C. G. PALMER.

DOOR LATCH.

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1,408,629. Patented Mar. 7, 1922.

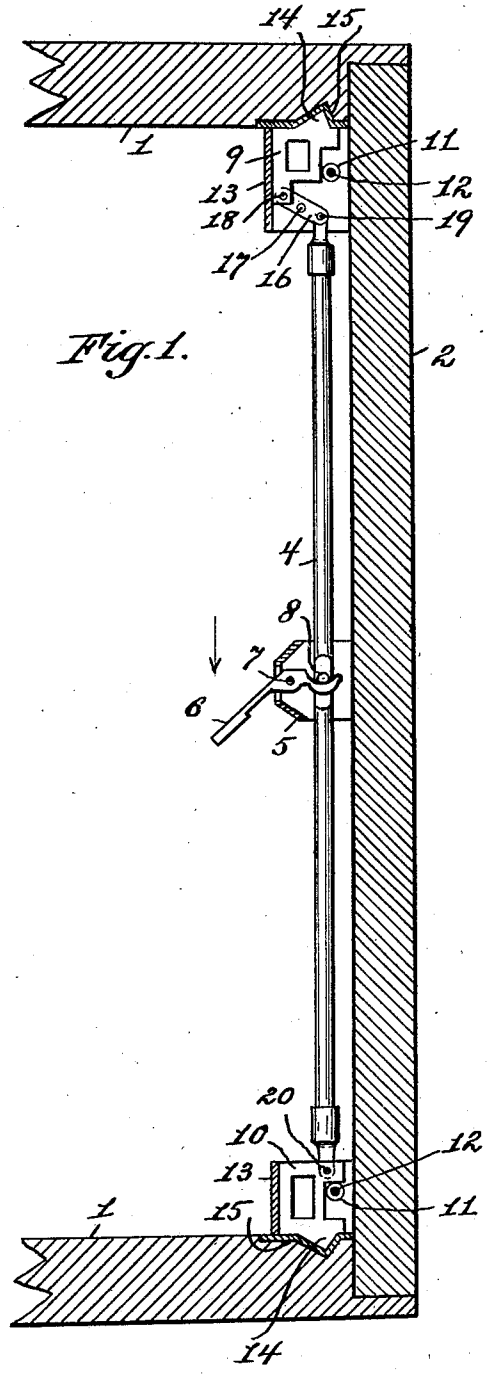


Fig. 1.

Fig. 2.

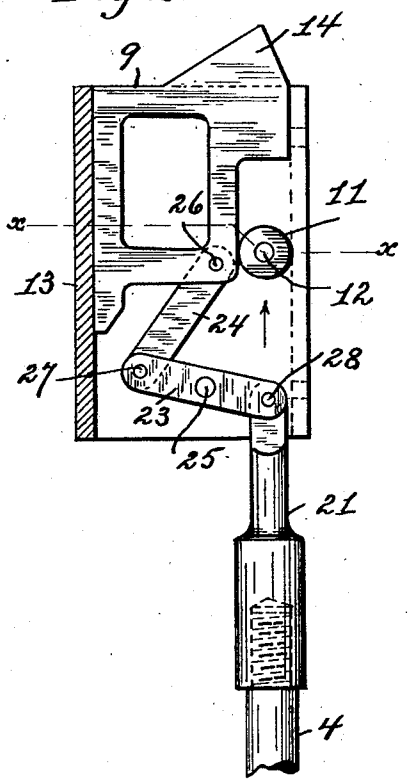
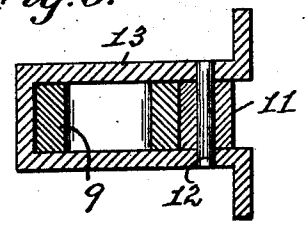


Fig. 3.



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DOOR LATCH.

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To all whom it may concern:

Be it known that I, CHARLES G. PALMER, a citizen of the United States, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Door Latches, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it pertains to make, construct, and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, forming a part of this specification.

My invention relates to a door latch specially adapted to be used in connection with fire proof doors and buildings and is of the type wherein, the door automatically opens when my devices are pushed against. The object of the invention is the production of a door latch, which shall be simple and effective in construction, comparatively inexpensive in cost, and provided with means whereby, in the event of a panic, heavy pressure applied against the inner side of an outwardly opening door, the lock mechanism would be released by said pressure, instead of by the usual turning movement practiced in the case of the usual knob lock.

With this end in view, my invention consists in certain novelties of construction and arrangements of parts, as hereinafter set forth and pointed out in the claims.

While the preferred forms of my invention are illustrated in the accompanying drawings, yet it is to be understood that minor changes may be made without departing from the scope thereof.

In the accompanying drawings,

Figure 1 represents a vertical sectional elevation of a door provided with my improved latch, the latch bolt housing and the socket members as well as the lever housing also being shown in section.

Figure 2 represents a modified form of an upper latch bolt, the latch bolt housing being shown in section.

Figure 3 represents a transverse section taken on line x—x of Figure 2 looking in the direction indicated by the arrow.

Similar numerals of reference refer to like parts throughout the specification and drawings.

In the drawings, 1 represents the door frame, and 2 the door hinged to the frame. An upright rod 4 is movable vertically through a slotted housing 5 on the door. A lever 6 projects through a slot into the housing, to which it is intermediately pivoted as at 7. The lever within the housing is provided with a bifurcated end which straddles the rod 4, said rod being provided with a pin or stud 8 which is in engagement with said bifurcated end of the lever 6. When the external end of the lever 6 is pushed toward the door, its end within the housing lifts the rod 4, and vice versa when no one is pushing against the lever, then the weight of the rod 4 and the connected parts returns the lever 6 automatically into its original or normal position, as shown in Figure 1.

The upper latch bolt 9 and the lower latch bolt 10 are each slidably supported on rollers 11 mounted upon suitable studs 12 which are supported by the sides of the housing 13 attached to the upper and lower parts of the door. Each latch bolt 9 and 10 has a beveled portion 14 constituting a bolt and receivable into a corresponding recess in the door frame consisting of the cavity of a socket member 15 which is screwed to the door frame. In the drawings illustrated, there are two of these socket members, one above and the other below located in the floor or threshold.

A link 16 is pivotally supported on a pin 17, supported by the sides of the housing 13, one end of said link being pivotally connected as at 18 to the lower portion of the latch bolt 9 and the other end of said link being pivotally connected as at 19 to the upper end of the upright rod 4, by means of any suitable connection. The lower end of the upright rod 4 is pivotally connected to the upper portion of the latch bolt 10, as clearly indicated at 20, in any desired or convenient manner.

By connecting the ends of the upright rod in the manner just described, motion of said rod will operate the upper and lower latch bolts 9 and 10 simultaneously into locking position or out of it. The operation of the illustrated devices will be apparent from what has already been said; namely, that the weight of the rod 4 and the connected parts when unopposed, causes them to drop into a lower position in which the bolt portions 14 are brought into locking position, as shown in Figure 1; whereas the same bolt portions are withdrawn and the

doors unlocked by pressing the lever 6 toward the door.

In the modification illustrated in Fig. 2 of the drawings, I have shown the upper latch bolt 9, connected to any suitable connection 21, secured to the end of the upright rod 4 by means of the links 23 and 24, the link 23 being pivoted upon a suitable stud 25 which is supported by the sides of the housing 13. The link 24 is pivotally connected as at 26 to the lower portion of the latch bolt 9, and the other end of said link being pivotally connected to one end of the link 23 as at 27.

The other end of the link 23, is pivotally connected as at 28 to the free end of the connection 21 which constitutes one end of the upright rod 4. The casings 13 are preferably of the form illustrated in cross section in Fig. 3 of the drawing, and the latch bolt is of a thickness approximately corresponding with the inside of the housing, and by which it is guided, together with the roller 11, which is mounted upon the stud 12.

Experience has demonstrated that the organization above described is a highly efficient one, and while the device described is the preferred embodiment of my present invention, I do not care to restrict myself to the exact details of construction, combination and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by any skilled mechanic, and such departures from what is herein described and claimed not involving invention, I consider within the scope and terms of my claims.

What I claim is:

1. The combination with a door and its frame, a rod or bar adapted to be mounted on the door, a lever pivotally connected to said rod or bar for moving the said rod from its normal position, housings secured to the door, bolts slidably arranged within said housings and connected with said rod at the ends of said rod, rollers located within said housings for positioning the bolts and with which said bolts have sliding engagement, sockets for said bolts, and a link connection between the upper bolt and the top of the rod whereby the movement of the rod in one direction causes both bolts to move in a straight line in opposite directions to enter or withdraw from their sockets.

2. The combination with a door and its frame, a rod or bar adapted to be mounted on the door, a lever pivotally connected to said rod or bar for moving the said rod from its normal position, housings secured to the door, bolts slidably arranged within said housings and connected with said rod at the ends of said rod, rollers located within said housings for positioning the bolts and with which said bolts have sliding engagement, sockets for said bolts, a link connecting the upper bolt and the top of the rod, the lower bolt being directly pivotally connected to the bottom of the rod whereby the movement of the rod in one direction causes both bolts to move in a straight line in opposite directions to enter or withdraw from their sockets.

3. The combination with a door and its frame, a rod or bar adapted to be mounted on the door, a lever pivotally connected to said rod or bar for moving the said rod from its normal position, housings secured to the door, bolts slidably arranged within said housings and connected with said rod at the ends of said rod, rollers located within said housings for positioning the bolts and with which said bolts have sliding engagement, sockets for said bolts, a link pivotally mounted upon a stud in the upper housing, one end of which is connected to the top of the rod, a second link, one end of which is connected to the first named link and the other end of which is connected to the upper bolt, the lower bolt being directly pivotally connected to the bottom of the rod whereby the movement of the rod in one direction causes both bolts to move in a straight line in opposite directions to enter or withdraw from their sockets.

This specification signed and witnessed this 23rd day of March, 1918.

CHARLES G. PALMER.

Witnesses:
FRED'K C. FISSHER,
EDWARD HAZLER.