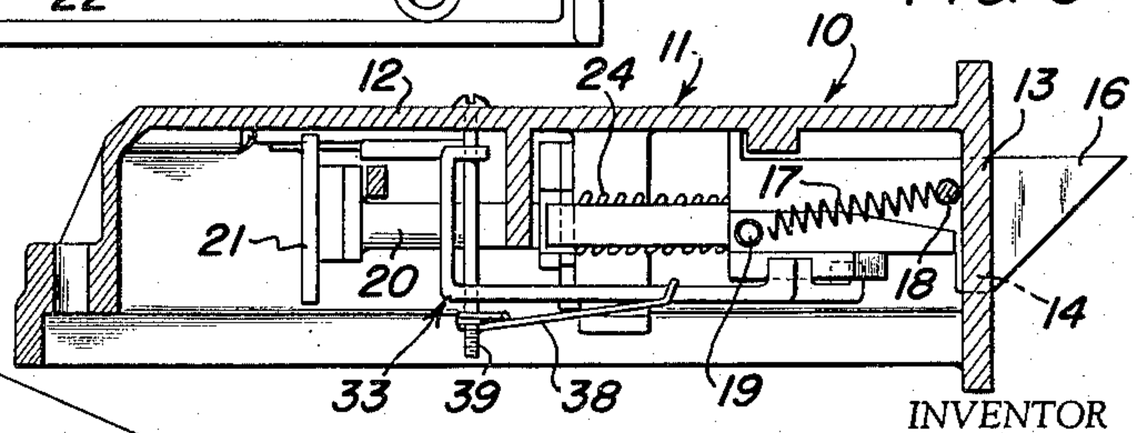


FIG. 5



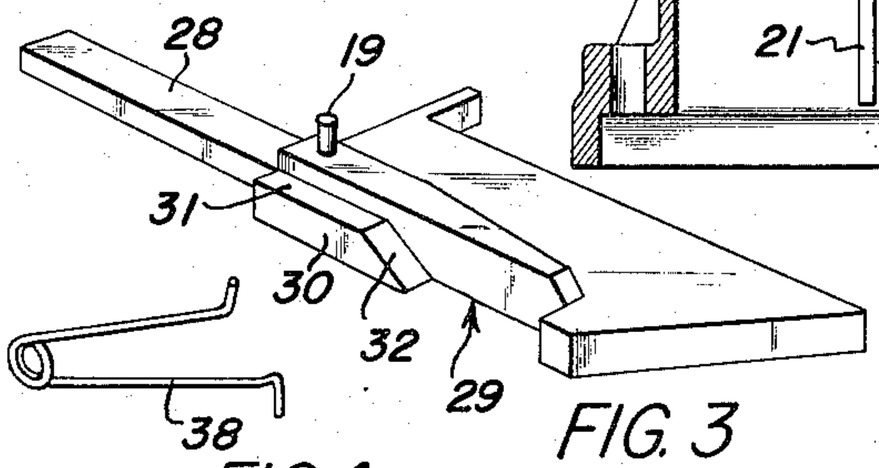


FIG. 4

FIG. 3

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LOCK

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This invention comprises novel and useful improvements in a lock.

The principal object of this invention resides in the provision of a lock which cannot be opened by unauthorized persons using an instrument, tool or the like, but which must be opened from the outside with a key and from the inside with the hand knob.

An important feature of the invention resides in the provision of a lock that cannot be forced open except in such a manner as to break the lock and disfigure the door frame so that the possibility of burglars or other unauthorized persons entering a dwelling or other building is prevented.

A further important object of the present invention is to provide a lock which is ruggedly constructed so that it will not readily get out of use and which can be constructed or manufactured with a minimum amount of cost and effort.

These, together with various ancillary objects and features of the invention which will later become apparent as the following description proceeds, are attained by this device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

FIGURE 1 is a perspective view of the lock constructed according to the present invention;

FIGURE 2 is a plan view of the lock with the cover plate removed;

FIGURE 3 is a perspective view illustrating the secondary bolt;

FIGURE 4 is a view illustrating the spring member; and

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 2.

Referring in detail to the drawings, the numeral **10** indicates the lock of the present invention which is shown to comprise a hollow housing that is indicated generally by the numeral **11**. The housing **11** includes a back wall **12** and an end wall **13**, and the end wall **13** is provided with a slot **14**.

The numeral **15** indicates a main bolt which is mounted for sliding movement through the slot **14**, and arranged contiguous to the main bolt **15** is a secondary bolt **16**. The numeral **17** indicates a return spring which is connected to the secondary bolt **16**. Thus, one end of the spring **17** is anchored to the housing as at **18**, while the other end of the spring **17** is connected to a pin **19** on the bolt **16**.

Extending inwardly from the main bolt **15** and secured thereto or formed integral therewith is a pair of spaced parallel cylindrical rods or bars **20**. A shoe **21** is mounted on the inner end of each rod **20**, and the shoes **21** are mounted for movement into and out of engagement with lugs **22** that are secured within the housing **11**. The numeral **23** indicates a stationary bracket that is also secured within the housing **11**, and the rods **20** extend through the bracket **23**. The numerals **24** designate coil springs which are circumposed on the rods **20**, and the coil springs **24** abut the bracket **23**.

Extending inwardly from the main bolt **15** is a shank **25** which has a tooth **26** thereon. A pin **27** also extends inwardly from the main bolt **15**.

As shown in FIGURE 3 for example, the secondary bolt **16** is provided with a cutout **29** that defines a shoulder

30, and the shoulder **30** is provided with a flat surface **31** and an inclined surface **32**.

In FIGS. 2 and 5 the stud **39** is threaded into the reinforced plate adjacent to the handturning knob shown in FIG. 1. This stud **39** can be cast in the frame; the plate **33** is pivoted on this stud **39** as is shown in FIG. 5; the spring **38** is pivoted at the top of this stud **39**, so as to hold it in place; its pressure is between the frame wall and the plate at the two extremities of the spring, as shown in FIG. 2. The plate **33** is provided on one end thereof with a pair of spaced apart fingers **35** and **36** that define a slot **37** therebetween, and a spring member **38** is connected to the plate **33** as at **39**. The plate **33** is further provided with a beveled lip **40**, as shown in the drawings.

The numeral **41** indicates a bushing which is rotatably connected to the housing **11**, and arms **42** are secured to the bushing **41**. A cam **43** is secured to the arms **42** or formed integral therewith, and the cam **43** is adapted to selectively engage the beveled lip **40** on the plate **33**. The numeral **44** indicates the hand knob for the lock.

From the foregoing, it is apparent that there has been provided an improved lock, and it is to be noted that the spring **38** forces the safety locking device closed.

According to the present invention, there has been provided an inexpensive attachable door snap lock of the Yale tumbler key type which is converted by means of a second bolt **16** into one which cannot be forced open by pressing on the bolt with an instrument or tool, but which must be opened from the outside with a key and from the inside with the hand knob.

The original bolt has been changed very little, and it has its exterior and interior the same, and there is provided the two spring carrying bars **20** which have the shoes **21** on the inner end thereof. A stud is arranged on the inside or back of the bronze section and the shoes **21** have been moved further back to the rear and in addition a small stud has been arranged in the side adjacent to the second bolt **16**.

The second bolt **16** has been added which is an important safety feature and which has the same configuration or cross-section as the bolt **15**, but it is of less thickness than the bolt **15**. The bolt **16** is carried on an independent shaft within the lock and there is provided a spring **17** for forcing the bolt **16** forward under tension at the proper time. On the side next to the original bolt, in such a manner as to engage the stud on the original bolt, a slot has been cut in which the stud or pin slides so that when the locking bolt is forward, the second bolt **16** may remain within the lock. However, when both are forward the original bolt carries by the stud, the second bolt **16** back to the unlocked position. This feature may be eliminated, but it serves as an additional safety factor.

The secondary or added bolt **16** is preferably thick enough to permit for slight discrepancies and door sag, so that it will not drop into the aperture on the door frame section, but it is held within the lock when the door is shut. It can be made flat ended and flat faced so as to lie under the original bolt and not beside it. With this arrangement, when the door is shut, the added bolt is held within the lock by the flush rear part of the door frame section.

The key turning and knob turning members which engage the bolt shoes **21**, have added cams such as the cams **43** and **42** and these can be properly fabricated during the manufacture of the device. Furthermore, studs have been added to prevent these members from turning both ways, and they can work most efficiently by turning in one direction only.

Furthermore, a cam and trigger or cam turning and bolt stopping lever has been pivoted and the safety bolt

16 has been cut so as to permit the stopping part of the pivoted lever to slide through the shaft of the second bolt and behind the stopping stud of the first bolt when the lock is in its locked position and the second bolt is held within the lock. It is to be noted that when both bolts are forward and the door is open, the stopping mechanism has been pushed out of its slot and is held in such a position that both bolts are permitted forward. When the lock engages the door frame section, both bolts 16 and 15 are pushed back together, but only the first bolt falls into its aperture in the frame section, and the second bolt is held out and the safety is on.

Since it is not practical to begin to lift the pivoted section by its shoe and the cam at the same time that the bolt begins to be withdrawn, the shoes 21 have been set back and rest on studs set in the frame. Thus, it will be noted that the cam begins to lift the lever shoe and clears the stopping section before the turning member begins to withdraw the bolt. A ball bearing centering device and a V in the knob turning section are also provided for centering the knob turning member which is not centered by the bolt shoes as was done previously. No such centering is necessary for the key turning, since that centers when the key is withdrawn. Furthermore, when either turning member is operated, that member immediately lifts the safety locking lever from behind the bolt stud and a short turn further begins withdrawal of the bolt itself.

In use, it is to be noted that the locking lever is in position as long as the bolts are properly engaged and it does not in any way impede the operation of the lock when functioning properly. Furthermore, the lock cannot be forced except with a very heavy instrument and this would be impossible without breaking the lock and disfiguring the door frame, which is an important advantage.

The parts can be made of any suitable material and in different shapes or sizes.

From the foregoing, it is thought that the construction and operation of the device will be readily understood. Obviously the dimensions can be varied, and it will thus be seen that there has been provided a lock which will accomplish the desired objects and advantages in a highly efficient manner.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood however that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claim.

Having described the invention, what is claimed as new is:

In a device of the character described, a hollow housing including a back wall and an end wall provided with a slot, a main bolt mounted for sliding movement in said hollow housing, a movable secondary bolt arranged in close adjacent relationship with respect to said main bolt, said secondary bolt having the same general cross-section as said main bolt but being of less thickness than said main bolt, said main bolt and secondary bolt projecting through said slot in said end wall, a coil spring operatively connected to said secondary bolt and defining a return spring, one end of the return spring being anchored to the housing while the other end of the return spring is connected to a pin on the secondary bolt, a pair of spaced parallel rods secured to said main bolt and extending inwardly therefrom, shoes on the inner ends of said rods, lugs secured within said housing for engagement by said shoes, a stationary bracket secured within said housing, said rods extending through said bracket, coil springs circumposed on said rods and abutting said bracket, a shank extending inwardly from said main bolt, a tooth on said shank, a pin extending inwardly from said main bolt, a rectangular shaft extending inwardly from said secondary bolt, said secondary bolt being provided with a cutout defining a shoulder having a flat surface and an inclined surface, a stud mounted in said housing, a plate arranged in said housing and said stud having said plate pivotally connected thereto, a pair of spaced apart fingers on one end of said plate defining a slot therebetween for receiving the shoulder of said secondary bolt, a spring member connected to said plate, a beveled lip integral with said plate, a bushing rotatably connected to said housing, arms connected to said bushing, and a cam connected to said arms for selectively engaging the beveled lip on the plate.

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