Feb. 11, 1941. F. B. GERARD ET AL 2,231,443

SCREEN DOOR LATCH

Filed April 19, 1940

Fig. 1.

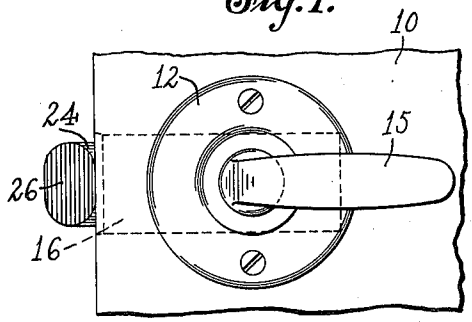


Fig. 2.

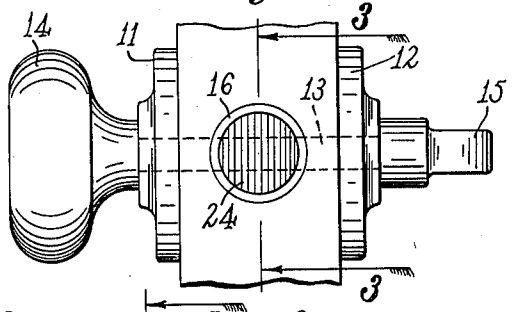


Fig. 3.

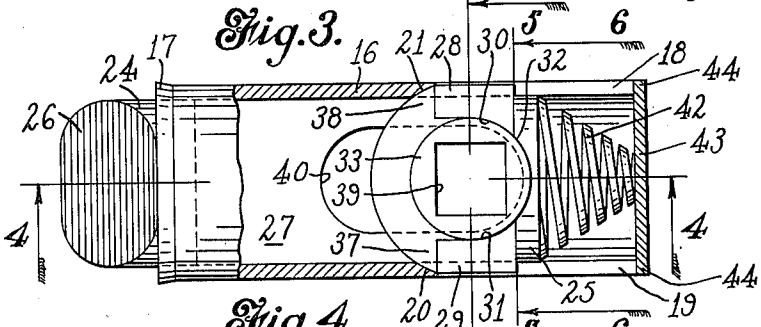


Fig. 4.

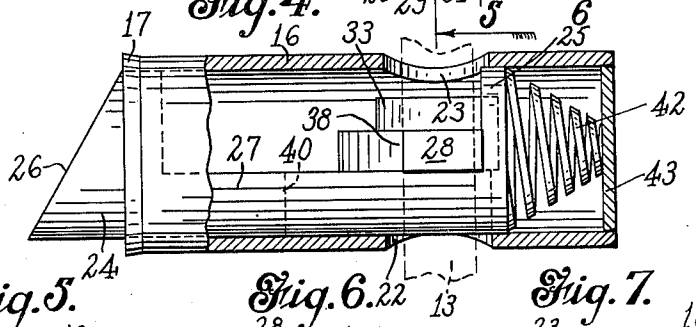


Fig. 5.

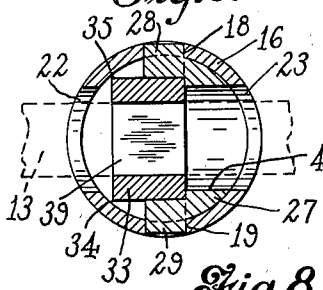


Fig. 6.

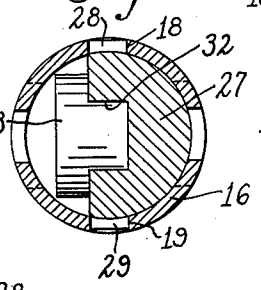


Fig. 7.

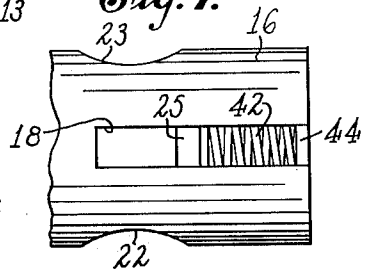
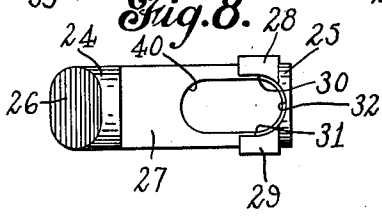


Fig. 8.



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SCREEN DOOR LATCH

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2 Claims. (Cl. 292—169)

This invention relates to door latches, and more especially to a door latch of simple character and capable of being made in small sizes to be used with doors of light weight, such as screen doors, for example.

The structure to which the invention is applied is a so-called tubular lock in that the mechanism is mounted in a tubular or cylindrical case which may be inserted in a bore or cylindrical opening made through the front edge of the door. The operating spindle is designed to be inserted through a transverse bore which intersects the first, the spindle passing through openings in the lock case and engaging the latch mechanism within the case to actuate the same.

Such latches are not required to be of expensive design, nor of excessive weight or strength, and it is contemplated in the present invention that a latch be provided which will be of simple and inexpensive construction, but which will at the same time be positive in operation and which may be easily assembled and applied to the door with a minimum of labor.

One object of the present invention is the provision of a tubular latch consisting of a minimum number of parts, which may be inexpensively manufactured and assembled.

A still further object of the invention is the provision of a simple and inexpensive screen door latch which may be mounted in the door with a minimum of labor.

A still further object of the invention is the provision of a tubular latch mechanism in which a tubular latch bolt is mounted to reciprocate in a tubular casing, the bolt having assembled therewith a rollback which is held in association with the bolt by the case itself, and which rollback serves to correctly limit the forward movement of the bolt to a position in which the spindle openings in the rollback and case are aligned for the reception of the spindle.

A still further object of the invention is the provision of a latch of the character described, which latch will have a minimum number of inexpensive parts, which parts are held in proper relation by the casing of the latch, and by their engagement with the casing are aligned with the spindle openings therein for insertion of the operating spindle.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is an elevational view of a portion of a door having the improved latch mounted thereon;

Fig. 2 is an edge view of the door;

Fig. 3 is a partial sectional view through the latch casing on line 3—3 of Fig. 2;

Fig. 4 is a partial sectional view taken at right angles to Fig. 3 on line 4—4 of this figure;

Figs. 5 and 6 are transverse sectional views on lines 5—5 and 6—6, respectively, of Fig. 3;

Fig. 7 is a partial top plan view of the latch case; and

Fig. 8 is a side elevational view of the latch bolt.

To illustrate a preferred embodiment of our invention, we have shown in Figs. 1 and 2 a fragmentary portion of a door 10 having roses 11 and 12 mounted upon each side thereof, and a spindle 13 passing through the door and roses, the spindle being of non-circular shape in cross-section and having mounted upon one end a knob 14 and on the other end a handle 15. It will be understood in the present instance that the spindle has a support in the roses 11 and 12, and does not have a rotatable bearing in the latch case, which will be described more particularly hereinafter.

A unitary or one-piece latch case of tubular or cylindrical shape is shown at 16, and, as is apparent, this latch may be inserted in a circular opening drilled in the door from the front edge thereof. The forward portion of the case 16 may be flared slightly, as shown at 17. As initially made, the case is open at both ends, and slots 18 and 19 are provided at diametrically opposite sides of the case, which slots open through the rear end thereof, and terminate in shoulders 20 and 21 intermediate the ends of the case. The latch case is also provided with opposed openings 22 and 23 to permit the passage therethrough of the spindle 13.

The latch bolt, shown more especially in Figs. 3, 4 and 8, comprises a member having front and rear portions 24 and 25 of circular cross section to snugly fit the inside of the case 16 and guide the latch in its reciprocatory movements. The front end 24 will be beveled, as shown at 26, as is usual in latches of this character. Between the ends 24 and 25 the bolt is recessed to provide a portion 27 of segmental shape in cross section, as shown more particularly in Figs. 4 and 6, and toward its rear end the bolt is provided with guide lugs 28 and 29 which project upwardly and downwardly from the rounded surfaces of the bolt into the slots 18 and 19. The bolt will thus be guided in these slots in its reciprocatory movements, and prevented from rotating.

The lugs 28 and 29 are rounded upon their inner surfaces, as shown at 30 and 31, and, as will be

apparent from Fig. 5, these lugs project laterally from the portion 27 of the bolt as well as vertically. Between the rounded portions 30 and 31 of these lugs, and in a segmental recess 32 in the rear end 25 of the bolt, is seated a rollback hub 33, so that this hub will be free to rotate with respect to the bolt. As shown more particularly in Fig. 5, the hub projects laterally from the portion 27 of the bolt beyond the lugs 28 and 29, so as to bear against the wall of the case at the points 34 and 35, shown in Figs. 5 and 6, thus holding the rollback hub in assembled relation with the bolt when the bolt and hub are within the latch case.

The rollback hub 33 is provided with projecting arms 37 and 38 extending into the slots 18 and 19 between the forward ends of the lugs 28 and 29 and the shoulders 20 and 21 defining the forward ends of the slots. These shoulders may be slightly rounded to conform to the shape of the arms 37 and 38, and facilitate rotatable motion of the rollback. It will be apparent that these arms limit the forward movement of the bolt and rollback mechanism in the case 16, and that when the rollback and bolt are assembled and placed in the case, with the arms 37 and 38 against the shoulders 20 and 21, the noncircular spindle opening 39 in the rollback will be aligned with the openings 22 and 23 in the latch case, so that the spindle may be inserted through the case.

The bolt is provided with an elongated opening 40 through which the spindle passes, the opening being elongated to permit reciprocating movement of the bolt with respect to the spindle. It will be understood that the spindle will be of the same shape in cross section as the opening 39 in the hub of the rollback, and the openings 22 and 23 may be of any shape that will be sufficiently large to permit rotation of the noncircular spindle 13. It will be seen that the hub and spindle have no bearing in the latch case itself except for the engagement of the hub against the wall of the case on one side and the bolt on the other, the hub being supported on the spindle which has a bearing in the roses.

The bolt is urged to a forward position by a compression spring 42 which acts against the portion 25 of the bolt and a cover 43 for the rear end of the latch case. This cover may be provided with ears 44 to be received in the slots 18 and 19, and may be held in place in any desired way, as for example peening over the adjacent edge of the case 16.

While we have shown and described a preferred embodiment of our invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What we claim is:

1. In a door latch, a tubular case, a bolt slidably mounted in the case and having a recessed portion between its ends, a rollback positioned in said recess, said rollback bearing against the bolt at one side and against the wall of the case at the other side, said case having slots in its opposing walls, said bolt having guide lugs operating in said slots, said rollback having arms engaging said lugs, said arms extending into said slots to engage one end of each thereof and limit forward movement of the bolt, and a spindle rotatably mounted on the door and extending through said rollback.

2. In a door latch, a tubular case, a bolt slidably mounted in the case and having a recessed portion between its ends, a rollback positioned in said recess, said rollback bearing against the bolt at one side and against the wall of the case at the other side, said case having slots in its opposing walls, said bolt having guide lugs operating in said slots, said rollback having arms engaging said lugs, said arms extending into said slots to engage one end of each thereof and limit forward movement of the bolt, said case and rollback having openings registering when the bolt is at the limit of its forward movement, and a spindle rotatably mounted on the door and extending through said rollback.

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