Feb. 15, 1938. G. R. ADAMS 2,108,326

DOOR LATCH

Filed Nov. 11, 1936

FIG. 1.

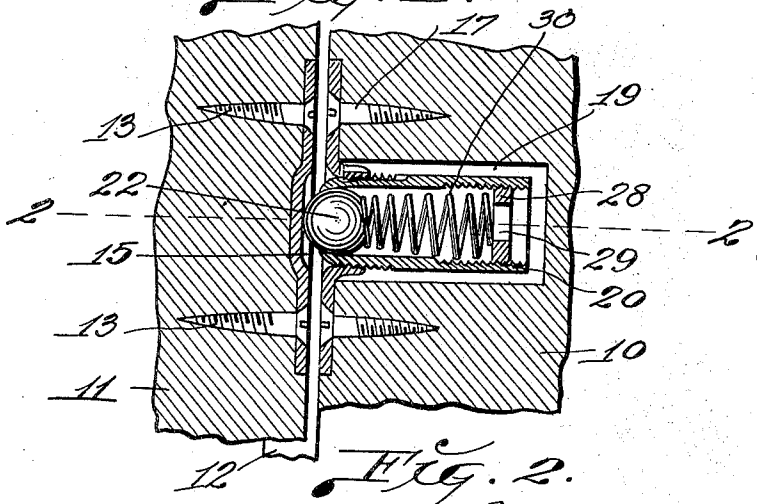


FIG. 2.

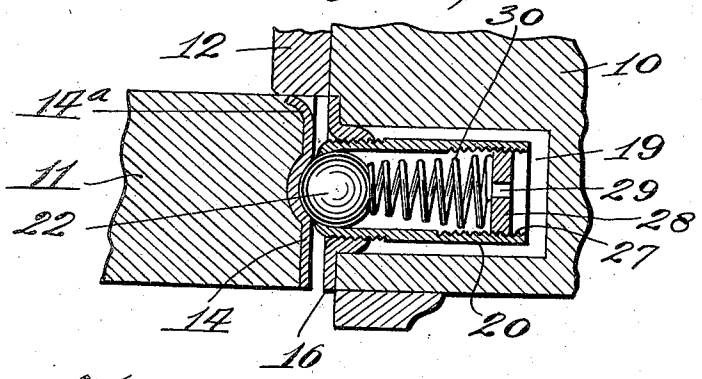


FIG. 3.

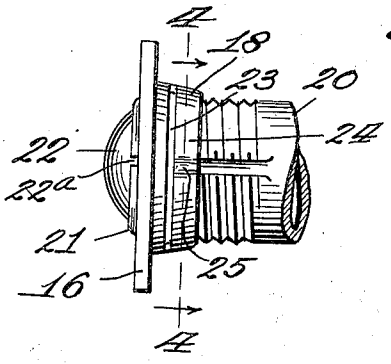


FIG. 4.

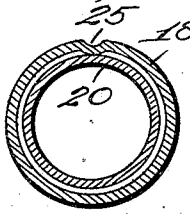
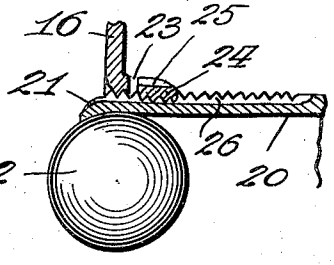


FIG. 5.



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DOOR LATCH

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3 Claims. (Cl. 292—73)

My invention relates to door latches and has for its principal object to generally improve upon and simplify the construction of the existing forms of door latches and to provide a relatively simple, practical and inexpensive latch that may be easily and quickly installed and which has certain adjustments in order that the latch may be maintained in proper operative condition, even though the door or door casing with which the latch is associated should shrink after the latch has been installed, and said latch having another adjustment that renders it applicable for use in connection with doors of different weights.

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

Fig. 1 is a vertical section taken through portions of a door and door casing and showing my improved latch associated therewith.

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged elevational view of the end portion of the latch housing.

Fig. 4 is a cross section taken on the line 4—4 of Fig. 3.

Fig. 5 is an enlarged detail view of a portion of the housing.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates a door jamb or casing, 11 the door and 12 the door stop.

Set flush in the edge of door 11 and suitably secured thereto, preferably by means of screws 13, is a striking plate 14, provided with a centrally arranged vertically disposed recess 15.

Set flush in the door jamb or casing 10 directly opposite the face plate 14 is a plate 16 that is secured to the jamb by screws 17 or like fastening devices and formed integral with the central portion of this plate 16 is a rearwardly projecting circular flange 18 that is internally threaded.

This flange 18 projects into a bore or chamber 19 that is formed in jamb 10 and seated in the threaded flange is the externally threaded portion of a short tubular housing 20 that occupies the bore or recess 19. The outer end of this tubular housing 20 is provided with an inwardly curved lip 21 which serves to retain within said housing a ball 22. A portion of this ball projects a short distance beyond the end of the tubular housing 20, and said projecting portion is adapted to engage in the depression 15 in face plate 14 to hold the door in closed position.

Formed in flange 18 and extending approximately half way around the same is narrow slot 23, thus providing on said flange a narrow strip or band of metal 24 that is approximately 180° in length. The inner face of this band is threaded for engagement with the threaded exterior of tubular housing 20, and at the center of said strip or band a narrow portion thereof is indented, as designated by 25, and said indented portion is adapted to occupy a longitudinally disposed groove 26 that is formed in the outer threaded surface of tubular housing 20.

As a result of the arrangement just described, housing 20 may be screwed for a limited distance through the internally threaded flange 18 of plate 16 and at the end of each complete rotation of the housing the indented portion 25 of the band 24 will drop into the groove 26 to hold said housing against further rotation or until sufficient rotary force is applied to the housing to overcome the pressure exerted by the narrow band 24 and cause the depressed portion 25 to ride out of the groove 26.

As a result of this adjustment of the tubular housing in plate 16, said housing may be moved inward or outward so as to correctly position the projecting portion of the ball 22 with respect to the depression in plate 14, and such adjustment being necessary to maintain the latch in proper operative condition even though the door and casing become separated due to shrinkage.

The rear portion of tubular housing 20 is internally threaded, as designated by 27, and screw seated in said threaded portion is a plate 28, having a slot 29 for the reception of a point of a screw-driver or like tool that is used in screwing the plate into or out of the housing.

Interposed between the plate 28 and the ball 22 is an expansive coil spring 30, which normally forces the ball to its limit of movement against the curved lip 21, and yieldingly resists inward movement of said ball. The plate 28 may be adjusted inwardly or outwardly to vary the tension of the spring 30 and thereby rendering the latch applicable for use with doors of different weights.

The depression 15 that extends vertically of the striking plate has greater length than the diameter of the ball 22 so that said depression will receive the ball when the door is closed, even though the door should sag slightly on its hinges.

When the door is closed one edge of the striking plate 14, and which edge is curved or inclined

slightly, as designated by 14*a*, strikes the projecting portion of ball 22 and said ball is forced inwardly against the resistance offered by spring 30. When the door reaches its fully closed position the projecting portion of the ball 22 enters the depression 15 in the striking plate, thereby holding the door closed.

To open the door it is only necessary to pull the same away from the stop 12 with sufficient force to press the ball 12 rearwardly into the housing 20.

My improved latch, while especially applicable for doors between the rooms in a residence or building, may be advantageously employed as a latch for the relatively small doors of cupboards, medicine cabinets and the like.

Thus it will be seen that I have provided a door latch that is relatively simple in construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

The different parts of the latch may be easily and quickly adjusted so as to take care of doors of different weights and so as to maintain the latch in proper operative condition, even though the door shrinks away from the jamb or casing.

In order to facilitate the screwing of the tubular housing 20 through the flange 18 of plate 16, the end of the said housing 20 that projects through said plate is notched at diametrically opposite points, as designated by 21*a*, and these notches may receive the end of a spanner wrench or like tool utilized in rotating the housing.

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

I claim as my invention:

1. In a door latch, a plate adapted to be secured to a door jamb, said plate having an opening, an internally threaded flange surrounding said opening and projecting from said plate, a housing screw seated in said flange so as to be screwed in opposite directions through the opening in said plate, a spring-pressed ball within said housing, said flange being provided with a slot that extends partially around its circumference to form a narrow band, a portion of which band is indented, and that portion of the housing that is screw seated in said flange being provided with a longitudinally disposed groove that is adapted to receive the indented portion of said band.

2. In a door latch, a plate adapted to be secured to a door jamb, said plate having an opening, an internally threaded flange surrounding said opening and projecting from said plate, a housing screw seated in said flange so as to be screwed in opposite directions through the opening in said plate, a spring-pressed ball within said housing, said flange being provided with a slot that extends partially around its circumference to form a narrow band, a portion of which band is indented, that portion of the housing that is screw seated in said flange being provided with a longitudinally disposed groove that is adapted to receive the indented portion of said band, and means for varying the tension of the spring that engages said ball.

3. In a door latch, a plate adapted to be secured to a door jam, said plate being provided with an opening, a flange formed integral with said plate around the opening therein, said flange being internally threaded, a tubular housing having an externally threaded portion that is screw-seated in said internally threaded flange, the outer end of said housing terminating in an inturned lip, a ball loosely arranged within the housing and normally bearing against said lip, a spring within said housing and bearing against the rear side of said ball, said inturned lip being notched for the reception of a tool used for screwing the housing through the internally threaded flange, said flange being provided with a circumferential slot to form a narrow band, said band provided with a transversely disposed indentation, the threaded portion of the tubular housing being provided with a longitudinally disposed groove that is adapted to receive the indented portion of said band, a plate adapted to be secured to the door that closes against said jamb and said last-mentioned plate having a depression for the reception of the projecting portion of said ball.

GEORGE R. ADAMS.