March 6, 1928. 1,661,548

T. F. STUART ET AL

DOOR LATCH

Filed March 25, 1926

Fig. 1.

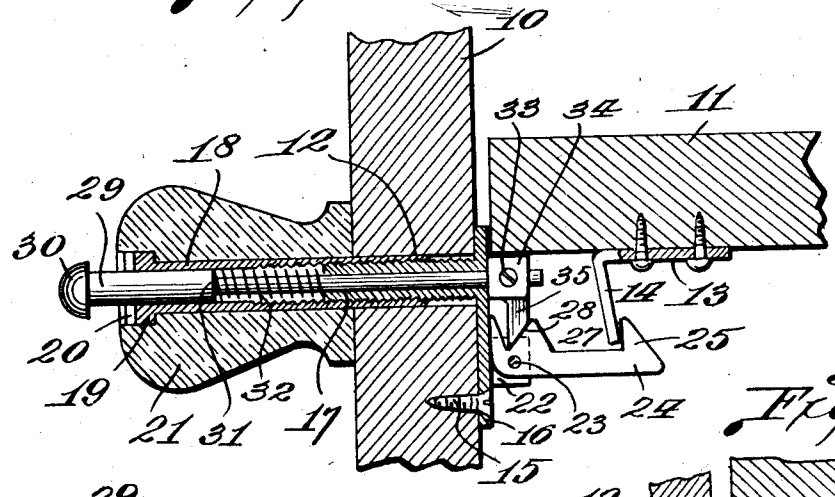


Fig. 4.

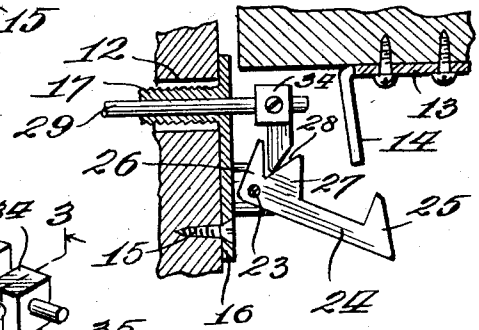


Fig. 2.

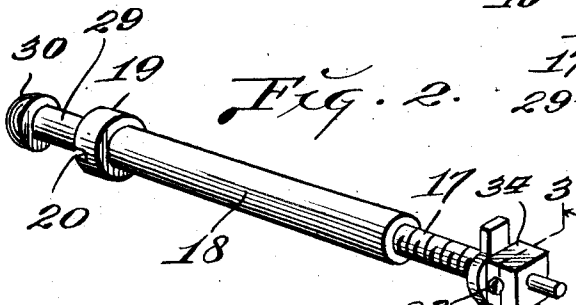


Fig. 3.

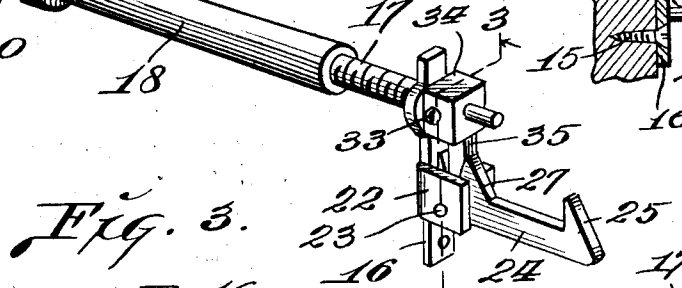


Fig. 5.

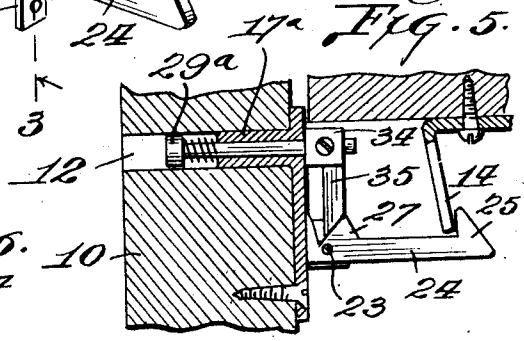
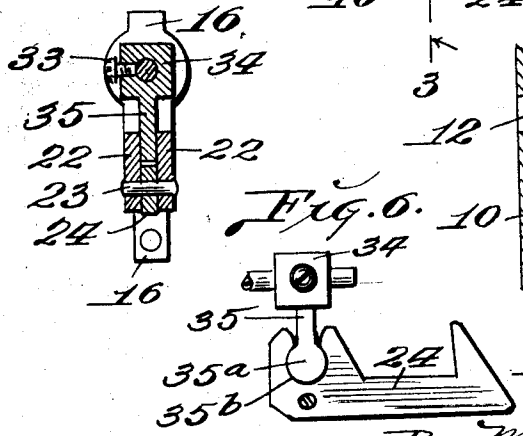


Fig. 6.



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UNITED STATES PATENT OFFICE.

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DOOR LATCH.

Application filed March 25, 1926. Serial No. 97,193.

Our invention relates to a latch for doors, panels, and the like, and has for its principal objects the provision of a relatively simple, practical, and easily installed latching device that is released by the actuation of a push rod and which automatically moves into latching position under the influence of a spring; to provide a latch that is especially applicable for use on the doors of cupboards, closets, medicine cases, bookcases, buffets, and the like; further, to provide a latch that is readily adjustable so that it may be easily and quickly installed on doors of different thicknesses; and further, to provide a latch of the character referred to that may be used in connection with plain or ornamental knobs of wood, glass, metal, porcelain or composition.

Further objects of our invention are to provide a latching device that may be applied to a door so as to engage or catch either beneath or on top of a shelf behind the door, or against the jamb or frame against which the door closes; further to provide a latch that requires the boring of only one small hole through the door to which the latch is applied; and further, to provide a mounting for the latch that is constructed and arranged so that no unsightly plates or screws appear on the outer face of the door to which the latch is applied.

With the foregoing and other objects in view, our invention consists in certain novel features of construction and arrangement of parts that will hereinafter be more fully described and claimed and illustrated in the accompanying drawing, in which—

Fig. 1 is a vertical section taken through a portion of a door and shelf behind same and showing our improved latch in position for use.

Fig. 2 is a perspective view of the latch.

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail section showing the latch in open or released position.

Fig. 5 is a sectional view showing a form of latch embodying our invention that is adapted for use on secret doors or panels.

Fig. 6 is a detail elevational view of a modified form of the latch.

Referring by numerals to the accompanying drawings which illustrate a practical embodiment of our invention, 10 designates a door and 11 a shelf or partition to the rear of said door and for the accommodation of our improved latch a small circular aperture 12 is formed through the door in a horizontal plane just beneath the plane occupied by the under face of the shelf or partition 11, and secured to the under face of said shelf or partition a short distance rearwardly from its front edge and in line with the aperture 12 is a catch member 13 having a depending finger 14.

Secured to the inner face of the door 10, preferably by means of a single screw 15, is a small vertically disposed plate 16 and formed integral with or fixed thereto is a tubular member 17 that is externally threaded and which projects through the aperture 12. The internally threaded portion of a tubular stem 18 receives the threaded tubular member 17 and projects outwardly from door 10 and the outer end of said tubular member 18 is provided with an annular flange or collar 19 in the outer end of which is formed a diametrically arranged slot 20 that is adapted to receive the point of a screw-driver or like tool. This tubular member 18 is adapted to receive a knob 21 which may be of any desired shape and size, and formed of any suitable material such as glass, metal, wood, porcelain, or composition. Inasmuch as tubular member 18 is adjustable upon the threaded tubular member 17, knobs of various lengths may be mounted on said member 18.

Projecting inwardly from the lower portion of plate 16 is a pair of spaced ears 22 and passing therethrough is a pivot pin 23 that passes through the rear portion of a horizontally disposed latching member 24, and which latter is provided on its forward end with an upstanding hook or lug 25, the outer face of which is beveled and which hook is adapted to engage the lower end of finger 14 that depends from catch member 13. Projecting upwardly from the inner end of the pivoted member 24 is a finger 26 and projecting upwardly from said member 24 immediately in front of this finger is a lug 27 having an inclined or beveled rear face 28.

Extending through tubular members 17

and 18 and arranged to slide therethrough is a push rod 29 provided on its outer end with a head or button 30 and formed on said rod intermediate its ends is a shoulder 31. Arranged on said rod and positioned between shoulder 31 and the end of tubular member 17 is an expansive coil spring 32 that normally holds the push rod 29 at its outer limit of movement. Detachably mounted on the end of rod 29 that projects beyond the plate 16 and held on said rod by means of a set screw 33 is a block 34 from which depends a finger 35 and formed on the front side of the lower portion thereof is an inclined face 36 that is adapted to engage the inclined face 28 on lug 27.

When our improved door latch is in latching position, the movable parts thereof occupy the positions as illustrated in Fig. 1, said parts being so held by the spring 32 which exerts pressure against shoulder 31 of rod 29 to move the same to its outer limit of movement with the result that the lower end of finger 35 bears against finger 26 so as to hold member 24 in an approximately horizontal position with hook 25 engaged behind member 14 of the latch plate 13.

To release the latch in order that the door may be opened, it is only necessary to engage the knob 21 and to engage head 30 and push the rod 29 inwardly a short distance against the resistance offered by spring 32 and as a result of such action, the beveled face 36 on the lower end of finger 35 bears against beveled face 28 and swings latch member 24 upon its pivot 23, thereby disengaging hook 25 from member 14 so that the door can be readily opened.

When the door is closed, the beveled face of hook 25 strikes against the lower end of finger 14 thereby causing the latch member 24 to swing downwardly a sufficient distance to permit the hook 25 to pass the lower end of said finger 14 and the action of spring 32 will return the various operating parts of the device to latching position with hook 25 engaged behind member 14 as illustrated in Fig. 1.

Thus it will be seen that in applying our improved latching device to a door, it is only necessary to bore a single hole in said door and to set only two or three screws, one of which fastens plate 16 to the inside of the door and the other screws being used for fastening catch plate 13 to the shelf, partition, or door frame.

In the event that it is desired to utilize the latch on a secret door or panel, a construction as illustrated in Fig. 5 is employed and in this form of device the tubular member 17^a and rod 29^a terminate inside the aperture that is formed in the door and to release the latch, it is necessary to insert a short section of wire or the like through the outer portion of the aperture in the door and press inwardly on the head of rod 29^a to overcome the resistance offered by the spring that retains the parts in latched position.

In the modified construction illustrated in Fig. 6, the lower end of finger 35 that depends from block 34 is provided with a disk-shaped member 35^a which is loosely seated in a corresponding opening 35^b in the rear end of hook member 24. Such arrangement retains the parts in assembled relation and facilitates installation or removal of the latching device. In other words, when the parts are properly assembled and hook 24 is mounted on its pivot 23 between the ears 22, the depending finger 25 cannot become detached from the hook member.

A particularly desirable feature of our latch is the arrangement of the hook 24 and hook-actuating member 35 wholly beyond the inner surface of the door 10 and thus it is not necessary to notch or recess the door for the accommodation of said parts.

A door latch of our improved construction is comparatively simple, may be easily and quickly installed, may be readily adjusted so as to be applied to doors of varying thicknesses, is adapted to receive practically all sizes and designs of ornamental knobs and when installed does not require the formation of large holes or slots in the door for the accommodation of the different parts of the device.

It will be understood that minor changes in the size, form and construction of the various parts of our improved latch may be made and substituted for those herein shown and described without departing from the spirit of our invention, the scope of which is set forth in the appended claims.

We claim as our invention:

1. The combination with a door in which is formed an aperture, of a tubular member passing through said aperture, a second tubular member screw-seated on the first-mentioned tubular member, a knob detachably mounted on the second-mentioned tubular member, a plate carried by the first-mentioned tubular member and secured to the inner face of the door, a hook pivotally mounted on said plate and provided near its pivot point with a notch, a spring-held push rod arranged for sliding movement through the tubular members, a block adjustably mounted on the inner end of said push rod and a finger carried by said block and projecting into the notch in said hook.

2. The combination with a door in which is formed an aperture, of a tubular member passing through said aperture, a second tubular member screw-seated on the first-mentioned tubular member, a knob detachably mounted on the second-mentioned tubular member, a plate carried by the first-mentioned tubular member and secured to the inner face of the door, a hook pivotally

mounted on said plate, and provided adjacent to its pivot point with a notch having an inclined face, a block adjustably mounted on the inner end of the push rod, a finger projecting from said block into the notch in said hook, said finger having a beveled face that engages the inclined face of the notch in said hook, and a fixed catch with which said hook is adapted to engage.

In testimony whereof we affix our signatures.

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HENRY A. MOORE.