Aug. 23, 1927. 1,640,035

S. B. HASELTINE

COMBINATION DOOR STOP AND CATCH DEVICE

Filed Oct. 13. 1923

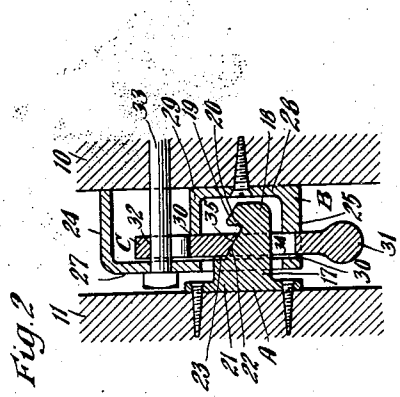


Fig. 2

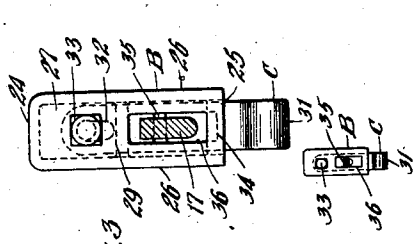


Fig. 3

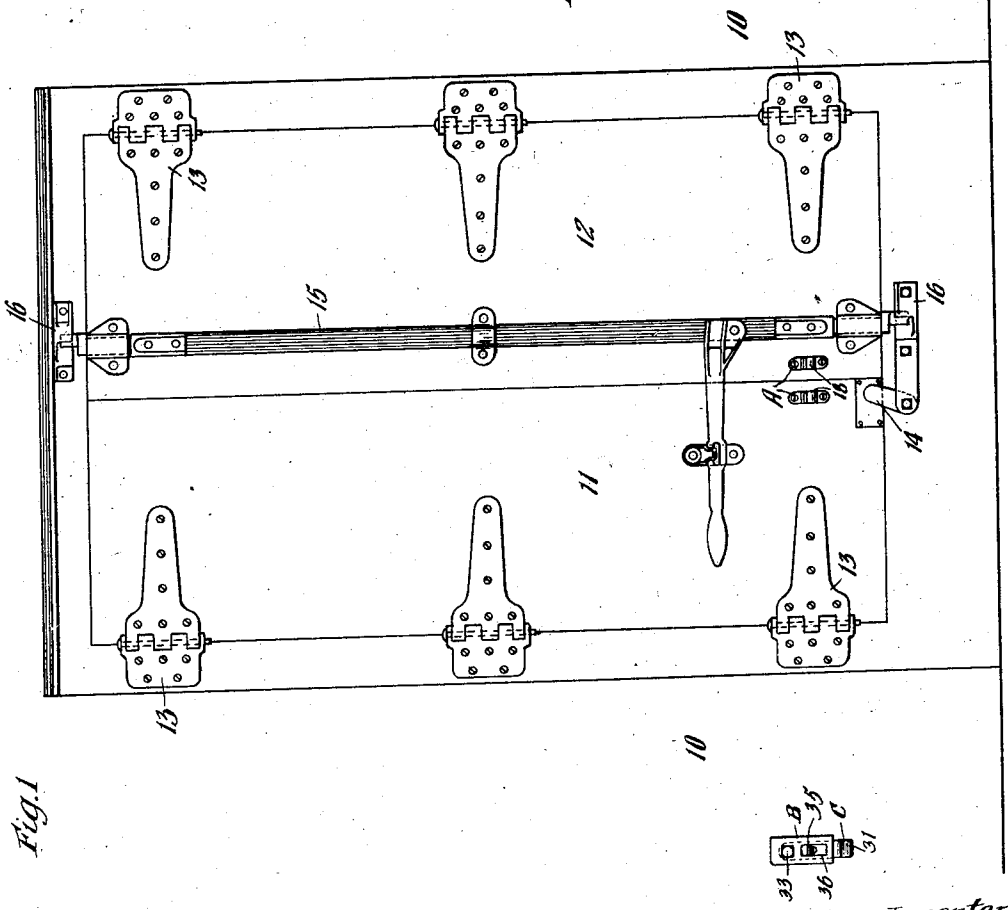


Fig. 1

Witnesses

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His Atty.

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UNITED STATES PATENT OFFICE.

STACY B. HASELTINE, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO W. H. MINER, INC., A CORPORATION OF DELAWARE.

COMBINATION DOOR STOP AND CATCH DEVICE.

Application filed October 13, 1923. Serial No. 668,283.

This invention relates to improvements in combination door stop and catch devices.

One object of the invention is to provide an automatically operating latching mechanism for swinging doors, and more particularly for refrigerator car doors.

More specifically, an object of the invention is to provide a latch which will retain the door in open position, having combined therewith means acting as a stop for the door.

Other objects and advantages of the invention will more clearly appear from the description and claims hereinafter following.

In the drawing forming a part of this specification, Figure 1 is a side elevational view of a portion of a refrigerator car showing my improvements employed in connection therewith. Figure 2 is an enlarged, vertical, sectional view through the improved mechanism, showing the position of the parts when the door is in its opened and retained position. And Figure 3 is a transverse, vertical, sectional view through the hook element of the latch, showing the latch housing in front elevation.

In said drawing, the side wall of the car is indicated at 10, the same having the usual side door opening for a pair of pivotally hung doors 11 and 12, the latter swinging about vertical axes on hinges 13 in the usual manner. The door 11 is closed first and retained in closed position by a pivoted latch 14. The door 12 is swung into closed position last and held in that position by any suitable means as, for example, the shaft 15 having means at the upper and lower ends engaging within the brackets 16 secured to the side wall 10.

In carrying out my invention, I employ a latching mechanism for each door comprising a plate A, a housing B, and a latch plate C, either of the members A or B being adapted for attachment to either the door or to the wall of the car or fixed supporting means to which the door is attached. In the instance shown, the plate A is attached to the door and the housing B to the side wall of the car.

The plate A, preferably centrally thereof, is provided with a projection 17 extending outwardly from the body of the plate at right angles thereto. The projection 17 has a head 18 at its outer free end, the upper surface of the head providing a cam face 19 inclined to the horizontal, downwardly away from the door. On the rear side of the head of the projection 17, that is, the side nearest the plate A, a locking shoulder 20 is provided, the face of which is preferably flat and extends vertically. At the base, that is, the end adjacent the plate A, the projection 17 is thickened as indicated at 21, and the upper surface of the projection intermediate the head 18 and the thickened base portion is preferably upwardly inclined toward the door to correspond to the inclination of the cam face 19, as indicated at 22, and the thickened portion is extended above the surface 22, thereby providing a vertically disposed abutment shoulder 23. Each plate A may be fixed to the corresponding door by any suitable means, but is preferably secured by screws located respectively at the upper and lower ends of the plate.

The housing B is of generally rectangular outline and is provided with top and bottom walls 24 and 25, side walls 26—26, a front wall 27, a partial rear wall 28 and a horizontally arranged web 29 extending transversely of the housing. The web 29 is disposed substantially midway between the top and bottom of the housing and is connected to the top of the rear wall 28, thereby dividing the housing into an upper and a lower chamber, the upper chamber being open at the rear side and the lower chamber being closed by the rear wall 28. The bottom wall 25 and the central web 29 terminate short of the front wall 27, thereby providing guide openings 30—30, adapted to accommodate a latch bar C for vertical sliding movement.

The latch bar C is in the form of a flat plate of rectangular outline having a knob-like enlargement 31 at its lower end forming a hand grip by which the bar C may be manipulated. The upper end of the bar C extends into the upper chamber of the housing and is provided with a vertically extending, relatively short slot 32 through which a bolt 33 extends. The bolt 33 serves to retain the bar within the housing and through engagement with the upper and lower end walls of the slot 32 limits the vertical sliding movement of the bar. The bolt 33 also serves as part of the means for securing the housing B to the car wall, extending through the latter and the front

wall 27 of the housing, with its head abutting the outer face of the front wall 27. The housing is preferably also secured to the car wall by a screw or other suitable fastening device passing through the rear wall 28 of the housing.

The lower end of the latch bar C protrudes beyond the lower end of the housing B as clearly shown in Figures 2 and 3 and adjacent the lower end thereof, a second, vertically disposed slot 34 of relatively greater length than the slot 33 is provided. The slot 34 is of such a width as to loosely accommodate the outer hook shaped end of the projection 17 and the wall defining the upper end of the slot is correspondingly inclined to the surfaces 19 and 21 of the projection 17, thereby providing a cam surface 35 adapted to coact with said surfaces. The lower portion of the front wall of the housing B is also slotted vertically as indicated at 36 to permit the hook portion of the projection 17 to enter the lower chamber of the housing B, the slot 36 corresponding in length to the distance between the bottom wall 25 and the web 29 and in width to the width of the slot 34, and being in alinement with the latter.

In the operation of my improved mechanism, when the door is swung open, the projection 17 on the latch plate will enter the housing through the slot 36 and the cam face 19 on the head 18, engaging the cam face 35 of the bar C, will elevate the latter until the head 18 has passed through the bar, whereupon the bar will drop downwardly due to gravity, engaging behind the shoulder 20. The door will then be retained in open position by the latch bar C coacting with the abutment face 20 of the head 18. The parts are so proportioned that, in case of excessive throw of the door in an opening direction, the movement of the same will be limited by engagement of the abutment shoulder 23 of the member A with the front surface of the bar C as clearly shown in Figure 2, the bar being in turn sustained by the end faces of the web 29 and the bottom wall 25 of the housing.

To effect release of the latching means, the bar C is pushed upwardly, thereby permitting the withdrawal of the head 18 from the slot 34.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative, and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In a latch for a swinging door, the combination with a pair of supports fixed respectively to the door and the fixed member on which the door is mounted; of a slotted, gravity influenced plate slidably confined on one of said supports; and an extension formed integral with the other support, adapted to be projected through said slot, said extension having a shoulder thereon adapted to engage behind said plate to retain the door in open position, said extension having a second shoulder thereon extending above said first-named shoulder and adapted to engage the front of said plate at an angle to its sliding movement to limit the opening movement of the door.

2. In a latch mechanism for a swinging door, the combination with a pair of supports fixed respectively to the door and the fixed member on which the door is mounted, one of said supports comprising a housing having top, bottom and front walls, and a web dividing said housing into upper and lower chambers, said web and the bottom wall of said housing having portions terminating short of said front wall to provide a guide way; a latching plate normally urged toward engaging position and slidably confined in said guide way, the upper portion of said plate being slidably secured in said upper chamber; and a shouldered member on said other support adapted to be moved into engagement with said latching plate and automatically retained thereby.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day of October, 1923.

STACY B. HASELTINE.