July 22, 1924. 1,502,022

L. A. DEXTER

LATCH CONSTRUCTION

Filed Jan. 3, 1922

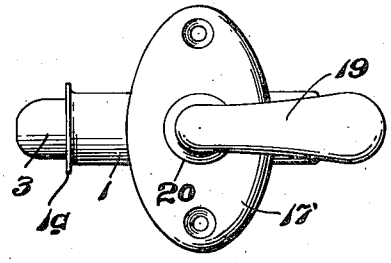

Fig. 1.

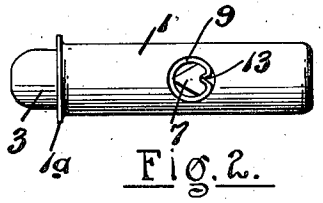

Fig. 2.

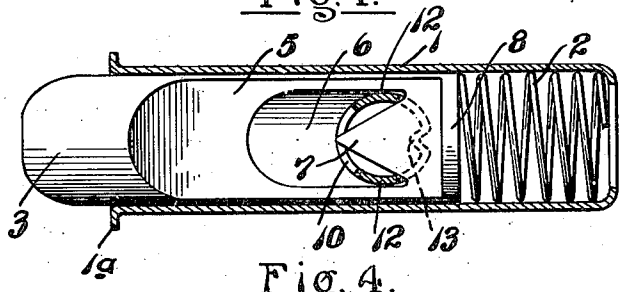

Fig. 4.

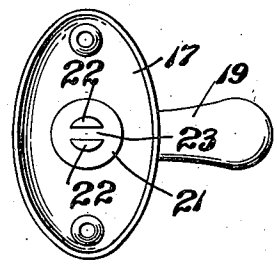

Fig. 3.

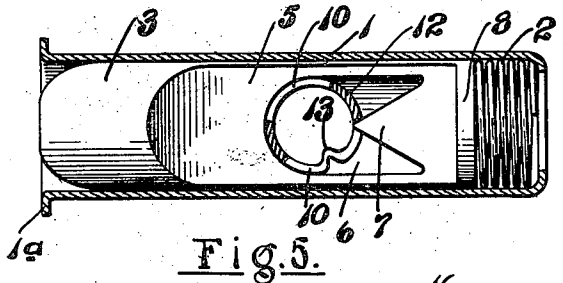

Fig. 5.

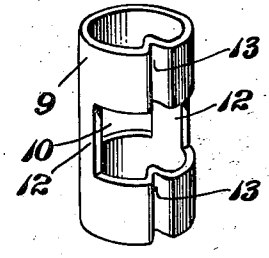

Fig. 7.

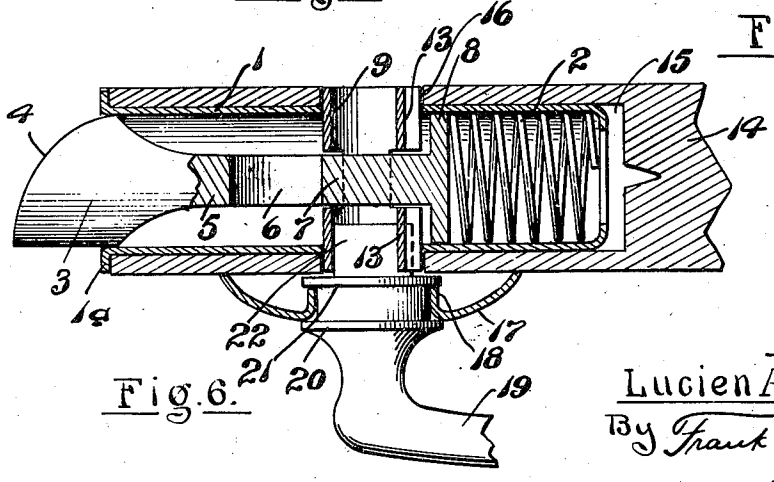

Fig. 6.

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Patented July 22, 1924. 1,502,022

UNITED STATES PATENT OFFICE.

LUCIEN A. DEXTER, OF GRAND RAPIDS, MICHIGAN.

LATCH CONSTRUCTION.

Application filed January 3, 1922. Serial No. 526,465.

To all whom it may concern:

Be it known that I, LUCIEN A. DEXTER, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Latch Constructions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a latch construction, being chiefly concerned with a simple and economically constructed latch for use on screen doors and the like, though not limited in use to any particular type of door. The primary object and purpose of the present invention is to produce a latch construction which is of relatively simple construction, may be very easily installed in place when it is to be used without employment of skilled labor, and which consists of few easily manufactured and assembled parts, the assembly requiring no tool or machine work for its accomplishment, all tending to economy in manufacture of the latch construction. A further object of the invention is to make a latch construction and provide the same with simple and novel means for manually actuating the latch bolt. Various other objects and purposes than those stated will appear fully as understanding of the invention is had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is an elevation of the complete latch, including the operating handle and escutcheon plate.

Fig. 2 is a like view, said handle and escutcheon plate being removed.

Fig. 3 is a rear elevation of the handle and escutcheon plate detachably associated with the other parts of the latch.

Fig. 4 is an enlarged horizontal section through the latch proper, showing the latch bolt in outer position.

Fig. 5 is a like view with the latch bolt retracted.

Fig. 6 is an enlarged horizontal section through the complete assembled latch construction as it appears when applied to a door, and

Fig. 7 is an enlarged perspective of the bolt operating member of the latch.

Like reference characters refer to like parts in the different figures of the drawing.

In the construction of the latch, a cylindrical housing or casing 1, of sheet metal is used, one end being open and preferably formed with an outwardly extending annular flange 1^a, while the other end is sufficiently closed that a coiled spring 2 placed within the housing is held from passing out at said end. A latch bolt is slidably mounted in the housing, consisting of an enlarged cylindrical outer head 3 slightly less in diameter than the inner diameter of the housing 1 and formed at its outer end with a cam side 4, from which head an integrally formed flattened bar 5 extends inwardly as shown. An opening 6 is made through the bar 5 and into the rear portion of this opening a lug 7 extends, having its sides located at an angle to the axis of the bolt, so that lug 7 comes to a point and in effect has two opposite cam sides, the use of which will later appear. At the inner end the bolt terminates in a disk 8 substantially filling the housing across it and bearing against one end of the spring 2, the opposite end of which bears against the partially closed inner end of the housing. The tendency of the spring is to hold the latch bolt outwardly so that its outer head 3 is projected beyond the open outer end of the housing.

The housing 1 has circular openings in opposite sides through which, and the opening 6 in the bolt a substantially cylindrical operating member is designed to be passed. This cylinder 9 is of sheet metal and has opposed openings 10 cut therethrough between its ends leaving connecting bars 12 between the end cylindrical portions. In one side the metal is pressed inwardly to make a longitudinal substantially V-shaped rib projecting inwardly into the cylinder.

In the use of the latch construction with a door, such as indicated at 14, in Fig. 6, a horizontal cylindrical opening 15 is bored inwardly in the door from its free vertical edge so that the housing 1 may be inserted therein. Likewise a transverse cylindrical opening 16 is bored through the door cutting across the opening 15. The housing 1 is placed in the opening 15, spring 2 and the latch bolt in the housing and with the bolt pressed inwardly as far as necessary, the cylindrical operating member 9 is passed through the bolt, sides of the housing 1

and the opening 16 through the door. On release of the bolt, is moves outwardly, and the lug 7 passes through an opening 10 made through the side of member 9. This locks the operating member 9 against displacement, and holds the bolt against outward detachment from the housing.

A combined escutcheon plate and operating handle is connected to the door at one end of the member 9. The plate 17 may be of any suitable design, and is designed to be secured to the door by screws or like fastening means. At its central portion an opening is made with inwardly pressed flange portions 18 from the escutcheon plate around it. An operating handle 19 is rotatably mounted with respect to the plate, passing through the central opening therein, and having two spaced apart annular projecting portions 20 and 21 between which the part 18 of the escutcheon plate is located to permanently secure the plate and handle together and prevent disconnection of the handle when the plate is once attached to the door. At its inner end the handle 19 is formed with two inwardly projecting lugs 22, spaced apart a distance, as indicated at 23, said lugs being designed to enter the end of the member 9, one at each side of the inwardly extending rib 13. It is evident that on turning the handle 19, the operating member 9 will be turned, whereupon one of the bars 12 bears against the side of the lug 7 and forces it with the connected latch bolt inwardly, irrespective of the direction of turning of the member 9 so as to withdraw the bolt completely into the housing 1. It is apparent that in practice this latch bolt is designed to enter a keeper of proper design made in the door casing, as is usual in latches of this kind, and on this withdrawal of the latch bolt, the door is freed to open. On closing the door, the cam end 4 of the bolt rides over the keeper and into engagement therewith in the usual manner, being normally projected outward by the spring 2. Accordingly the latch is automatic in its action in closing and may be readily moved to free the door for opening manually whenever desired.

It is apparent also that the escutcheon plate and connected handle lever 19 may be attached at either side of the door so that the latch is available in any place it is necessary to use it and there is no necessity of making several patterns of the same, as rights and lefts for different sides of the door. The construction is relatively simple, easily manufactured and assembled, and is durable and substantial, fully capable of withstanding all service demanded from it. The appended claims define the invention and I consider myself entitled to all forms of construction coming within the scope thereof.

I claim:

1. In a latch construction, an elongated housing open at one end, a spring located within the housing adjacent the opposite end, a latch bolt slidably mounted within the housing and formed with an outer end cylindrical head at its end formed with a cam surface from which a flat bar extends inwardly and terminates in an inner end disk bearing against said spring, said bar having an opening therethrough into the rear portion of which a lug having inclined sides projects, a cylindrical operating member passing through opposite sides of the housing and the opening in said bar portion of the bolt, said operating member having openings in opposed sides between its ends and said lug extending thereinto, an inwardly pressed rib on the operating member, and a handle member provided with two spaced apart lugs for entering an end of the operating member, one at each side of the rib, whereby said operating member may be turned to retract the bolt, substantially as described.

2. In a latch construction, an elongated cylindrical housing open at one end, a latch bolt slidably mounted within the housing and having an opening therethrough between its ends, a pointed lug having inclined sides projecting into the opening at the rear end thereof, a cylindrical operating member passing through opposite sides of the housing and the opening in the bolt, said operating member having openings in opposed sides through which the lug passes, and means for turning the operating member about its central longitudinal axis, substantially as described.

3. In a latch construction, an elongated housing open at one end, a latch bolt slidably mounted within the housing, spring means located between one end of the bolt and an end of the housing tending to project the latch bolt partially out of the housing at its open end, a cylindrical operating member having an opening in one side between its ends passing through the housing and bolt, a lug on the bolt normally extending into the opening in said cylindrical member, and means for manually turning said member whereby the said lug acts to retract the bolt against the spring through its engagement with the sides of the opening in the member irrespective of the direction of turning of the member.

4. In a latch construction, an elongated housing open at one end, a latch bolt slidably mounted within the housing and having an opening therethrough between its ends, into which opening, at the rear end thereof, a pointed lug having inclined sides extends, a cylindrical operating member passing through the housing at opposed sides thereof and also through the opening

in the bolt, a spring normally forcing the bolt outward and against said operating member, said member having an opening in its side into which said lug extends, and means detachably connecting with the operating member at either end thereof for turning the same manually about its longitudinal axis to thereby retract the bolt, substantially as described.

5. In a latch construction, an elongated sheet metal housing open at one end, a locking bolt slidably mounted within the housing and adapted to be projected at the open end thereof, said bolt having an opening therethrough between its ends and including a pointed lug having inclined sides extending into the rear portion of said opening, a rotatably mounted operating member passing through opposite sides of the housing and the opening in said bolt, means for manually turning said operating member about its axis, and means for pressing the lug against the operating member, said member engaging with the lug and on its rotation in either direction acting on the lug to retract the bolt against said pressing means.

6. In a latch construction, a latch bolt having an opening therethrough, a pointed lug extending from the bolt into said opening, and means for moving the bolt in one direction comprising a cylindrical member passing through the opening in the bolt and having an opening in its side into which said lug passes, said cylindrical member being rotatable about its longitudinal axis, substantially as described.

In testimony whereof I affix my signature.

LUCIEN A. DEXTER.