Oct. 31, 1961 F. L. ERICKSON 3,006,675

DOOR LATCH BOLT ASSEMBLY

Filed Feb. 17, 1958

Fig. 1.

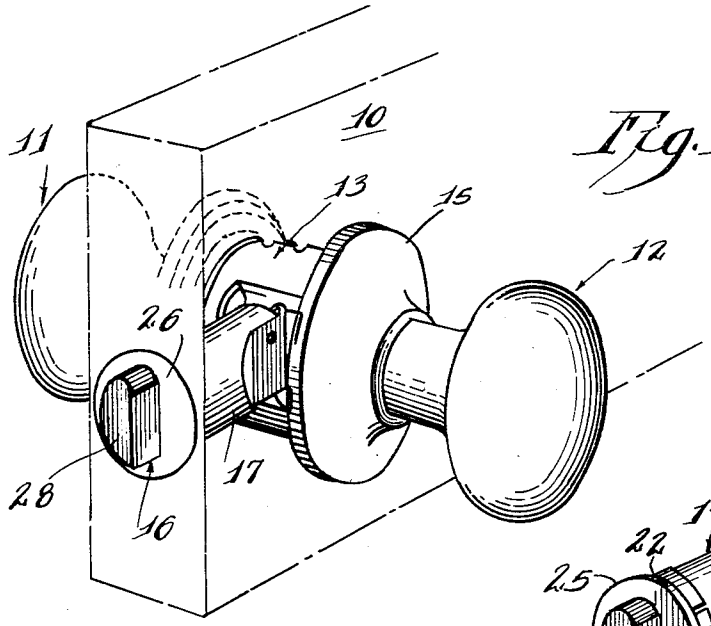


Fig. 2.

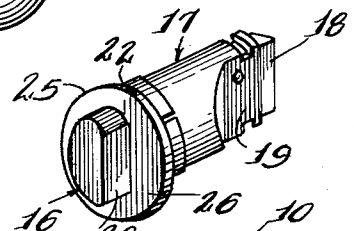


Fig. 3.

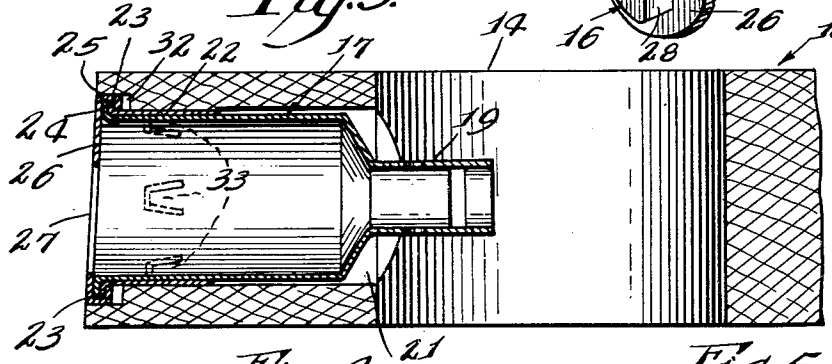


Fig. 4.

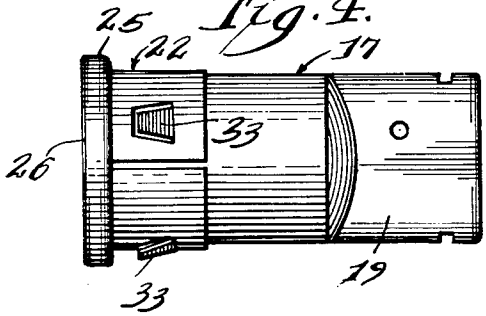
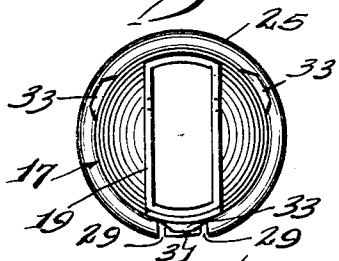


Fig. 5.



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DOOR LATCH BOLT ASSEMBLY

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2 Claims. (Cl. 292—337)

The present invention relates to a latch assembly and more particularly to a novel non-mortise type latch unit for a door lock.

Among the more important objects of the present invention is the provision of a novel latch bolt unit or assembly capable of being mounted in a drilled opening in the edge of a door or closure and provided with novel means for self-anchoring the unit in said opening.

A further object of the present invention is the provision of a novel non-mortised latch assembly for a lockset in which the assembly is bodily inserted into an opening in the edge of a wooden door, including a housing containing the latch bolt and novel means on said housing intermediate its ends for positively anchoring the assembly when forced into said opening in the edge of the door.

Another object of the present invention is the provision of a novel non-mortised latch bolt unit, including an assembled latch bolt and housing for a lockset, the latch bolt unit being insertable into a counterbored, drilled opening which conformably receives the complete assembly within the edge of the door, and novel means encompassing the housing for anchoring the unit in the opening without the use of screws or other attaching means.

Unlike prior types of latch bolts requiring a mortise for receiving a large and generally rectangular face plate and screws or the like attaching means for anchoring the face plate in the edge of the door, the present unit is received wholly within a counterbored cylindrical opening prepared by a step drill in a single operation, with the latch unit pressed into and retained within the opening without the use of screws or other external attaching means.

In the present novel assembly, a sleeve having spaced, outwardly projecting anchoring tabs is secured upon the latch bolt housing, and when the assembly is pressed into the preformed opening in the edge of the door these tabs bite into or are embedded in the wood about the opening to securely anchor and retain the assembly in the opening. Thus no exposed screws or other fastening means are required and the installation can be accomplished in less time and with less effort and expense than with prior mortise-type latches.

Another object of the present invention is the provision of a novel pre-assembled latch bolt unit adapted to be inserted into an opening in the edge of a door and having circumferentially arranged, self-anchoring projections on the interior of the door and hidden from view, these projections being so arranged as to embed in the wood of the door about the opening when the unit is pressed into this opening when being installed.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

In the drawing:

FIGURE 1 is a perspective view of an assembled lock or latch construction embodying the present novel latch bolt unit assembled in the edge of a door.

FIG. 2 is a perspective view of the novel latch bolt unit removed from the door.

FIG. 3 is an enlarged view in horizontal cross section through the latch bolt housing but with the latch bolt and its operating mechanism removed, and showing the

novel manner in which the housing, anchoring sleeve and the face plate are assembled in an opening in the edge of a door.

FIG. 4 is a view in side elevation of the novel latch bolt housing of FIG. 3 removed from the opening in the door and rotated through an arc of approximately 90°.

FIG. 5 is a view in end elevation of the latch bolt housing, the view being taken from the right-hand end of FIG. 4.

Referring more particularly to the disclosure in the drawing and to the illustrative embodiment shown, the present invention comprises a novel latch bolt unit including a latch bolt housing and a latch bolt for a lock construction or lockset for a door or other closure **10** permitting access or passage between rooms or into and out of a room or other enclosure. Such a lock construction preferably includes a knob **11** at one side or the exterior of the door and a knob **12** at the other side or the interior of the door, and a housing **13** mounted within a transverse bore **14** in the door and provided with an escutcheon **15** at each end of the housing and opposite sides of the door.

The operating mechanism for actuating a latch bolt **16** in a latch bolt housing **17** is not disclosed as it forms no part of the present invention, but may be generally of the type disclosed in the North Patent No. 2,733,945, of February 7, 1956, where rotation of either knob permits free access from one room to another, or it may be generally of the type disclosed in any one of the North et al. Patents No. 2,733,496 of February 7, 1956; No. 2,738,665 of March 20, 1956; or No. 2,739,472 of March 27, 1956, in which the inner knob may be provided with either a push or a turn button for locking the outer knob against free rotation as disclosed in said patents, and the outer knob having means for retracting the latch bolt in an emergency or by means of a key-operated tumbler lock.

The novel latch bolt housing **17** of the present invention is of the non-mortise type and permits quicker and more economical installation of the housing and latch bolt assembly than can be effected with the usual mortised face plate anchored in the edge of the door by screws in the manner shown in the above recited patents.

The latch bolt housing **17** receives the latch bolt **16** which may be retracted by mechanism in the housings **13** and **17** upon rotation of a knob, such mechanism depressing or pushing against the projected end of a longitudinally movable pusher or slide member **18** slidably mounted and guided in the slotted reduced neck **19** of the bolt housing **17** and through mechanism of the type shown in the above patents retracting the latch bolt **16**.

The present invention provides means for anchoring the latch bolt housing **17** containing the latch bolt **16** and its retracting mechanism in a drilled opening **21** in the edge of the door **10**. Such means comprises a retainer sleeve **22** encompassing the housing **17** and provided at its outer end with an annular or peripheral flange **23** held in abutting relation with an annular or peripheral flange **24** on the adjacent end of the housing **17**.

The flanges **23** and **24** are encompassed by an annular lip **25** on the circumference or periphery of a face plate **26** and bent or spun over these abutting flanges, the face plate **26** being slotted at **27** to permit longitudinal movement therethrough of the latching end **28** of the latch bolt **16**. This circular face plate conformably covers the forward open end of the housing **17** and is transversely slotted at **29** and therebetween provided with an inturned tongue **31** received in aligned slots in the flanges **23** and **24**, thereby locking these flanges and the lip **25** against rotation.

To anchor the latch bolt assembly in the door **10**, the edge of the door is drilled by means of a step drill to provide the opening or bore **21** and in the same operation

providing the counterbore or stepped enlargement **32** conformably receiving the annular lip **25** and contained flanges **24** and **23** on the housing **17** and retaining sleeve **22**, respectively. The retaining sleeve **22** is provided with a plurality of spaced, outwardly projecting and substantially triangular tabs, tongues or projections **33** adapted to extend into or embed themselves in the wood about the drilled opening **21**. By means of these tabs or tongues, the latch bolt assembly is securely anchored in the drilled opening **21** with the face plate **26** disposed flush with the edge of the door with its lip **25** conformably received in the counterbore **32**. The front edge of the latch bolt assembly is shown beveled and the face plate inclined to match the bevel of the edge of the standard door.

From the above description and the disclosure in the drawing, it will be apparent that the present invention comprehends a novel pre-assembled latch bolt unit including a latch bolt housing, a latch bolt longitudinally movable in said housing and novel means in the form of tabs or projections on the housing for positively anchoring the assembly in a drilled and counterbored opening in the edge of the door when the assembled unit is forced into the opening. This novel assembly with its anchoring means requires no screws or auxiliary attaching means and neither does it require the usual mortised face plate.

Having thus disclosed the invention, I claim:

1. In a door latch bolt assembly for a lockset in which said assembly is bodily received in a cylindrical opening in the edge of a wooden door, said latch bolt assembly including a latch bolt housing having a cylindrical part

and a latch bolt contained therein, a cylindrical sleeve mounted on and telescoping one end of said cylindrical part of the housing and provided with circumferentially spaced outwardly and forwardly projecting tabs, said sleeve and housing each having at one end a radially outwardly projecting flange with the flanges in abutting relation, and a circular face plate bridging the outer end of said housing and provided with an annular lip encompassing and joining the flanges on the telescoping ends of said housing and sleeve and having a slot for passage of the latch bolt, said latch bolt assembly when installed in an opening in the edge of the door having its face plate received in said opening so as to lie flush with the edge of the door and said tabs are anchored in the wood about said opening and provide the sole retaining means for said assembly.

2. In a door latch bolt assembly for a lockset as set forth in claim 1, in which said circular face plate provides an annular enlargement at the outer end of said housing with said housing and enlargement being conformably receiving in said opening.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,006,675 October 31, 1961

Francis L. Erickson

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 2, line 30, for "2,733,496" read -- 2,733,946 --; column 4, line 21, for "receiving" read -- received --.

Signed and sealed this 10th day of April 1962.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents