Feb. 14, 1950 H. A. NELSON 2,497,624

FLUSH HANDLE DOOR LATCH

Filed May 20, 1946

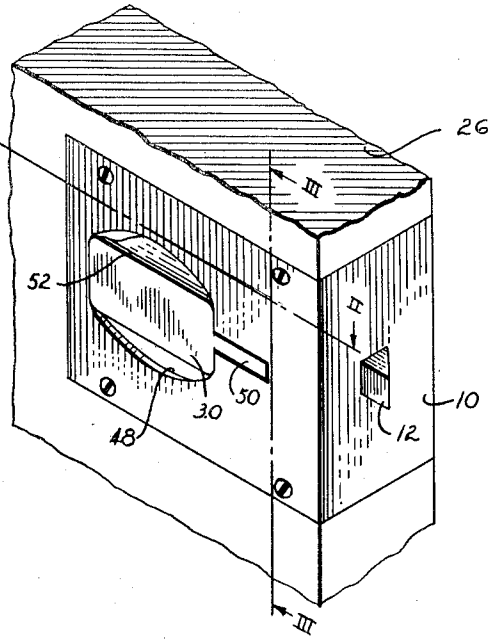


Fig. 1.

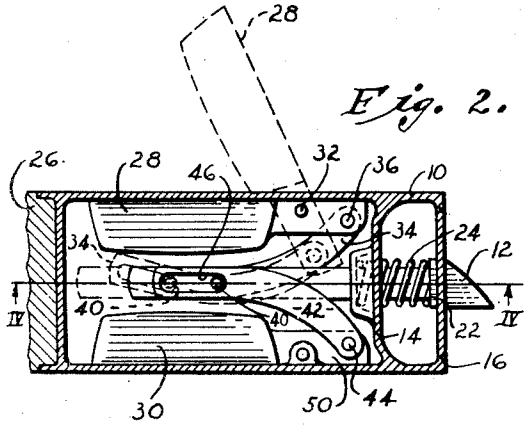


Fig. 2.

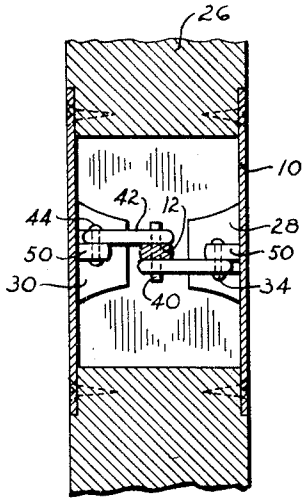


Fig. 3.

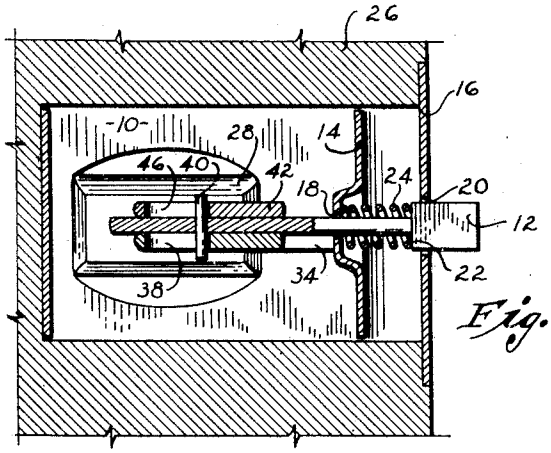


Fig. 4.

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Patented Feb. 14, 1950 2,497,624

UNITED STATES PATENT OFFICE

2,497,624

FLUSH HANDLE DOOR LATCH

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Application May 20, 1946, Serial No. 670,879

1 Claim. (Cl. 292—166)

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This invention relates to building hardware in the nature of latches or locks usable upon doors, windows or other closures where a releasable latch is desirable.

The important object of this invention is to provide a latch for doors or the like, the parts whereof are completely confined within a case forming a part of the assembly when the latch is in the normal position holding the door closed.

Further objects of this invention are to provide a flush handle door latch, the two handles whereof serve to close respective openings in a case forming a part of the latch; to provide a latch wherein one of a pair of handles may be manually manipulated to actuate the bolt without affecting the position of the remaining handle; and to provide a latch assembly for doors or other swinging closures that may be installed without presenting laterally projecting members that might catch or cause difficulty where a smooth surface is necessary or desirable.

Further objects of the invention include the provision of a door latch that is particularly useful with such closure as automobile and airplane doors; the provision of rugged and relatively simple structure for embodying the broad concepts of this invention and the provision of a unitary door latch that may be installed as a single part in place of latch assemblies now commonly employed. Other aims of the invention will appear during the course of the following specification referring to the accompanying drawing wherein:

Figure 1 is a perspective view of the flush handle door latch made in accordance with the present invention and showing the same in the operative position on a closure.

Fig. 2 is a sectional view taken on line II—II of Fig. 1 looking in the direction of the arrows.

Fig. 3 is a sectional view taken on line III—III of Fig. 1, and

Fig. 4 is a sectional view taken on line IV—IV of Fig. 2.

The form of latch chosen for illustration comprises a case 10 forming a housing for the operating structure and a major portion of a bolt 12 that is reciprocably mounted in the case 10 through the medium of a partition 14 and one end wall 16 Openings 18 and 20 in partition and end wall 14 and 16 respectively receive bolt 12 and a shoulder 22 on bolt 12 bears against one end of spring 24, the other end whereof rests against partition 14 to the end that yieldable means is provided to maintain bolt 12 in the normal projected condition illustrated in Figs. 1, 2

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and 4. The projected portion of bolt 12 is formed as shown in Figs. 1 and 2 to allow closure 26 to be completely closed without manipulating the parts of the lock hereinafter to be described. The cooperating apertured latch plate usually installed on the frame defining the opening which is covered by closure 26 when the same is shut is not here illustrated.

Bolt 12 is moved inwardly upon manipulation of either one of a pair of handles 28 and 30 respectively. Each handle is swingably supported by case 10 through the medium of a pivot pin, and in the case of handle 28, pivot pin 32 lies intermediate the end of the handle as illustrated in Fig. 2. A link 34 is secured to one end of handle 28 as at 36. While this link 34 is pivotally attached to handle 28 at its one end, the opposite end thereof is slotted as at 38 to receive cross pin 40 mounted in bolt 12. Handle 30 is joined to bolt 12 by a link 42 similar in nature to link 34. One end of link 42 is pivotally attached to handle 30 as at 44. The other end of link 42 is provided with the slot 46 through which pin 40 projects as seen in Fig. 4.

Such structure as just set forth allows independent movement of either handle 28 or 30 as the case may be without disturbing the position of the other handle. When bolt 12 is in the normal position, pin 40 is at one end of slots 38 and 46 and when handle 28, for example, is moved to the dotted line position shown in Fig. 2, link 34 will be shifted to carry bolt 12 inwardly to the dotted line position thereof in said figure. During such action, pin 40 will ride in slot 46 of link 42 and that said link together with its associated handle 30 will not change its position.

Case 10 has an opening in each of its opposite side walls to receive handles 28 and 30 respectively. Opening 48 in one side wall of case 10 receives handle 30 as illustrated in Fig. 1. When the handles are in the normal position, they lie within the confines of case 10 and substantially close their respective associated openings. Thus a completely flush arrangement along the outer faces of case 10 is presented.

Each handle is substantially identical and has a stem portion 50 extending from a relatively wide gripable part 52 that is undercut along its opposite longitudinal edges to afford an easy grip. When the handle 28 is moved back to the full line position from the dotted line position shown in Fig. 2, spring 24 will shift bolt 12 outwardly to the operative condition. Link 34 is arched as is link 42 and a portion of each of these links parallels a portion of the length of bolt 12

and bolt 12 lies between these links all to the end that a positively acting, compact structure, confined between handles 28 and 30, is presented in the manner shown in Fig. 2.

It is realized that flush handle door latches of characters different from that illustrated and described might be made without departing from the spirit of the invention or scope of the appended claim.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

A door latch comprising a hollow case having a pair of opposed openings therein; an elongated bolt reciprocably mounted in said case and having one end thereof normally projecting outwardly beyond the case; a spring in the case and coiled about the bolt adjacent said one end thereof for holding the bolt biased toward one end of its path of travel in said normal position; a manually manipulable, bolt-actuating element within each of said openings respectively, each element including a handle, and a stem in the case, said stem being pivotally mounted intermediate the ends thereof within the case for swinging movement of the handle

thereof to and from a position substantially entirely within the case flush with the proximal outermost face of the case; a link pivotally secured at one end thereof to the free end of each stem respectively and disposed entirely within said case, each link having an elongated slot adjacent the opposite end thereof, said bolt extending between the links; and a pin on the bolt adjacent the opposite end thereof and extending through said slots, the pivotal mountings of said stems to the case and to the corresponding links being in transverse planes through the bolt intermediate said ends thereof.

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The following references are of record in the file of this patent:

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