Feb. 4, 1941. R. T. ANDERSON 2,230,476

DOOR LATCH

Filed July 8, 1939

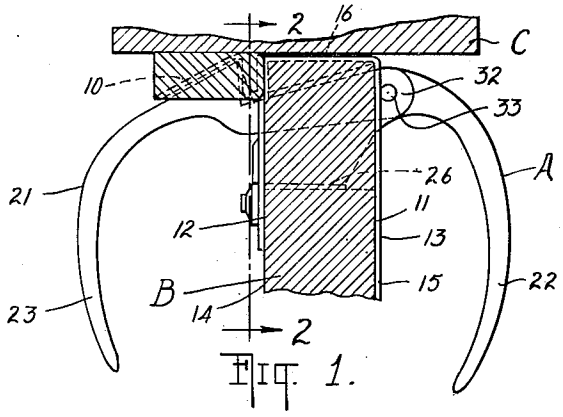


FIG. 1.

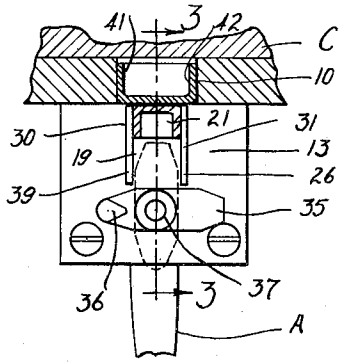


FIG. 2.

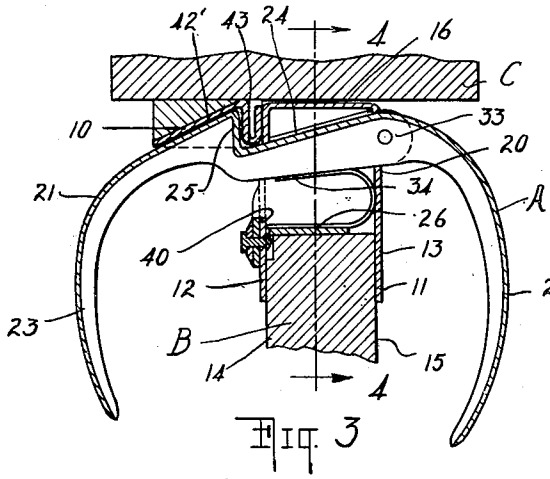


FIG. 3.

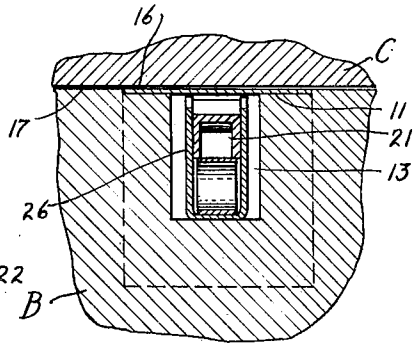


FIG. 4.

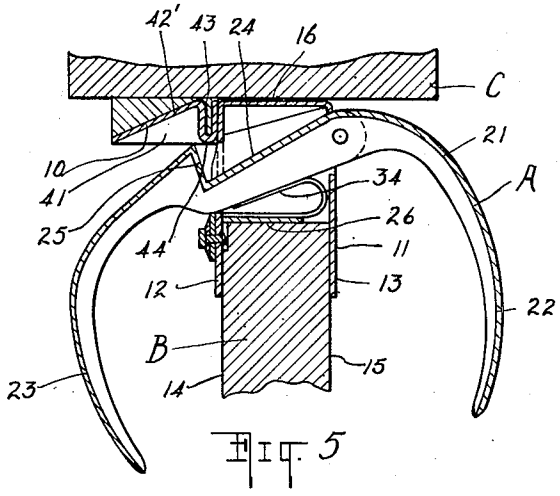


FIG. 5.

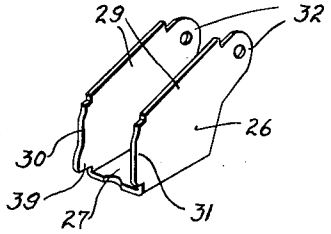


FIG. 6.

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DOOR LATCH

Richard T. Anderson, Stacy, Minn.

Application July 8, 1939, Serial No. 283,395

22 Claims. (Cl. 292—128)

My invention relates to a door latch of a simple type designed particularly for use upon screen and storm doors and the like.

The present invention is an improvement upon that type of door latch in which a single curved handle extending on opposite sides of the door is pivotally mounted to the door and so designed as to permit the door to be unlocked in a simple and effective manner. My door handle is so arranged that when opening the door by pulling upon the handle from the outside, the handle will automatically unlock the door and permit the same to be opened. Similarly, when the door is to be opened from the inside, by pushing upon the handle, the pushing action against the handle causes the door to become unlocked so that it may open without difficulty.

I am aware that locks have been previously constructed with handles which are pivotally secured to the door and extend on both sides of the door, but the present invention involves an important construction by means of which the formation and manufacture of the locks is greatly simplified.

It is a feature of my invention to provide a door lock the working parts of which are mounted upon a U-shaped supporting bracket designed to fit over the edge and adjacent portions of the sides of the door. This U-shaped bracket accommodates a door of a predetermined thickness and supports the pivoted handle and the spring which urges the handle into latching position. In mounting the handle upon the door, a notch is cut in the edge of the door through which the pivoted handle can extend. The U-shaped bracket is considerably larger than the notch which need be formed, and therefore acts to conceal the notch. Thus the handle is quickly applied to the door with extreme ease.

It is a feature of my invention to provide a second U-shaped bracket which forms the actual pivot support for the handle, contains the actuating spring, and forms a housing for the portion of the handle concealed within the door. This second U-shaped bracket is designed to fit between the sides of the first bracket and is provided with ears which extend through apertures in the first U-shaped bracket. This second U-shaped bracket can therefore be assembled within the first U-shaped bracket by merely springing the sides of the first bracket apart and slipping the second bracket in place. The handle is then pivoted to the ears extending through one side of the first U-shaped bracket and a spring is slipped between the base of the second bracket and the handle, virtually completing the assembly.

It is a feature of my invention to provide a latch equipped with a lock pivoted to the handle supporting bracket in such a way that in one rotative position the handle lever is locked from pivotal movement. This lock is so arranged that one of the ears of the second U-shaped bracket forming the lock housing acts to limit pivotal movement in each direction.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawing forming a part of my specification:

Figure 1 is a sectional view through a door and frame above the position of the door latch showing the construction of the same.

Figure 2 is a sectional view on the line 2—2 of Figure 1, illustrating one side of the latch and the locking member therefor.

Figure 3 is a cross-sectional view through the handle and latch, the position of the section being indicated by the line 3—3 of Figure 2.

Figure 4 is a cross-sectional view centrally through the latch, illustrating the construction thereof.

Figure 5 is a view similar to Figure 3, showing the handle in open position.

Figure 6 is a perspective view of a portion of the housing for the handle.

The latch A is designed for mounting upon a door B to engage a keeper 10 recessed in the door frame C. The latch A includes a substantially U-shaped bracket 11 including side plates 12 and 13 which overlie the inner surface 14 and outer surface 15 of the door B respectively; and a connecting base portion 16 which overlies the edge of the door and is recessed slightly into the edge to extend flush with the remainder of the door edge 17. Apertures 19 and 20 respectively are formed in the side plates 12 and 13, through which the curved handle 21 extends.

The curved handle 21 is substantially the shape of a horseshoe, providing an outer handle lever 22 and an inner handle lever 23. A notch 24 in the handle lever 21 provides a shoulder 25 engageable in the keeper 10 to hold the door latch in latched position.

The latch housing also includes a channel member 26 or a second U-shaped member best illustrated in Figure 6 of the drawing. This channel 26 includes a base 27 and opposed sides 29. Ears 30 and 31 on one end of the channel extend through the aperture 19, while spaced ears 32

on the opposite end of the channel 26 extend through the aperture 20. A pivot 33 extends through ears 32 and through the handle 21 to pivotally secure the handle to the latch housing. A spring 34 is interposed between the base 27 of the channel 26 and the handle 21 to urge this handle into locking position as illustrated in Figure 3 of the drawing.

A lock 35 in the form of a flat strip having a raised operating knob 36 thereupon is pivoted at 37 to the side 12 of the U-shaped channel bracket 11. The ear 30 is provided with a projecting portion 39 which extends through the plate 12 and projects slightly beyond this plate, while the other ear 31 remains flush with the outer surface of the plate. The pivot 37 of the lock 35 is so arranged that in one position illustrated in full lines in Figure 2 of the drawing, the lock 35 engages the projecting portion 39 to limit pivotal movement in a clockwise direction. This projecting portion 39 also engages the lock 35 in locking position, illustrated in dotted outline in Figure 2 to limit pivotal movement in a counter-clockwise direction.

From an observation of Figure 3 of the drawing, it will be noted that the base 27 of the channel 26 is spaced slightly below the edge of the aperture 19, thus providing a shoulder 40 engaging one end of the spring 34 to hold this spring from sliding out of place. It will also be noted that if the spring 34 should break for any reason whatsoever, the spring may be replaced by merely removing the broken parts of the old spring and inserting a new spring through the aperture 19.

The simplicity of the assembly of the present device is believed clear from the foregoing description. The U-shaped or channel brackets 11 and 26 and the handle 21 are separately formed. The lock 35 may then be riveted in place upon the side 12 of the bracket 11. The handle 21 may be inserted through the apertures 19 and 20 in the bracket 11, and the channel member 26 may be inserted in place by springing the opposed sides 12 and 13 of the channel 11 slightly apart. While thus spread, the ears 32 of the channel 26 may be extended through the aperture 20 and the ears 30 and 31 are inserted through the aperture 19. This permits the sides 12 and 13 of the bracket 11 to spring back into parallel relationship. The pivot 33 may be then extended through the ears 32 and the handle 21 and the latch is completely assembled.

The keeper 10 is preferably formed as illustrated with a pair of sides 41 and 42 and an intermediate inclined base 42' which terminates in a shoulder 43 formed by bending the base outwardly and then rearwardly upon itself. This construction provides a rounded outer edge 44 over which the handle 21 rides until the shoulder 25 at one end of the notch 24 slips into the cooperating notch formed between the base 42' and the shoulder 43 of the keeper 10.

In accordance with the patent statutes, I have described the principles of construction and operation of my door latch; and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that this is only illustrative of a means of carrying out my invention, and that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a second channel, ears on opposite ends of said second channel extending through said apertures in said channel bracket, a handle extending through said openings to project on each side of said door, and means pivotally connecting said handle to said second channel.

2. A door latch comprising a substantially U-shaped channel including opposed sides and a base, said opposed sides having apertures therethrough, a handle extending through said apertures, a second channel having a base and opposed sides, said base secured substantially parallel to said base of said first channel, and the sides of said second channel extending toward said base of said first channel, said handle embraced by said second channel, and means for pivotally securing said handle to said second channel.

3. A door latch comprising a channel designed to enclose a door edge and the adjacent portions of the sides of the door, said channel having apertures in the opposed sides thereof, a second channel interposed between the sides of said first channel having a base extending substantially parallel to the base of said first channel, a handle extending through said apertures and embraced by said second channel, means pivotally securing said handle to said second channel, and spring means interposed between said base of said second channel and said handle to urge said handle in one pivotal direction.

4. A door latch comprising a channel designed to enclose a portion of the marginal edge of a door, a second channel extending between the sides of said first named channel, said first channel having apertures through the opposed sides thereof, ears on said second channel at opposite ends thereof extending through said apertures, a handle extending through said apertures, and means pivotally connecting said handle extending through said apertures.

5. A door latch comprising a channel designed to enclose a portion of the marginal edge of a door, said channel including opposed sides and a base, a second channel positioned between the sides of said first channel, apertures extending through said opposed sides of said first channel, ears on said second channel extending through said apertures, a handle extending through said apertures, means pivotally securing said handle to said ears on one end of said second channel, and shoulder means on said handle.

6. A door latch including a channel designed to enclose a portion of the marginal edge of the door, said channel including opposed sides and a base, said opposed sides having apertures therethrough, a second channel interposed between said opposed sides of said first channel, ears on the ends of said second channel extending through said apertures in said first channel, a handle extending through said apertures, means pivotally connecting said handle to said ears on one end of said second channel, resilient means between the base of the second channel and said handle urging said handle in one rotative direction, and lock shoulder means on said handle.

7. A door latch comprising a channel designed to enclose a portion of the marginal edge of the door, apertures in the sides of said channel, a second channel intermediate the sides of said first channel, ears on the ends of said second channel extending through said apertures in said first channel, a handle extending through said

apertures and pivotally secured to said channels, and spring means interposed between the base of said second channel and said handle to urge said handle in one rotative direction.

8. A door latch comprising a channel designed to engage a portion of the edge of a door, said channel having apertures in the opposed sides thereof, a second channel, means on said second channel extending into said apertures to hold said second channel in place between the sides of said first channel, a handle pivotally secured to said second channel extending through said apertures, and spring means interposed between the base of said second channel and said handle, the base of said second channel being spaced from said apertures.

9. A door latch comprising a channel designed to engage a portion of the marginal edge of a door, said channel having apertures through the opposed sides thereof, a second channel between the opposed sides of said first channel, ears on each end of said channel extending through said apertures, a handle extending through said apertures, means pivotally connecting said handle to said ears on one end of said second channel, and a lock pivotally secured to the side wall of said first channel adjacent the other end of said second channel, one of said ears on said other end projecting through the first channel to provide a stop for limiting pivotal movement of said lock.

10. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a pair of spaced parallel members mounted within said channel bracket and having portions adjacent one of said openings, a handle extending through said openings to project on each side of said door, and means extending through said portions and said handle pivotally supporting said handle.

11. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a support mounted within said channel bracket and having portions projecting outwardly from one side of said bracket, a handle extending through said openings, means pivotally connecting said handle to said projecting portions, thereby supporting said handle for pivotal movement in the opening in the opposed side of said bracket.

12. A door latch comprising a channel designed to fit over the edge and the adjacent surfaces of the sides of the door, said channel having openings through the opposed sides thereof, one of said openings being spaced farther from the base of the channel overlying the door edge than the other, a curved handle extending through said openings for engagement on either side of the door, means pivotally connecting said handle to said channel adjacent the other of said openings in said channel, said one opening limiting the pivotal movement of said handle.

13. A door latch comprising a channel designed to fit over the edge and the adjacent surfaces of the sides of the door, said channel having openings through the opposed sides thereof, a curved handle extending through said openings, means pivotally connecting said handle to said channel, said openings limiting the pivotal movement of said handle with respect to said channel.

14. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket including a base and a pair of substantially parallel sides arranged on substantially vertical planes, a second channel between said parallel sides of the first named channel bracket, said second channel including a base extending in a substantially vertical plane and a pair of substantially parallel sides extending on substantially horizontal planes, said substantially parallel sides of said first named channel bracket having openings therethrough, a handle extending through said openings pivotally supported between the parallel sides of said second bracket, and spring means interposed between the base of said second channel and said handle to urge said handle in one rotative direction.

15. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket including a base and a pair of substantially parallel sides, a second channel between said parallel sides, said second channel comprising a base and a pair of substantially parallel sides, said parallel sides of said second channel extending on planes substantially normal to said parallel sides and said base of said first named channel, said parallel sides of said first channel having openings therethrough, a handle extending through said openings and embraced by said second channel, and means pivotally supporting said handle between the parallel sides of said second channel.

16. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said channel having apertures in the opposed sides thereof, a handle extending through said apertures, means pivotally securing said handle to said channel, a second channel extending between the sides of said first channel having a base substantially parallel to the portion of said handle between said opposed channel sides, and resilient spring means interposed between the base of said second channel and said handle.

17. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said channel having apertures in the opposed sides thereof, a handle extending through said apertures, a second channel between the sides of said first channel, a base on said second channel substantially parallel to the portion of said handle between said opposed sides of said first channel, means pivotally mounting said handle embraced by said second channel, and spring means between the base of said second channel and said handle.

18. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a handle extending through said openings, a means pivotally supporting said handle adjacent one of the sides of the channel, said means being supported within the channel and including portions receiving support from said channel walls, the pivotal axis of the handle extending substantially parallel to the sides of said channel bracket.

19. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a handle extending through said openings, means pivotally supporting said handle, said means projecting from one of the sides of said channel spaced from the base of said channel, the axis of said pivot extending substantially parallel to the opposed sides of said channel.

20. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of

a door, said bracket having openings through the opposed sides thereof, supporting means extending from one of the opposed sides substantially normal to said one side and on a plane at substantially right angles to the base of said channel, a handle extending through said openings and pivotally mounted on said supporting means, the pivotal axis of said handle extending substantially parallel to said opposed sides of said channel bracket, the opening in the other side of said channel bracket having edges which are engaged by said handle to form stops for the latched and unlatched positions of said handle.

21. A door latch comprising a channel bracket overlying the edge and adjacent side surfaces of a door, said bracket having openings through the opposed sides thereof, a means pivotally supporting a handle means, said means being supported within the channel, and a handle means extending through said openings pivoted to said supporting means.

22. A door latch comprising a channel designed to fit over the edge and adjacent side surfaces of a door, opposed openings in the sides of said channel, a substantially U-shaped handle unit extending through said openings, the ends of said handle unit designed to overlie opposite sides of said door, one end of said handle unit being of a size to fit through said openings, means pivotally connecting said handle to said channel, and latch means forming a part of said handle unit including a shoulder extending substantially parallel to and spaced substantially outwardly from the sides of said channel to admit a keeper between said shoulder and said channel.

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