

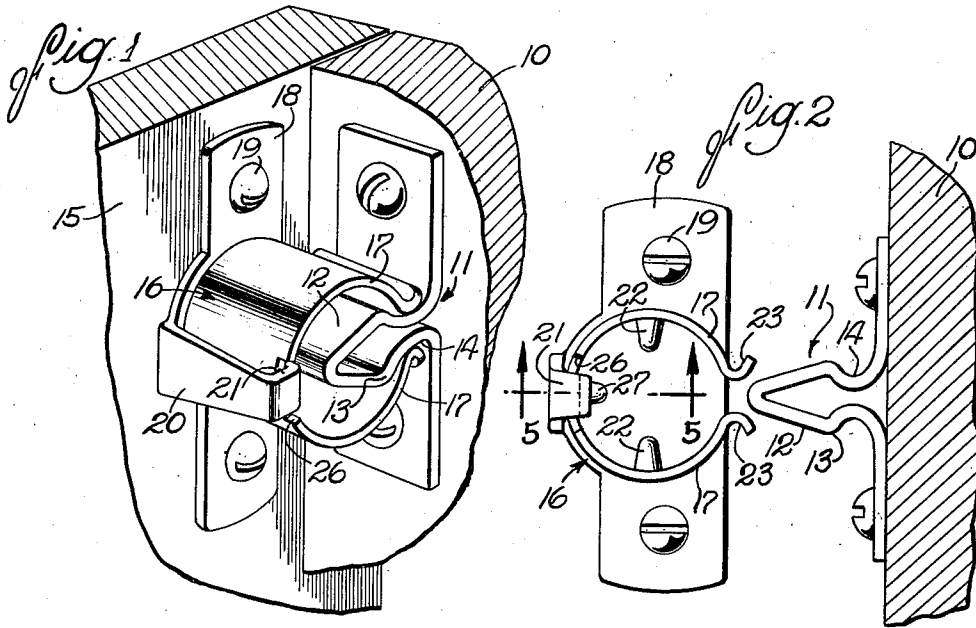
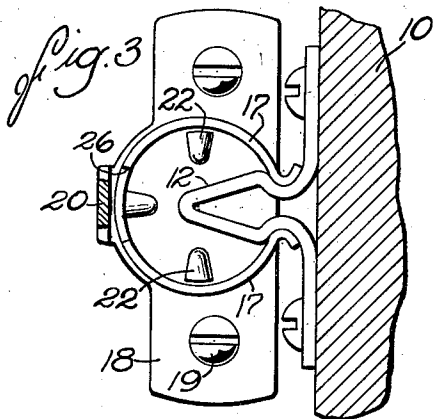
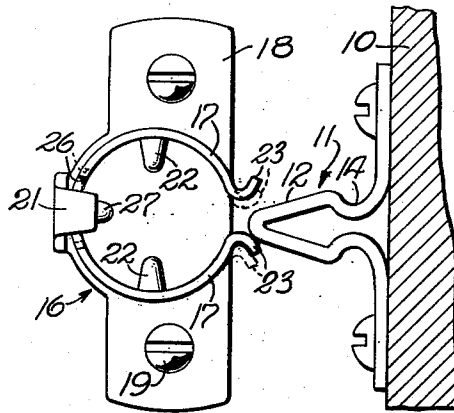
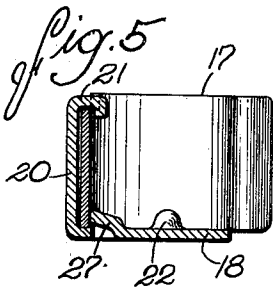
July 16, 1940.

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2,208,486

CATCH

Filed Aug. 13, 1937



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2,208,486

CATCH

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Application August 13, 1937, Serial No. 158,863

16 Claims. (Cl. 292—17)

The invention relates generally to catches and has more particular reference to resilient catches of the type having cooperating spring jaws adapted to be positioned to engage and releasably hold a cooperating finger or strike member secured to a relatively swinging member.

It is the general object of the invention to provide a new and improved catch of this type which is inexpensive and easy to install and has a novel construction rendering it more effective for holding the relatively swinging member in a latched position.

It is a further object of the invention to provide a catch which is self-adjusting to compensate for any misalignment between the strike and the catch caused by faulty installation or subsequent shifting and which effectively maintains such adjustment until the cooperating parts again become misaligned when a new adjustment is effected.

A still further object of the invention is to provide a resilient catch which is preloaded or under an initial tension before engagement by the strike thereby rendering it possible to provide a strong and effective gripping action when the strike is engaged between the jaws.

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

Figure 1 is a perspective view of an engaged strike and catch embodying the features of the invention.

Figs. 2 and 3 are face views illustrating the strike and catch disengaged and engaged, respectively.

Fig. 4 is a similar view but showing the catch and strike out of alignment and also showing the catch after adjustment in dotted outline.

Fig. 5 is a section of the catch taken on the line 5—5 of Fig. 2.

Referring to the drawing wherein the structure upon which the device is mounted is shown merely for illustrative purposes, 10 designates a fragment of a swinging door upon which is mounted a strike or projecting finger indicated generally at 11. The strike is of conventional form comprising walls 12 diverging to form an enlarged portion 13 and contracted intermediate the enlarged portion 13 and the door to provide a neck 14 adapted to be engaged by the catch.

A catch embodying the features of the invention is adapted to be mounted for cooperation

with the strike on one of the relatively movable members to be latched together, and as herein illustrated is secured to a fixed portion 15 of a door frame or the like. One of the features of the invention is to so mount a resilient member comprising a pair of jaws on a supporting means that the jaws are held under an initial tension or are preloaded prior to being engaged by the strike. The jaws are also mounted in such a manner that they are capable of automatic adjustment for a relatively misaligned position of the engaging striking member, as said striking member is moved into engagement with the catch.

The preferred embodiment comprises a flat base plate 18 preferably made of sheet metal and having screw holes 19 for rigidly securing it to the door frame 15. Formed integrally with the base plate at the rear edge thereof is an extension 20 which is bent perpendicularly to the plane of the plate for supporting the jaws.

The resilient member of the catch, indicated generally at 16, comprises a pair of spaced resilient jaws 17 of a generally rounded shape. The free ends of the jaws curve toward each other and terminate in outwardly curved portions 23 spaced from each other to provide a convenient entrance for the strike. The jaws are preferably formed integrally of a strip of spring steel mounted on the extension 20 from the base plate. The jaws of the catch thus are supported at a point remote from the point of entrance of the strike and overlie the base plate in order to be free to be spread or tensioned upon engagement by the strike.

The extension 20, which is bent perpendicularly from the rear edge of the base plate, at its outer end is bent in the form of a hook 21 to overlap the upper edge of the resilient member 16 to secure it in place. A lug 27 (see Fig. 5) suitably spaced from the bent-up portion 20 of the base plate is struck in said base plate for preventing the resilient member from lifting out of place.

One of the principal features of the invention is to provide means for placing the jaws under an initial tension before engagement by the strike. In order to provide a sufficiently strong gripping action of the catch on the engaged strike, it has been necessary heretofore to space the jaws relatively closely so that the amount of spreading of said jaws during engagement would be great enough to place the jaws under ample tension to firmly hold the catch. In such structures to permit entrance of the strike, exact

alinement of the engaging parts is essential in order to provide an operative catch.

To permit entrance of the strike in case of misalignment, I provide means for holding the jaws of the catch in a preloaded condition which so positions the jaws that a relatively large gap is provided therebetween for easy entrance of the strike even when the catch and strike are misaligned. At the same time a strong and effective grip is assured after the parts become engaged. In the present instance this means comprises lugs 22 struck up from the base plate 18 to contact a portion of the resilient jaws and suitably spaced to hold them at all times under a spreading tension and provide a large gap.

In the installation of latches and keepers it is quite common through mistake or inadvertence to mount the cooperating parts out of line, thus rendering the latch extremely unsatisfactory if not completely ineffectual. Even when the parts are properly aligned during installation, misalignment frequently results through subsequent shifting due to warping of the door or other member upon which the parts are mounted. The present invention is especially adapted to overcome this difficulty by providing a self-adjusting catch member, which when engaged by a strike misaligned with the resilient jaws of the catch, will compensate for such misalignment thus rendering it unnecessary to remount one or the other of the cooperating elements. This self-adjustment is maintained until the cooperating parts again become misaligned at which time a new adjustment is automatically effected upon swinging of the door to a closed position.

To accomplish this result the resilient member 16 preferably is circular to rotatively shift relative to the base. The hook 21 of the portion 20 frictionally clamps a segment of the resilient member, normally preventing relative rotative movement between the base 18 and the resilient member 16. However, when the jaws 17 are spread apart, the radius of curvature of the resilient member 16 is increased and the resilient member may freely rotate within the hook. A notch 26 may be formed along the upper edge of the resilient member to receive the hook 21 and thereby limit the rotation relative to the base.

In the operation of the latch device the strike moves between the resilient jaws forcing them apart over the enlarged portion 13 of the strike. As the jaws reach the neck portion of the strike the tension resulting from the preloading and that developed in their spreading, contracts them over the neck portion and firmly holds the door in place (see Figs. 2 and 3). The initial load on the spring wall renders it possible to provide a gap of considerably greater width between the jaws than would otherwise be possible thus permitting the strike to enter easily even though misaligned, and in addition such preloading provides a strong and effective grip after the jaws have contracted around the neck portion of the strike.

When the strike is not in line with the catch (as indicated in full lines in Fig. 4) the advanced portion of the strike contacts one of the resilient jaws and brings about an increase in the radius of curvature of the resilient member whereby said member is free to rotate under the influence of the strike to bring the jaws into alinement with the strike as indicated in dotted outline in Fig. 4. When the strike is carried back out of engagement with the catch the binding effect between the resilient member and its

mounting holds the jaws in their readjusted position. The notch 26 in the upper surface of the resilient member maintains such rotation within an operative limit.

It will be apparent from a consideration of the foregoing that a novel door catch has been provided which is extremely easy to mount in that exact alinement of the parts is not necessary in order to provide an operative latch device. In addition a firm hold is assured between the catch and the strike despite a relatively large gap between the cooperating jaws permitting easy entrance of the strike even though the parts are not perfectly aligned.

I claim as my invention:

1. In a catch, a pair of spaced resilient jaws adapted to receive and clamp an engaging strike, and means for frictionally supporting said jaws, the jaws being shiftable relative to said means for adjustment relative to a misaligned position of the engaging strike.

2. In a catch, a pair of spaced resilient jaws adapted to receive an engaging strike, and means shiftable supporting said jaws for adjustment thereof by engagement by the strike.

3. In a catch, a resilient member having spaced spring jaws adapted to receive and clamp an engaging strike therebetween, and means for frictionally supporting said resilient member, said member being shiftable relative to said means for automatic adjustment of said jaws relative to a misaligned position of the engaging strike, the friction of said means maintaining such adjustment.

4. In a catch, a resilient clamping element comprising a pair of integrally formed spaced spring jaws for receiving an engaging strike, and a member yieldably supporting said clamping element solely at a point remote from the point of entrance of the strike, whereby the jaws are free to move relative to each other and are shiftable as a unit relative to the supporting member.

5. In a catch, a resilient clamping element comprising a pair of integrally formed spaced spring jaws for receiving an engaging strike, a base plate, and means for rotatably securing said clamping element to said base plate solely at a point remote from the point of entrance of the strike, whereby the jaws are free to move relative to each other over the base plate and are free to shift rotatively as a unit relative to the base plate.

6. A catch comprising a spring metal strip circularly curved to form coacting resilient jaws adapted to receive an engaging element, a notch formed in an edge of said curved strip intermediate the jaws, and means engaging said strip and cooperating with said notch for supporting the strip for rotation within the limits of said notch.

7. A catch comprising a spring metal strip curved upon itself to form integral coacting resilient jaws for receiving and clamping an engaging strike, a base plate extending under said jaws, an extension integral with said base plate and bent perpendicularly from the rear edge thereof, a hook formed on the free end of the extension to overlap the upper edge of the curved strip and rotatably secure the jaws with respect to the base plate, and a lug struck up from the base plate and suitably spaced from said extension to prevent tilting of the jaws relative to the base plate when the jaws are engaged by the strike.

8. A catch comprising, in combination, a base plate, a perpendicular extension integral with the rear of said base plate, a circular spring metal strip providing coacting resilient jaws for receiving

ing and clamping an engaging element, a notch formed in the circular strip intermediate the jaws, a hook formed on the free end of the extension to coact with said notch and normally clamp a segment of said strip to permit relative movement of the jaws as they are tensioned and permit shifting of the jaws as a unit relative to the base plate within the limits of the notch when the radius of curvature of the strip is increased by the engaging element.

9. In a catch, a resilient clamping element comprising a pair of integrally formed spaced spring jaws for receiving an engaging strike, a member for rotatably supporting said clamping element at a point remote from the point of entrance of the strike, and means on said supporting member for holding said jaws under an initial tension without interfering with the rotative movement of the clamping element, whereby the jaws are free to move relative to each other and are free to shift as a unit relative to the supporting member.

10. In a catch, a spring member comprising a spring metal strip circularly curved upon itself to form coacting resilient jaws for receiving an engaging strike, a base plate extending under said jaws, means connecting said base plate to the resilient jaws and lugs on the base plate for initially tensioning the jaws.

11. A catch comprising a resilient member having spaced spring jaws for engaging a cooperating strike, said jaws being frictionally mounted for shifting adjustment as a unit by engagement by the strike, and means for holding the jaws under initial tension prior to engagement by said strike.

12. A catch comprising, in combination, a base plate, a resilient member of generally circular form comprising a strip of metal formed to provide spaced spring jaws for engagement by a strike, said strip having its edge resting against said base plate, and a pair of lugs struck from the base plate and engaging the inner surface of

said strip for holding said jaws under an initial tension.

13. A catch comprising a discontinuous circular strip providing coacting resilient jaws for receiving an engaging strike, and means supporting said strip and providing for rotation thereof relative to the supporting means, for the purpose of adjustment of said jaws to compensate for a misaligned position of the engaging strike.

14. In a catch, a pair of spaced resilient jaws adapted to receive and clamp an engaging strike therebetween, said jaws being mounted for shifting adjustment as a unit by engagement by the strike, and means for limiting the movement of said jaws toward each other whereby the jaws are held under an initial tension in any position of their unitary adjustment.

15. In a catch, a mounting member, a bodily shiftable member associated with said mounting member and having a pair of jaws provided with portions adapted to cooperate with a strike and normally biased to cause said portions to seek a strike securing position with a predetermined tension and means for limiting the movement of said portions and for maintaining said portions in predetermined spaced relation so as to present said shiftable member to said strike with said portions in definite spaced relation irrespective of the predetermined tension.

16. In a catch, a member comprising a spring curved upon itself to form jaws having strike engaging portions which are normally biased to cause said portions to be directed to a strike securing position with a predetermined tension and means for limiting the movement of said portions and for maintaining said portions in a predetermined separated position irrespective of the predetermined tension whereby said strike engaging portions are always maintained in a definite spaced relation for ready engagement with the strike.

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