Oct. 18, 1955 C. J. SIMMONS 2,721,092

DOOR LOCK

Filed April 17, 1953

Fig. 3

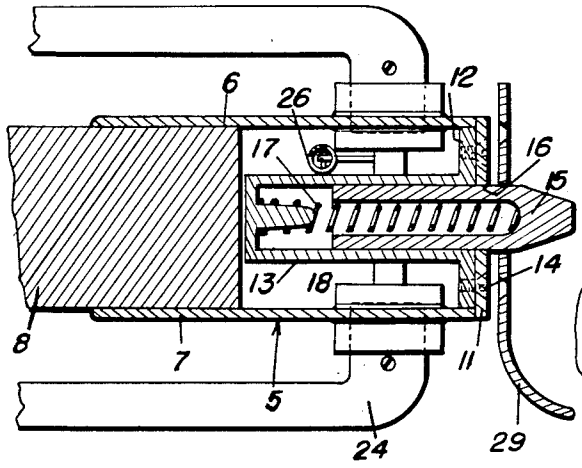
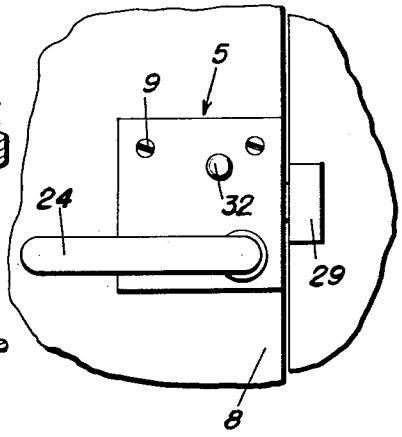


Fig. 1



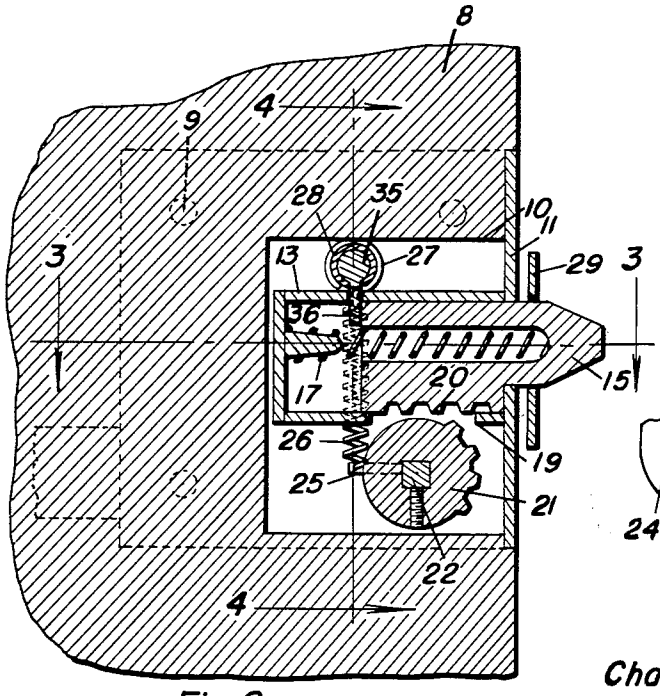
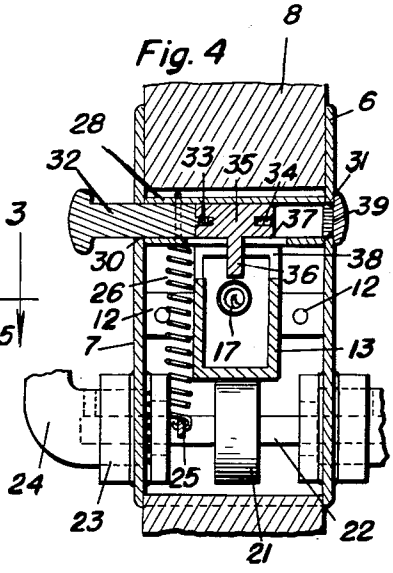


Fig. 2

Fig. 4



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DOOR LOCK

Charles J. Simmons, Tempe, Ariz.

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1 Claim. (Cl. 292—172)

The present invention relates to new and useful improvements in locks for doors or similar swinging closures.

An important object of the present invention is to provide a casing for the lock mechanism which may be mounted as a unitary structure on a door.

Another object of the invention is to provide a sliding bolt constructed with a rack and providing handles at each side of the door equipped with a gear segment engaging the rack to retract the bolt and further to provide a safety latch slidably carried by the lock casing and adopted for engagement behind the bolt to retain the latter in its projected position.

A still further object of the invention is to provide a push button actuated safety latch with means for interchangeably mounting the same at either side of the lock casing to enable use of the safety latch at either side of the door.

An additional object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view;

Figure 2 is an enlarged vertical sectional view;

Figure 3 is a horizontal sectional view taken on a line 3—3 of Figure 2; and,

Figure 4 is a transverse sectional view taken on a line 4—4 of Figure 2.

Referring now to the drawing in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of invention the numeral **5** designates the lock casing which comprises a pair of side plates **6** and **7** secured to the opposite sides of a door **8** by screws or other suitable fasteners **9** to cover a chamber or recess **10** formed in the front edge of the door. The front of the chamber or recess **10** is closed by a plate **11** which is attached to the door and also attached to a pair of apertured ears **12** at the front end of a rectangular shaped hollow bolt guide or housing **13** by means of screws or the like **14**.

A bolt **15** is slidable in the housing **13** through an opening **16** in the front plate **11** and the bolt is projected outwardly by means of a coil spring **17** having its rear end bearing against the rear end of the housing **13** and having its front end extending into a bore **18** in the rear end of the bolt.

The bottom of housing **13** is formed with a longitudinally extending slot **19** to expose a rack **20** formed on the bottom of bolt **13**. The rack is engaged by a gear segment **21** secured on a square shaped shaft **22** which projects outwardly through bearings **23** in the side plates **6** and **7** of the lock casing **5** and handles **24** are secured to the outer ends of shaft **22**.

An arm **25** extends laterally from shaft **22** and to which one end of a coil spring **26** is attached and with the other end of the spring formed with a hook or ring **27** embracing a sleeve **28** which is welded or otherwise suitably secured to the inner surfaces of the plates **6** and **7** in a position transversely with respect to the door.

The spring **26** holds the teeth of the gear segment **21** disengaged from the rack **20** and with the handles **24** held in a horizontal position.

The bolt **15** is thus free to slide when engaging a striker or keeper **29** upon the closing of the door and without swinging the handles **24**, and the outer end of the bolt is bevelled at each of its four sides for use with various types of door installations, or for other uses.

Sleeve **28** is aligned at its opposite ends with openings **30** and **31** in the side plates **6** and **7** to slidably receive a push button **32** which projects outwardly at one side of the lock casing and the inner end of the push button is formed with a threaded stem **33** adapted for interchangeable threaded engagement in threaded recesses **34** in the opposite ends of a plunger **35** slidably mounted in the sleeve **28**.

A latch dog or lug **36** projects laterally from plunger **35** and is slidable in a longitudinally extending slot **37** in the lower portion of sleeve **28** and the latch dog or lug **36** is also slidable in a transverse slot **38** in the upper portion of housing **13** to move the dog or lug **36** into and out of engagement behind the bolt **15**.

When the push button **32** is slidably mounted in one of the openings **30** or **31** of the lock casing **5** the other of said openings is closed by a plug **39**.

In the operation of a device the bolt **15** is projected by spring **17** into its locking position and either of the handles **24** may be turned to rotate the gear segment **21** and engage the rack **22** to retract the bolt.

In order to hold the bolt in its projected position the push button **32** is moved in sleeve **28** to engage dog or lug **36** behind the bolt and the bolt is thus locked in its projected position.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the extact construction shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A door lock comprising in combination, a door having a lock chamber in its front edge, a lock casing including a pair of side plates closing the sides of the chamber, a removable housing in the casing and having an open front end, a spring projected bolt slidable in the open front end of the housing, a front casing plate closing the front of the chamber and to which the housing is secured for supporting the housing in the chamber and for installing and removing the housing and bolt as a unit in the casing, said front casing plate having an opening aligned with the bolt for inward and outward movement of the latter, said housing having a transverse slot in one wall, manually manipulated rack and pinion operating means for the bolt, said housing having an opening affording access to the bolt by the manipulating means and safety latch means for the bolt and including a locking dog slidable in said slot transversely of the housing into and out of position behind the bolt.

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