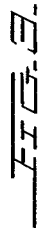


Filed July 13, 1956

ENCLOSURE DOOR CATCH

3 Sheets-Sheet 2



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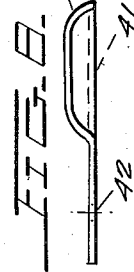
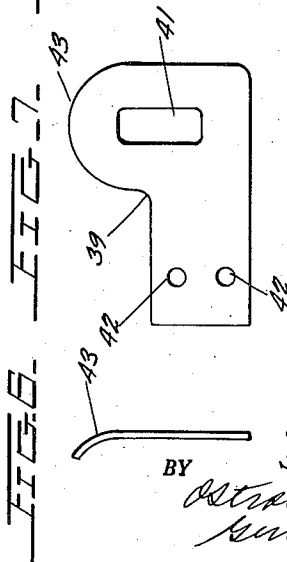
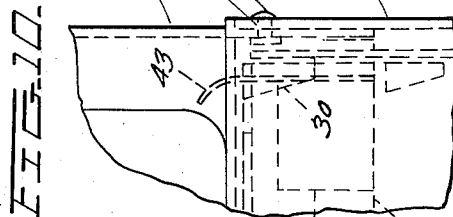
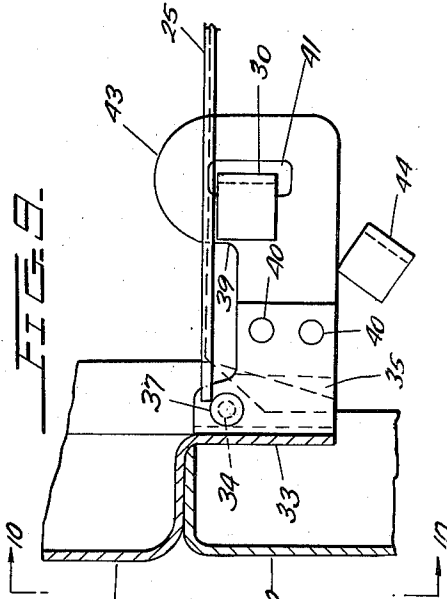
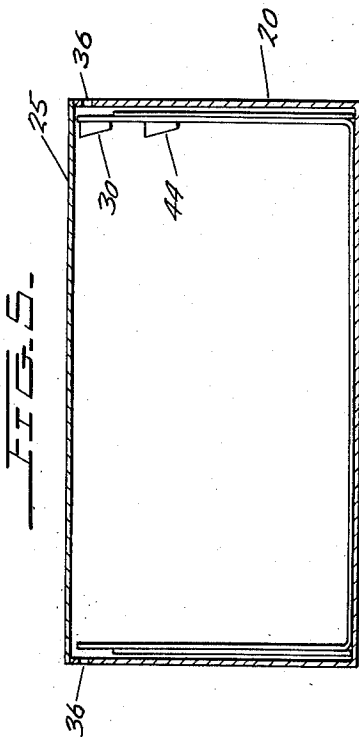
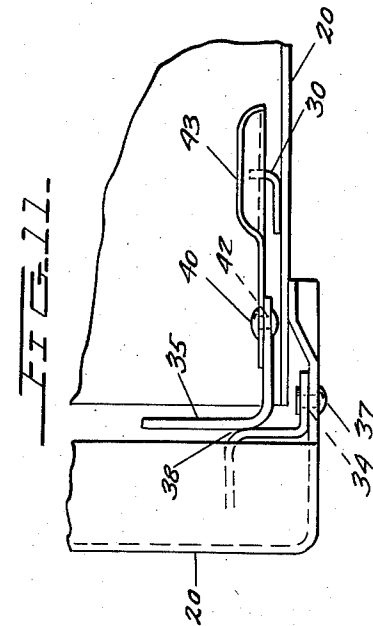
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2,897,993

ENCLOSURE DOOR CATCH

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3 Sheets-Sheet 3



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ENCLOSURE DOOR CATCH

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Application July 13, 1956, Serial No. 597,782

2 Claims. (Cl. 217—60)

Our invention relates to an enclosure door catch and more specifically to a means for latching an enclosure door in the open position.

In many applications such as a weather proof enclosure for circuit breakers, it is desirable that the enclosure cover may be opened and maintained opened so as to permit maintenance of the circuit breaker housing within the enclosure. Housings of this type may be seen in conjunction with copending applications Serial Nos. 587,613, filed May 28, 1956 and 587,732, filed May 28, 1956, respectively and assigned to the assignee of the instant invention.

The principle of our invention is to provide a spring means connected to the cover and a catch means connected to the fixed enclosure whereby the spring means and catch means will move into latching cooperation when the cover is moved to a predetermined open position.

Accordingly, a primary object of our invention is to provide an enclosure door catch which may be simply constructed and cannot be jarred loose by shock in view of the spring biased latching engagement.

Another object of our invention is to provide an enclosure door catch for latching an enclosure door in an open position which can be simply released by moving a flat spring to a disengaged position.

A further object of our invention is to provide an enclosure door catch for latching the enclosure door of a circuit breaker housing in the open position which is so constructed that it may be moved to the open position by one hand and adjustment need not be made to line up a door edge with a holding projection.

These and other objects of our invention will become apparent from the following description taken in connection with the drawings in which:

Figure 1 is a side cross-sectional view through the cover of an enclosure.

Figure 2 is a top cross-sectional view of the cover of Figure 1 taken across the line 2—2.

Figure 3 is a cross-sectional view of an enclosure housing adapted to cooperate with the enclosure cover of Figures 1 and 2.

Figure 4 is a top cross-sectional view of the housing of Figure 3 when taken across the line 4—4.

Figure 5 is a front cross-sectional view of the housing of Figures 3 and 4 when taken across the line 5—5.

Figure 6 is a front view of the spring attached to the cover of Figures 1, 2 and 3.

Figure 7 is a side view of the spring of Figure 6.

Figure 8 is a top view of the spring of Figures 6 and 7.

Figure 9 is a fractional side view of the assembled cover of Figure 1 and housing of Figure 4 with the cover in an open position.

Figure 10 is a side view similar to Figure 9 with the cover in an open and latched position.

Figure 11 is a top view of Figure 10 taken along the line 11—11.

Referring now to the figures, and specifically to Fig-

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ures 3, 4 and 5, the housing 20 is shown as being adapted to house a circuit breaker 21 having an operating handle 22 by means of the fastening means 23 and 24 which could, if desired, be bolts, screws or any other desired fastening means.

A plate 25 is then attached to the housing 20 and is provided with an aperture 26 to cooperate with the escutcheon 27 of the circuit breaker 21. The circuit breaker housing 20 is then seen to be further provided with a projection 28 which as will be seen hereinafter may serve to lock the enclosure cover closed and another projection 29 which may serve to receive conductors leading to the circuit breaker 21 in a weather proof manner.

A catch means 30 is then seen as being fastened to the wall of the circuit breaker housing in any desired manner such as welding, this catch means 30 or angle piece having one edge cut so as to have an inclined surface as may be more specifically seen in conjunction with Figure 5.

The cover for cooperating with circuit breaker housing 20 is seen in conjunction with the views of Figures 1 and 2 as comprising cover 31. Cover 31 has a protrusion 32 at one end thereof which is so adapted as to cooperate with protrusion 28 of housing 20 for locking the cover in a closed cover position. The cover 31 is further constructed so as to have an extending portion 33 which carries an aperture 34 and an angle member 35. Aperture 34 of the cover 31 and apertures 36 of housing 20 are then so positionable as to be connected in pivotal relationship by means of the buttons or pins 37 as will be shown more fully hereinafter in conjunction with Figures 9, 10 and 11. The angle 35 may be spot welded to portion 33 of the enclosure cover 31 at the point 38 as seen in Figure 11, or may be fastened in any other desired manner so as to make the angle member 35 movable with the door 31. A spring means 39 is then fastened to the angle member 35 by the rivets 40, this spring means 39 having an aperture 41 therein. Hence, in view of this construction, it should now be realized that the spring means 35 will rotate with the door member 31 as this door is rotated about its pivotal point defined by the opening 34.

Spring 39 is more clearly seen in conjunction with Figures 6, 7 and 8, in which it is seen that the spring is provided with openings 42 for receiving the fastening means or rivets 40 of Figures 1 and 2 and is further constructed as is more clearly seen in the front view of Figure 6, so as to have a curved lip 43 which, as will be shown hereinafter, will cooperate with the inclined surface of the catch means 30 of Figures 3, 4 and 5.

Figure 3 shows in dotted lines, the cover of Figures 1 and 2 as being pivotally mounted on the housing of Figures 3, 4 and 5 with the cover in a cover closed position. In this position, it is seen that protrusions 28 and 32 are positioned with respect to one another in such a manner that the cover may be locked in this position by a means such as a padlock. Furthermore, in this position, it is to be noted that the enclosure is completely weather proof and that the circuit breaker 21 housed within this completed enclosure will operate safely in spite of rain or dust conditions in the external environment.

If it is now desired to operate circuit breaker handle 22 or if maintenance of the circuit breaker 21 is required, one may now move the cover 31 to an open cover position as seen in Figures 9, 10 and 11. Clearly, as the cover 31 is moved to this open cover position by pivotally moving cover 31 about the pivot means 37, the spring means 39 will be moved in such a manner as to bring the curved lip 43 of the spring means 39 into engagement with the bottom of the inclined surface of the catch means 30. Upon continued movement of the cover 31 to this open cover position, the inclined surface of catch 30

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will force spring 39 to deflect until the desired open position is reached and the aperture 41 of spring means 39 moves to an aligned position with respect to catch 30, thus allowing spring means 39 to snap into a latching engagement with respect to catch 30.

It is to be noted that when the spring 39 and catch 30 are latched in the position shown in Figures 9, 10 and 11 to thereby maintain the cover 31 in a predetermined open position, that jarring of the circuit breaker door will not cause release between these latch members in view of the biased condition of the flat spring 39 to remain in this latched condition. Furthermore, it is clear that the cover may be moved to this open and latched position of Figures 9, 10 and 11 by a simple motion which requires no alignment by the operator. That is to say, this latched position is somewhere along the opening path of the cover and is automatically at a predetermined point.

In moving the enclosure cover 31 from the open and latched position of Figures 10 and 11 to the closed position of Figure 9, it is seen that the operator merely needs to deflect the spring means 39 by gripping the curved lip 43 so that the aperture 41 is moved out of engagement with the catch 30, thus allowing the door to be pivotally moved about the pivots 37 to the closed position.

Hence, our novel invention, as well as providing simplicity in construction and in effecting latching at a predetermined open cover position, provides further simplicity in the releasing operation to close the cover when it is in the latched open position.

If desired, a second latch means, such as latch means 44 of Figures 5 and 9 could be fastened to housing wall in the same manner as the latch means 30. Thus an intermediate latched open position is provided for cover 31.

While we have described our novel invention with the spring means 39 as being attached to the door 31 and the catch 30 as being attached to the housing 20, it is obvious that these relative positions could have been reversed. That is to say, the spring means 39 could have been attached to the housing 20 while the catch 30 could have been fastened to the cover 31 to thereby be moved into and out of engagement with the spring means 39 for latching and unlatching the enclosure door.

Although we have here described preferred embodiments of our invention, many modifications and variations will now be apparent to those skilled in the art. We prefer to be limited, therefore, not by the specific disclosure herein, but only by the appended claims.

We claim:

1. A latching mechanism for latching an enclosure cover in a predetermined position with respect to a co-operating enclosure; said latching mechanism being connected between said enclosure cover and said enclosure;

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said latching mechanism comprising a spring means and a catch means; said spring means being connected to said enclosure cover; said catch means being connected to said enclosure; said spring means being comprised of a flat spring having an aperture therein and a curved lip along a portion of its periphery; said catch means having an inclined surface being positioned to be engageable with said curved lip of said flat spring to deflect said flat spring in a first direction from a normal position and to thereafter be entered into said aperture of said spring whereupon said flat spring returns from said deflected position responsive to movement of said enclosure cover to an open cover position; said flat spring aperture being maintained in operative position with respect to said catch means in said open cover position under jarring conditions by the biasing properties of said flat spring; said cover being pivotally secured to said enclosure about an axis extending in a second direction; said first and said second directions being substantially parallel to each other; said cover being movable from said open cover position only by means not previously recited directly engaging said flat spring and deflecting said spring in said first direction.

2. A latch means for latching an enclosure door in a predetermined position with respect to an enclosure; said latch means comprising a spring means connected to said enclosure door and a catch means connected to said enclosure; said spring means being comprised of a flat spring having an aperture therein and a curved lip along a portion of its periphery; said catch means having an inclined surface; the inclined surface of said catch means being positioned to be engageable with said curved lip of said flat spring in a first direction to deflect said flat spring from a normal position and to thereafter be entered into said aperture of said spring whereupon said flat spring returns from said deflected position responsive to movement of said enclosure cover to an open cover position; said flat spring aperture being maintained in operative position with respect to said catch means in said open cover position under jarring conditions by the biasing properties of said flat spring; said cover being pivotally secured to said enclosure about an axis extending in a second direction; said first and said second directions being substantially parallel to each other; said cover being movable from said open cover position only by means not previously recited directly engaging said flat spring and deflecting said spring in said first direction.

References Cited in the file of this patent

UNITED STATES PATENTS

1,165,894	Negraval	Dec. 28, 1915
1,485,050	Phillips	Feb. 26, 1924
2,461,330	Landwehr	Feb. 8, 1949
2,707,064	Castello	Apr. 26, 1955