Dec. 16, 1952 J. A. BUCK 2,621,954

DOOR LATCH

Filed June 14, 1949 2 SHEETS—SHEET 1

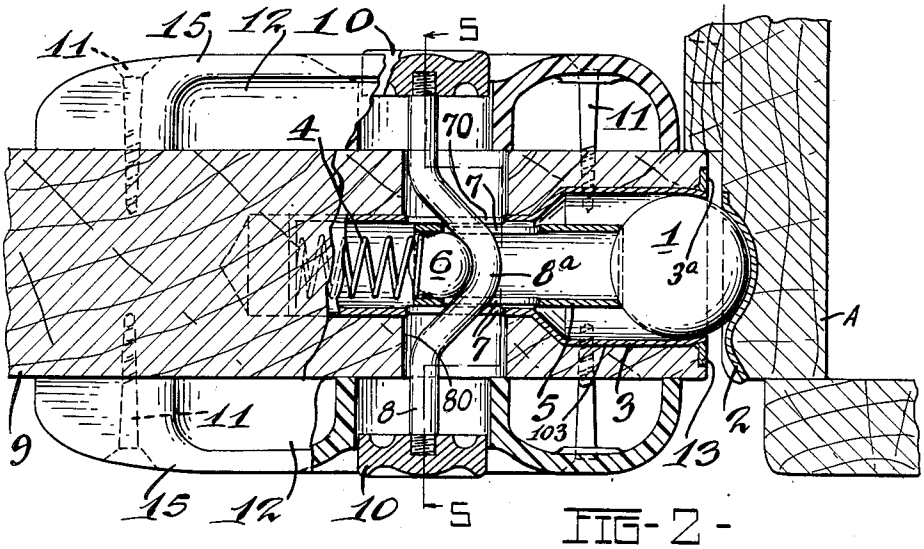


FIG-2-

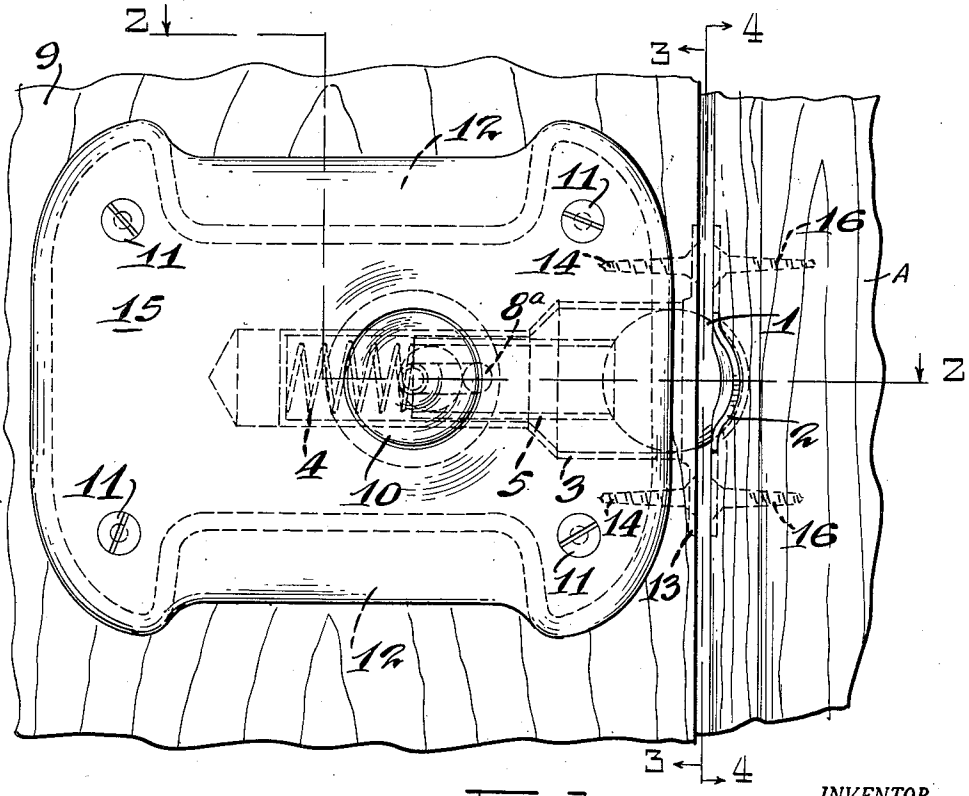


FIG-1-

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DOOR LATCH

Filed June 14, 1949 2 SHEETS--SHEET 2

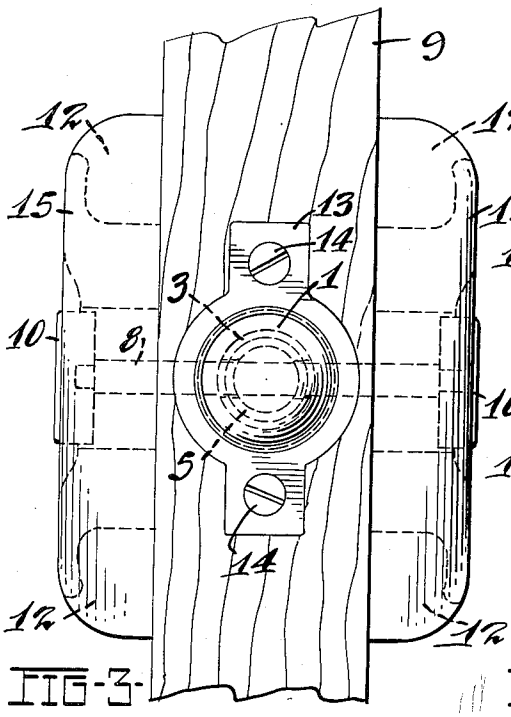


FIG-3-

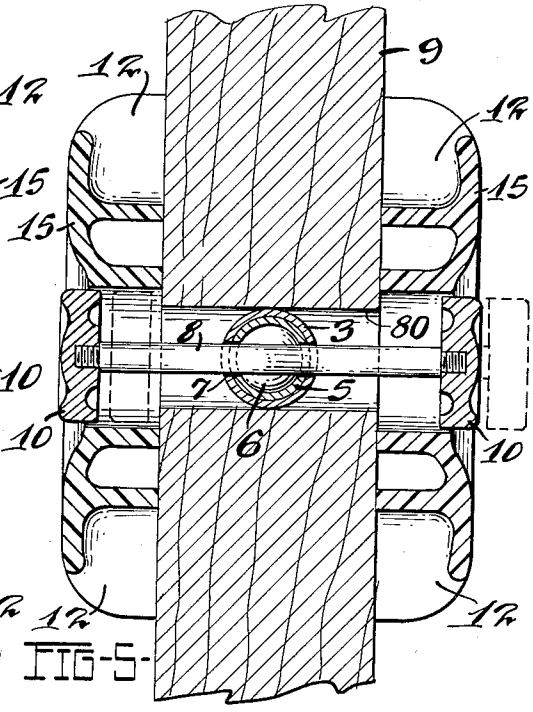


FIG-5-

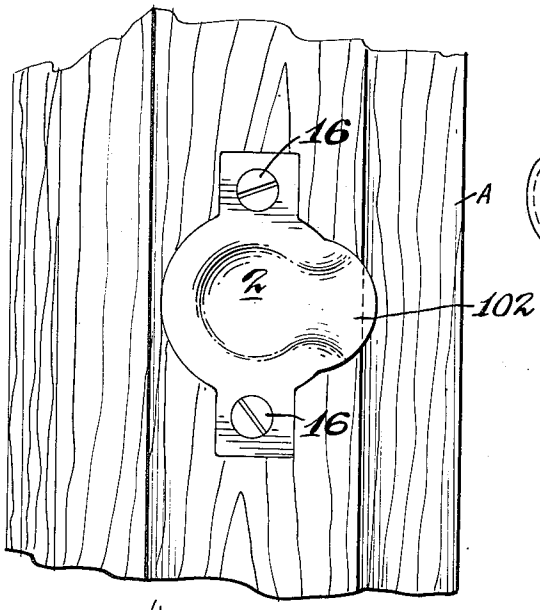


FIG-4-

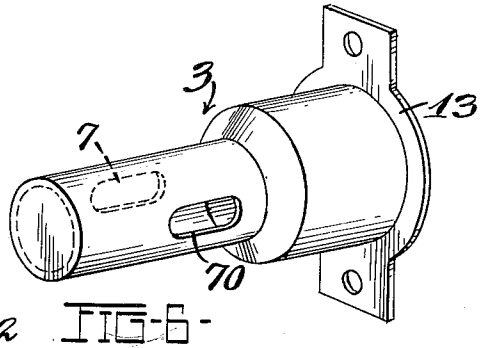


FIG-6-

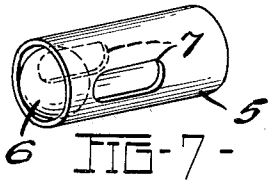


FIG-7-

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DOOR LATCH

Joseph A. Buck, Berkey, Ohio

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3 Claims. (Cl. 292—252)

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This invention relates to a door latch and more particularly to a door latch of the push button type.

An object of this invention is to produce a door latch which is easy to retract, noiseless in operation, simple and efficient in construction rendering manufacture and assembly economical, and contains the new and improved features of construction and arrangement hereinafter described.

Other objects will hereinafter appear, and by way of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawings in which

Figure 1 is a front elevation of the door latch mounted on a door and door frame;

Figure 2 is a sectional view on the line 2—2 of Figure 1;

Figure 3 is an edge view in elevation of a fragment of the door with the latch mounted thereon substantially on the line 3—3 of Figure 1;

Figure 4 is an edge view in elevation of the door frame showing the keeper plate and taken substantially on the line 4—4 of Figure 1;

Figure 5 is a transverse sectional view on the line 5—5 of Figure 2;

Figure 6 is a perspective view of the latch housing; and

Figure 7 is a perspective view of the inside ball carrying sleeve.

The illustrated embodiment of the invention comprises a keeper or striker plate 2 fixed to the edge of the door frame A by screws 16. The keeper plate 2 is of sheet metal and has a concavo-convex central portion for receiving the latch, as will be hereinafter described, and also a guide lip 102 extending laterally of the plate to serve as a striker against which the latch engages in slamming the door.

The door 9 has a horizontal socket 103 extending inwardly from the free vertical edge and the outer portion of the socket is of greater diameter than the inner portion as indicated on Figure 2. Conforming in shape to and snugly fitting the socket 103 is a tubular metallic housing 3 having a flanged end 13 to bear against the free edge of the door, screws 14 securing the flange to the door. The inner end of the housing 3 is closed but the outer end is open and fitting the enlarged outer end portion of the housing is a steel latching ball 1. The latching ball 3, when in latching position, projects partially from the housing and can seat in the cavity or socket in the keeper plate 2. It will be observed that the outer end portion or mouth of the housing

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3 is constricted slightly, as indicated at 3a, so that the latching ball can not be forced from the housing beyond the distance required for latching purposes.

Slidably fitting within the smaller tubular portion of the housing 3 is a sleeve 5 having horizontally elongate slots 7 in opposite sides and in registry with each other. The slots 7 are in registration with similar slots 70 formed in the housing 3. Welded to the inner end portion of the sleeve 5 is a ball 6 against which bears a coiled spring 4. The opposite end of the spring 4 seats against the closed end of the housing 3. The outer end of the sleeve 5 extends within the larger diameter portion of the housing 3 and has a slight internal taper to abut against the latching ball constantly urging it outwardly to latching position.

Extending laterally through the door 9 is a hole 80 in which is disposed an actuating rod 8 formed with a centrally arranged substantially V-shaped bend 8a, the arms of which are oppositely inclined and the central portion of which is curved. The spring pressed ball 6 seats in the centrally curved portion of the rod 8. The rod 8 extends through the pairs of registering slots 7 and 70. This arrangement is such that axial movement of the rod in either direction operates to cam the ball 6 and thereby the sleeve 5 inwardly compressing the spring 4 and releasing the latching ball 1 so that it can retract from latching position to enable opening of the door.

On each side of the door is a plate 15, which may be of any suitable material, such as plastic and is secured to the door by screws 11. Each plate 15 has a central cylindrical guide in which a button 10 screwed on the adjacent end of the actuating rod 8, has in and out sliding movement. Thus by pushing on either button 10, the actuating rod 8 is shifted in one direction or the other. In either direction of movement, the latching ball 1 is released so that it rolls inwardly and the door can be opened. When the door is slammed, the latching ball retracts independently of any movement of the actuator rod 8. Preferably the buttons extend out from their guides so as to be more conveniently positioned for operation. At the top and bottom of each plate is a finger well 12 so that the plate can be grasped more readily for push button operation.

From the above, it will be manifest that I have produced an exceedingly simple and satisfactory latch which has a minimum number of parts so that it can be inexpensively manufactured and

installed. Its inherent structure is such that closing and opening of the door can be achieved readily and quietly. The elimination of door handles is another feature contributing to the appearance and operation of the latch.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. A door latch comprising a tubular housing closed at one end and having an open mouth, the inner end portion being of less diameter than the outer end portion, a latching ball in the outer end portion of the housing of a diameter so that a portion is adapted to project outside of the mouth to latching position, a tubular sleeve slidable within the smaller portion of the housing and having a portion extending into the larger portion into abutment with said latching ball, spring means urging said tube toward said latching ball, longitudinally elongate slots in opposite side walls of said sleeve and smaller portion of said housing, a longitudinally shiftable member extending through said slots, and a cam on said member for retracting said sleeve away from said latching ball upon longitudinal shifting movement of said member.

2. The organization as claimed in claim 1, in which the shiftable member comprises a rod, and the cam comprises a generally V-shaped bend in the central portion of the rod.

3. The organization as claimed in claim 2, comprising a curved bearing member in said sleeve normally engaging the inner side of the apical portion of the V-shaped bend.

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