Jan. 23, 1940. H. H. RAYMOND 2,188,139

DOOR LATCH

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Fig. 1

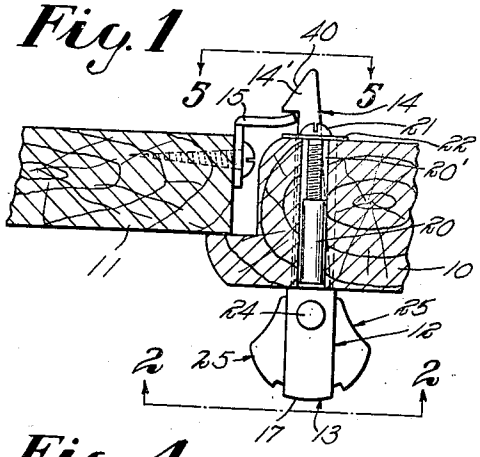


Fig. 2

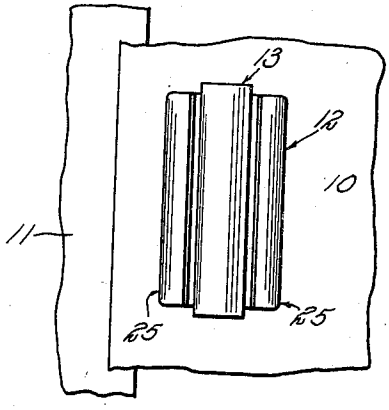


Fig. 4

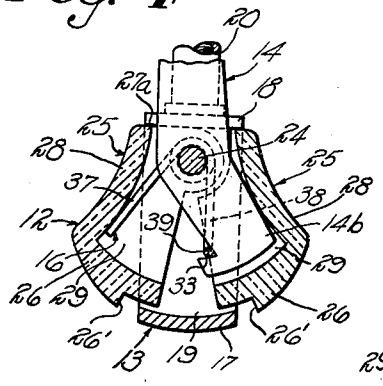


Fig. 3

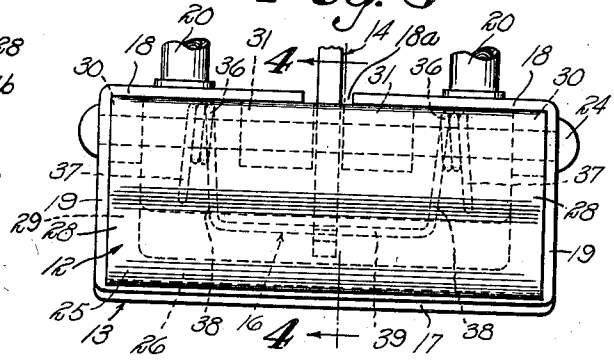


Fig. 5

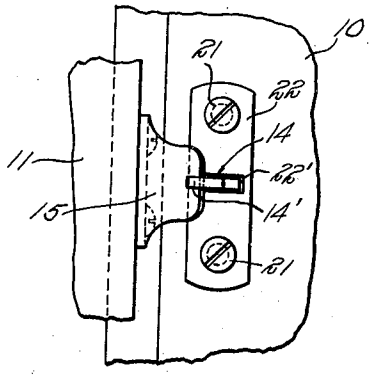
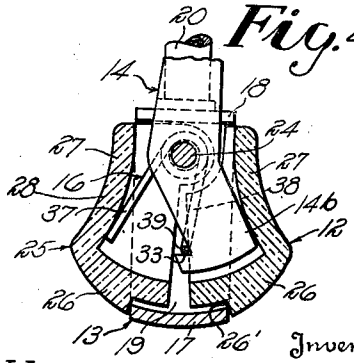


Fig. 4a



Inventor

HORACE H. RAYMOND

By W. Clay Lindsey.

Attorney

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Fig. 6

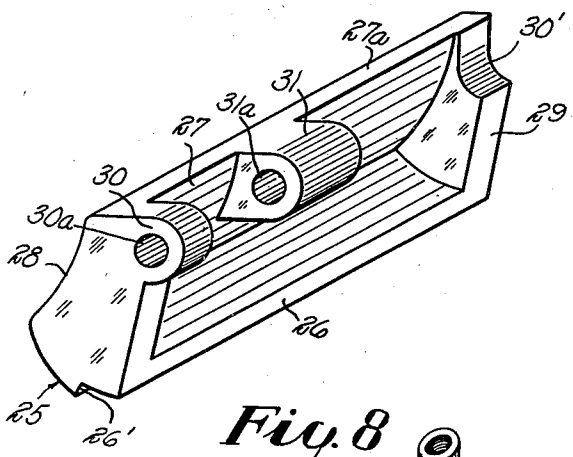


Fig. 7

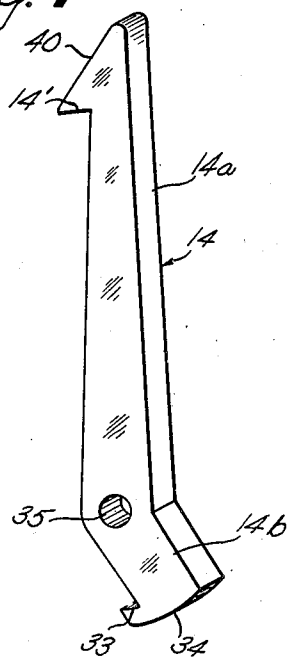


Fig. 8

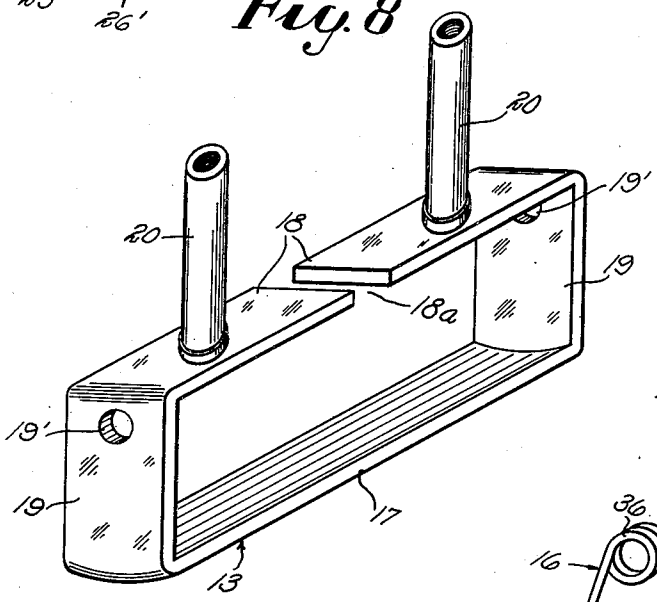
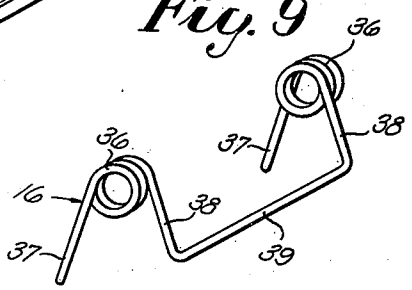


Fig. 9



Inventor

HORACE H. RAYMOND

By T. Clay Lindsey

Attorney

Patented Jan. 23, 1940 2,188,139

UNITED STATES PATENT OFFICE

2,188,139

DOOR LATCH

Horace H. Raymond, Berlin, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut

Application January 22, 1938, Serial No. 186,342

4 Claims. (Cl. 292—124)

This invention relates to a latch and, more particularly, to a latch for a door or other closure.

It is an aim of my invention to provide a latch of the type described having various features of novelty and advantage and which is particularly characterized by its simplicity in construction, ease of assembly, economy of manufacture, and efficiency of operation.

It is a further object of the present invention to provide a spring latch having a minimum number of parts and which may be easily installed in operating position on a door or other movable closure.

A further object of my invention is to provide a door latch having an operating handle so constructed that the latch is disengaged from operating position when the handle is gripped or squeezed to open the door.

It is a still further object to provide an improved operating handle forming part of a latch mechanism having an economical construction and pleasing appearance.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein like parts are indicated by like numerals:

Figure 1 is a sectional plan view through a door and door casing showing my latch in secured position;

Fig. 2 is a front elevation of the latch taken along the line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary side view of the latch;

Fig. 4 is a fragmentary sectional view taken substantially along the lines 4—4 of Fig. 3 and showing the operating handle in an open position;

Fig. 4a is a view similar to Fig. 4 and showing the handle in a closed position;

Fig. 5 is a rear view of the latch in secured position and taken substantially along the lines 5—5 of Fig. 1;

Fig. 6 is a perspective view showing one of the hand grip members forming part of the handle;

Fig. 7 is a perspective view of the latch bar;

Fig. 8 is a perspective view of the frame for supporting the latch mechanism; and

Fig. 9 is a perspective view of the spring associated with my invention.

Referring to the drawings, the latch is adapted to be mounted on the swinging edge of a door 10 which moves into and out of engagement with a door frame 11. The latch casing 12 is mounted on one side of the door and provided with pivotal handles 25 which may be squeezed to operate a latch bar 14 which projects through and out of the other side of the door and engages a keeper 15 carried on the door frame; the latch also serving as a knob.

More specifically, the latch comprises a frame 13 preferably having a curved front wall 17, a divided rear wall 18, and end walls 19 having oppositely disposed openings 19' therethrough adjacent the rear wall and midway between the side edges in which a transverse pin 24 may be supported. Projecting outwardly and fixed to the rear wall 18 are projecting posts 20 which are internally threaded to receive securing screws 21 of positioning plate 22.

There is pivotally mounted on pin 24 a latch bar 14 provided with opening 35 intermediate of its ends to receive pivot pin 24, and having an elongated, rearwardly extending latching finger 14a and a forwardly extending actuator finger 14b. The latching finger is provided near the outer end with a latching lip 14' having a cam surface 40. The lower edge of the actuator finger 14b has a corresponding curvature to front plate 17 of frame 13, and the edge on the side of locking lip 14' is cut away to form a spring retaining lip 33; the latching bar being so positioned on pin 24 that latching finger 14a extends through the opening 18a of the divided rear wall 18.

The sides of the casing 12 are adapted to be closed by opposed, hollowed out, symmetrically formed handle members or grips 25 also pivotally mounted on pin 24. In the embodiment shown, the handles are of a composition, such as Bakelite, and are formed with a front wall 26 which has the general curvature of the front plate 17 of frame 13; a portion of the front wall being cut away or stepped to form a stop shoulder 26' midway between the side edges thereof. There is further provided a curved side wall 28; the upper edge 27 thereof being parallel to the rear wall 18 of the frame and the side plate curving downwardly and outwardly therefrom to the point of intersection with the bottom wall 26. The handle is completed by spaced end walls 29; one of said end walls being provided with a boss 30 through which there is an aligned opening 30a, and the opposite end wall with a recess 30' hav-

ing a corresponding curvature to that of the boss 30. Intermediate of the end walls and spaced slightly to one side of the center is a second boss 31 having an opening 31a therethrough in alignment with the opening 30a in boss 30. With the handle so constructed, the boss 30 of one will nest into the recess 30' of the other, and the boss 31 of each will lie intermediate of one end wall and the boss 31 of the other being spaced apart beneath the division of the rear wall 18. It will be seen that when mounted on pin 24 the openings in the bosses are so spaced from the side walls 27 that upper edge 27a will abut the rear plate 18 to limit outward movement of the plate, and stop 26' will abut the edge of front plate 17 to limit the inner movement thereof. The spacing between bosses 31 further serves to maintain latch bar 14 centrally located in opening 18a of frame 13.

The assembled latch thus presents a structure of pleasing appearance, for when the latch is secured to the door the base 18 abuts the face of the door and the side members or handles 25 present surfaces curving outwardly from the door to the point of intersection with the front walls of the casing and handles which are similarly curved to present a continuous sweep from one side wall to the other. This is true whether the handle is in latching position as shown in Fig. 4 or in unlatching position as shown in Fig. 4a.

It is likewise preferable to make the handles of a material which will contrast with the frame and thus further enhance the appearance of the latch, making it suitable for use on doors where pleasing appearance is of importance.

Also pivotally mounted on pin 24 and adapted to position handles 25 and latch bar 14 relative to one another is a spring 16 having an oppositely disposed coiled portion 36 and angularly disposed spring arms 37 and 38; the arms 38 being interconnected by a cross member 39. When mounted on the pin 24, the spring arms 37 will abut the inner face of the side wall of one handle member 25 and the cross arm 39 will be receivable over the spring retaining lips 33 of the latch bar 14, and, due to the tendency of the spring to expand, the depending part 14a of the latch bar will be maintained in abutting engagement with the inner face of the other handle member 25 to normally hold latching lip 14' in latching position and the handles pivoted outwardly (see Fig. 4). With this construction, it will be seen that by squeezing the handles inwardly the spring will be compressed and the right handle will move the actuator finger 14b of the latch bar in a clockwise direction (see Fig. 4a) to move the latching lip 14' in a clockwise direction and release it from behind a keeper 15 mounted on the door casing; the extent of the inward movement being limited by the shoulders 26' which will engage the edges of the front wall 17 of the frame. Although both handles are shown as being pivoted, only the handle which engages the actuator finger of the latch bar need be movable and the other could be fixed.

In attaching the latch to a door, the door is drilled to provide openings for the positioning posts 20 and the latch bar 14. The latch bar is then passed through the opening and the post positioned in the openings 20' provided therefor. There is placed over the end of the latch bar a positioning plate 22 provided with a slot 22' through which the latch bar projects. Screws 21 are then passed through suitable openings in the positioning plate 22 and screwed into the positioning posts 20 to secure the latch in place. It is apparent that the door may vary considerably in thickness, but with this arrangement the length of the screws 21 will take care of such variations. When secured in place, it will be seen that the latch serves not only as a latching means but as a knob. To open the door it is only necessary to squeeze in on the handles 25 whereupon the parts will assume the position shown in Fig. 4a and latching lip 14' will be moved in a clockwise direction to clear keeper plate 15, whereupon the door may be opened. Upon release of handles 25, the latching bar will return to latching position. However, as the door swings to closed position, the cammed surface 40 will ride over keeper plate 15, camming the latch bar in a clockwise direction to cause it to automatically re-engage behind the keeper plate 15.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A latch comprising an open sided casing, means carried by said casing for removably securing same to a door, a pin transversely arranged inside the casing and supported by the end walls thereof, a pair of members providing the side walls of the casing, one of said members being pivotally mounted on the pin and movable relative to the other, a latch bar pivotally mounted on the pin and having a part extending out of the casing and a part within the casing, and a spring coiled about the pin and having one end engaging the latch bar within the casing to normally hold it in engagement with the movable wall member, and the other end engaging the other wall member whereby movement of said movable wall member will actuate said latch bar.

2. A latch comprising a substantially rectangular open sided frame having a divided base wall, means carried by the base for removably securing the frame to a door, a pin transversely arranged inside the frame and supported by the end walls thereof, a pair of handle members pivotally mounted on the pin and movable relative to one another, said members closing the sides of the frame, a latch bar pivotally mounted on the pin and having a latching finger extending out of the frame and an actuator finger within the frame, said actuator finger normally engaging one of the handle members, and a spring coiled about the pin and having one end engaging the actuator finger of the latch bar and the other end engaging the opposite handle member whereby movement of said handle member engaged by said actuator finger towards the other will actuate said latch bar.

3. A latch comprising a frame, means for removably securing the frame to a door, a pin transversely supported in the frame, a pair of handle members pivotally mounted on the pin and movable towards and away from one another,

a latch bar pivotally mounted on the pin and having a part extending outside the frame and a part within the frame, and spring means coiled about the pin and having one end abutting one of said handle members and the other end engaging the inner part of the latch bar within the frame to normally maintain it in engagement with the opposite handle member whereby upon movement of said handle members towards each other said latch bar will be actuated.

4. In a door latch, a substantially rectangular shaped frame having a divided base wall, means carried by the base wall for removable fastening the frame to a door, a pivot pin mounted in the frame and supported by the end walls thereof, a pair of duplicate hand gripping members respectively provided with spaced end walls interconnected by curved front and side walls, said side walls having laterally projecting bosses extending into the frame and journalled on the pin to support said members in reversed relation for swinging movement towards and from each other, a latch bar pivotally mounted on said pin between corresponding bosses of said hand gripping members, said bar having a portion extending into the frame and engageable with one of said gripping members, a spring supported on said pin and engaging said bar and the gripping member opposite thereto whereby said bar is urged into latching position and said gripping members are urged away from each other and limiting means on said gripping members controlling the movement thereof in the frame.

HORACE H. RAYMOND.