

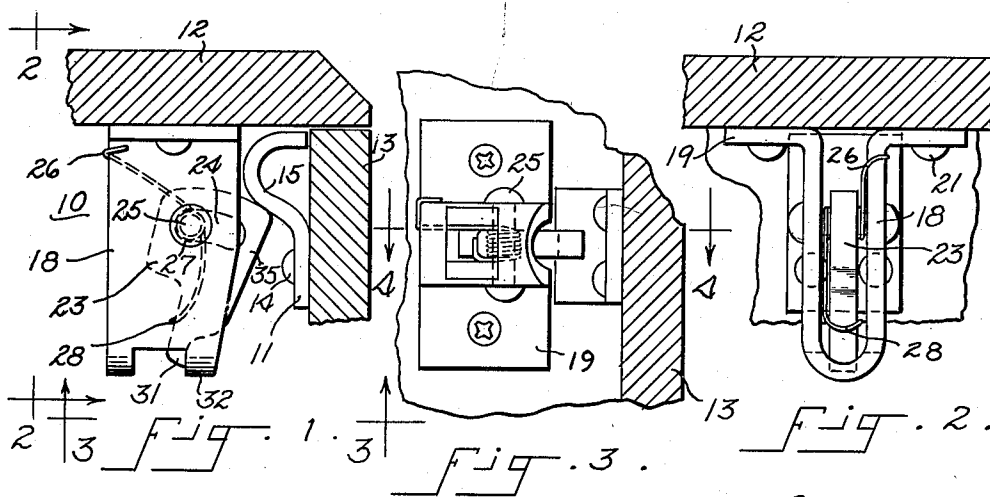
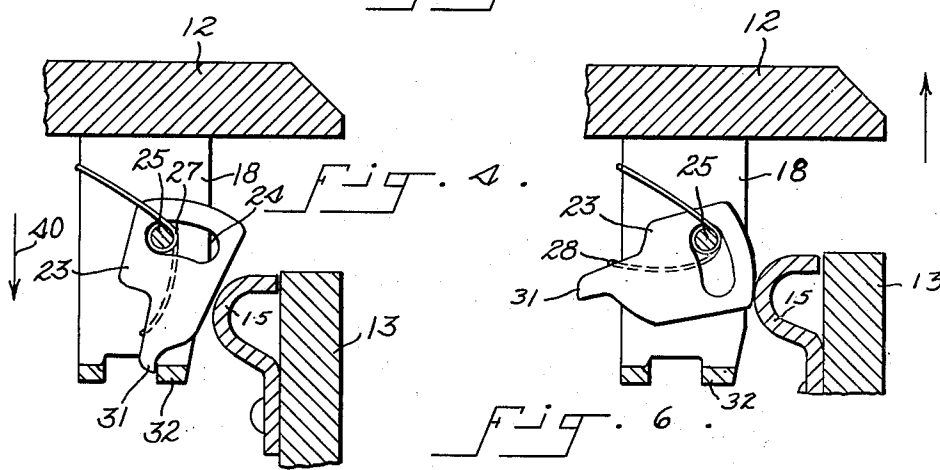
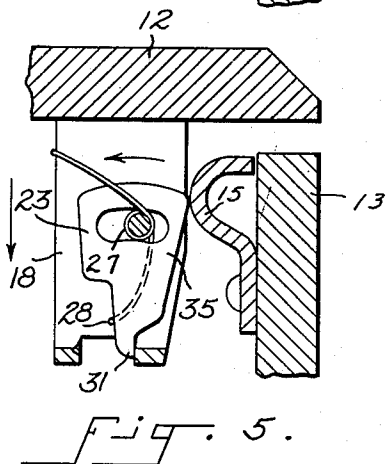
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DUAL PIVOT CATCH

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DUAL PIVOT CATCH

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1 Claim. (Cl. 292—78)

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The present invention relates to catch devices particularly adapted for use in connection with cabinet doors and the like and for releasably retaining such doors in the closed position.

More particularly, it is an object of the present invention to provide a resilient catch device for releasably retaining doors in the closed position and which presents a relatively slight resistive effort during closing movement of the door but which offers a relatively high resistive effort opposing the opening movement of the door.

A further object of the invention is to provide a new and improved catch device which is of simple design, low cost manufacture and fool proof in operation and which is more efficient than catch devices as heretofore developed.

In accordance with an illustrated embodiment of the invention, the catch device herein described comprises a latch element mounted upon a supporting bracket at two spaced apart pivotal points. The latch element is biased outwardly of the bracket and into the path of travel of a cooperating shoulder defining catch unit by means of a spring arrangement which is connected between the bracket and the latch element so that the latch element is biased with different degrees of force against the spaced apart pivotal points. The biasing spring means are so arranged that only a relatively slight biasing force is exerted against the latch element opposing pivotal movement thereof in one direction about one of said points during the door closing operation, but a relatively heavy biasing force exerted against the latch element opposing pivotal movement thereof in the opposite direction about the other of said points during the door opening operation.

For a consideration of what is believed novel and inventive, attention is directed to the following description taken in connection with the accompanying drawing while the features of novelty will be pointed out with greater particularity in the appended claim.

Referring now to the drawings,

Fig. 1 is a side elevation illustrating the invention according to one modification thereof;

Fig. 2 is an edge view of the device shown in Fig. 1;

Fig. 3 is an end view of the device as shown in Figs. 1 and 2; and

Figs. 4, 5 and 6 are longitudinal sectional views of the device as shown in Fig. 1 but illustrating the various parts in different positions which they will occupy during usage.

Referring now to the drawings and, more particularly, to Figs. 1 to 6, inclusive, thereof, the

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device comprises a latching unit 10 and a catch unit 11 adapted to be mounted respectively upon a pair of relatively movable members such as a door 12 and a door frame 13. As will become apparent as the description proceeds, it is immaterial as to which unit is mounted on which member, the only requirement being that they be so mounted that the two units will cooperate mutually with each other in the intended manner.

The catch unit 11 consists of a metal stamping including a flange portion for fastening the unit onto one of the members by means of screws 14 and an outwardly extending portion 15 defining a shoulder and which extends into the path of travel of the latch unit 10 for cooperative engagement thereby.

The latch unit 10 comprises a U-shaped bracket 18 having outwardly extending flanges 19 integral with the inner end thereof for attachment to the door member 12 by means of screws 21. The bracket 18 comprises a pair of spaced apart parallel wall portions extending outwardly at right angles with respect to the surface of the door member 12 or, in other words, parallel with the direction of relative travel between the members 12 and 13. A latch member 23 is mounted within the bracket 18 between the opposed wall portions thereof, the latch element 23 being provided with an elongate arcuate opening 24 through one end thereof for receiving a pin 25 extending through cooperating openings in each of the opposite side walls of the bracket member 18. A helical wire spring 27 is arranged around the pin 25, one end portion 26 of the spring being hooked around one of the side walls of the bracket 18, while the other end 28 is hooked over one edge of the latch member 23 relatively far removed from the pivot pin 25. It is to be understood that the spacing between the latch element 23 and the adjacent side walls of the bracket member 18 is sufficiently great so as freely to accommodate the ends of the spring 27. Moreover, the width of the elongated slot 24 is sufficient so that the latch element 23 may move freely back and forth over the coiled portion of the spring surrounding the pin 25 throughout the limits of elongation of the slot 24.

The end 31 of the latch element 23 opposite the slot 24 is adapted to engage with a shoulder formed by the end wall portion 32 of the bracket 18. The end portion 28 of the spring 27 is looped over the rear side of the latch element 23 relatively closely adjacent the end portion 31 so that the end portion 31 is held against the shoulder 32 with a greater degree of biasing force than the

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opposite end of the latch element 23 is held against the pin 25. By reason of the biasing force exerted against the latch element 23 by the spring 27 the portion 35 of the latch element is biased outwardly relative to the bracket 18 into the path of travel of the catch unit 11. In the view of Fig. 1, in which the door member 12 is shown in the closed position relative to the frame 13, the latch portion 35 is shown hooked behind the shoulder portion 15 of the catch unit. In the view of Fig. 4, the door 12 is shown in the opened condition and being moved in the direction of the arrow 40 to the closed position. In the view of Fig. 5, the door 12 is shown in an intermediate, or partially closed, condition, and from which it will be observed that in passing from the position shown in Fig. 4 to the position shown in Fig. 5, the catch unit 15 slides relatively across the edge surface of the latch portion 35, and in doing so, the latch element is pivoted about the end portion 31 inwardly of the bracket 18. By reason of the fact that the distance between the pivotal point 31 and the spring end portion 28 is relatively short, the resistive force exerted by the spring against the inward movement of the latch element 23 is relatively slight. As soon as the catch unit 11 clears the corner of the latch element 23, the latch element will slip behind the shoulder of the catch unit into the position shown in Fig. 1, and in which position the door member 12 will be held closed.

In the view of Fig. 6, and in which the door member 12 is shown being moved to the opened condition, the latch element 23 is pivoted about the pin 25. Because of the relatively great distance between the pin 25 and the point of anchorage for the end 28 of the spring, the resistive force exerted against the latch element 23 by the spring is very much greater so that the opening movement of the door 12 requires a very considerably greater force than the closing movement.

Considering the invention further, it will be observed that the latch element 23 is provided with a pair of pivotal abutments spaced apart in the direction parallel with the line of relative movement between the members 12 and 13, one of the pivotal abutments being the end wall portion of the elongate arcuate slot 24 which normally engages against the outer surface of the coiled portion of the spring 27 surrounding the pin 25, the other pivotal abutment being the end portion 31 normally engaging the shoulder portion 32 of the bracket member 18. The latch element 23 is movable inwardly of the bracket member 18 upon either of the pivotal abutments sufficient to permit the catch portion 15 to move free of the latch element. In the modification just described, a single spring is employed and which is so connected between the supporting bracket 18 and the latch element so that a greater force is required to rock the latch element 23 about the pivot pin 25 than is required to rock the latch element about the pivotal abutment 31. This is accomplished by connecting the end portion of the spring arm 28 relatively closely adjacent the pivotal abutment 31 and relatively far removed from the pivotal abutment cooperating with the pin 25.

From the foregoing description, it will be apparent that the latching device of the present invention is characterized by the fact that the door may be moved to the closed position with only a

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slight amount of effort exerted against the door, but once the door is closed it will be retained firmly in closed position. The door may be opened by exerting a pull thereto and the opening movement will be resisted by a relatively greater force than that which opposed closure of the door.

Having described the invention in what are considered to be preferred embodiments thereof, it is desired that it be understood that the specific details shown are merely illustrative and that the invention may be carried out in other ways without departing from the true spirit and scope of the invention.

I claim:

15 In a device of the class described comprising cooperating catch and latch units adapted to be mounted respectively on a pair of relatively movable members, said catch unit being adapted to be mounted adjacent the path of travel of said latch unit and defining an outwardly extending shoulder, said latch unit comprising a U-shaped bracket member having a pair of spaced-apart, parallel wall portions, each of said wall portions having outwardly extending flanges at the free end thereof whereby said bracket may be mounted on one of said movable members with the walls thereof parallel with the path of travel of said relatively movable members, a latch element mounted between said walls, an elongated opening in one end of said latch element, a pin secured to said walls and extending through said opening, the opposite end of said element defining a pivotal abutment spaced apart from said pin in the direction of the path of travel of said relatively movable members, the end wall portion of said bracket opposite said flanges defining a shoulder, said pivotal abutment including a portion adapted to engage said shoulder, spring means connected between said bracket and said latch element urging said latch element against both said pin and said shoulder, said spring means comprising a coil spring arranged with the coiled portion thereof surrounding said pin and having a pair of extending arms, one of said arms being arranged to be engaged by one of said side walls, the other of said arms being biased against said latch element at a point relatively far removed from said pin and relatively close to said pivotal abutment, said elongated opening in said latch element being of sufficient width whereby the latch element may move freely back and forth over said coiled portion throughout the limits of elongation of said elongated opening, said latch element including a portion extending outwardly of said bracket and into the path of said catch unit, said latch element being pivotally movable inwardly of said bracket about said abutment upon closing movement of said members, said latch element being pivotally movable about said pin upon opening movement of said members, the pivotal movement of said latch element in both instances being resiliently opposed by said spring means.

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