June 4, 1940. M. V. MUSSA 2,202,916

CATCH

Original Filed Aug. 3, 1938

FIG. 1

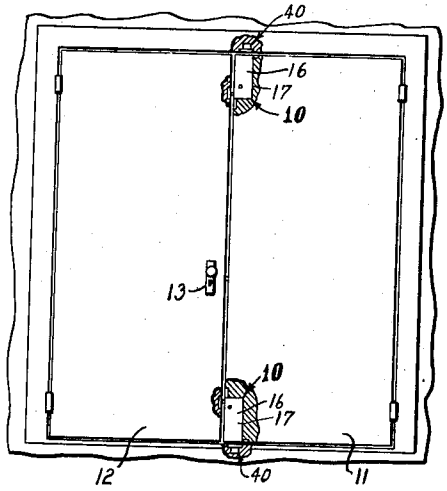


FIG. 2

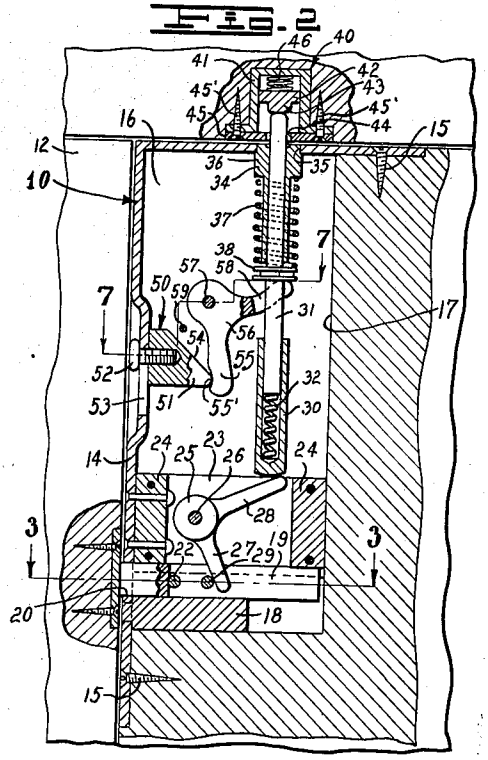


FIG. 3

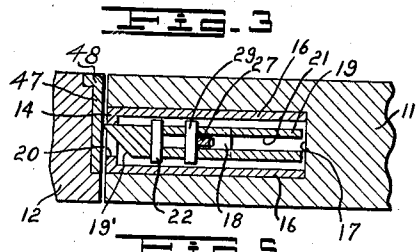


FIG. 5

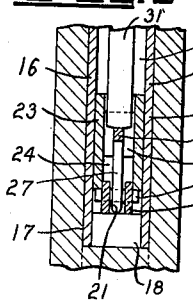


FIG. 6

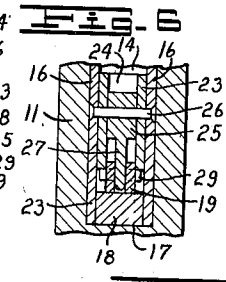


FIG. 4

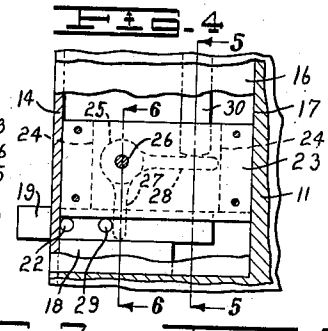


FIG. 9

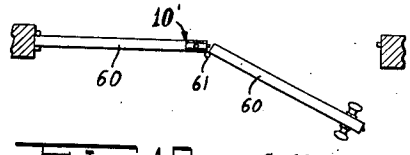


FIG. 7

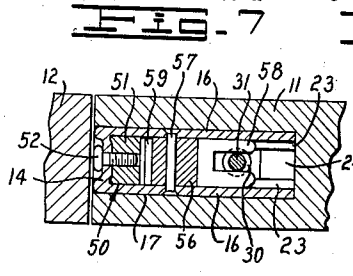


FIG. 8

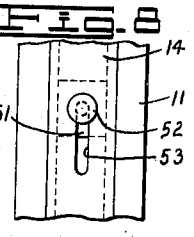
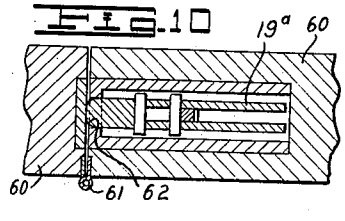


FIG. 10



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UNITED STATES PATENT OFFICE

2,202,916

CATCH

Marcel V. Mussa, Pasadena, Calif.

Application August 3, 1938, Serial No. 222,819
Renewed April 1, 1940

6 Claims. (Cl. 292—177)

This invention relates to improvement in door catches.

The general object of the invention is to provide a novel door catch particularly adapted for use with double doors or folding doors or with a series of connected doors.

A more specific object of the invention is to provide a door catch to hold one member of a pair of double doors closed so that the other door may be locked to the first.

Another object of the invention is to provide a door catch which automatically locks one member of a pair of double doors upon the closing of the second member.

Another object of the invention is to provide a door catch which when used with folding doors locks one member upon the closing of the second.

Other objects and advantages of my invention will be apparent from the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is a fragmentary front view showing door catches embodying the features of my invention as used with a double door;

Fig. 2 is a vertical section through one of the door catches shown in Fig. 1;

Fig. 3 is a section taken on line 3—3 Fig. 2;

Fig. 4 is a fragmentary view showing the parts in another position;

Fig. 5 is a section taken on line 5—5 Fig. 4;

Fig. 6 is a section taken on line 6—6 Fig. 4;

Fig. 7 is a section taken on line 7—7 Fig. 1;

Fig. 8 is a side elevation of the manually operated control member;

Fig. 9 is a top plan view of my door catch as used with folding doors; and

Fig. 10 is a section similar to Fig. 3 of the catch shown in Fig. 9.

Referring to the drawing by reference characters I have shown my invention as embodied in a door catch which is indicated generally at 10. As shown in Fig. 1 the device 10 is secured to the upper or lower outer corner of one member of a double door 11, the other door 12 being preferably equipped with the usual type of lock or latch 13 which may engage the door 11.

The device 10 includes a bent plate 14 which conforms to the outline of the door 11 and is attached to the door as by screws 15. Integral with the bent plate 14 are spaced side plates 16 between which are disposed the working parts of the device. The plates 16 fit within a slot 17 in the door 11.

Secured to the plate 14 as by riveting is a guide member 18 upon which slides an operating member 19 which passes through a slot 20 in the plate 14 and at its outer end terminates in an inclined cam surface 19' as shown in Fig. 3. The operating member 19 has a longitudinal slot 21 therein. A pin 22 on the member 19 limits the outward travel thereof by engaging the plate 14.

The upper portion of the operating member 19 slides between two plates 23 secured to the plate 14 and spaced apart by blocks 24. A bell crank 25 is pivoted on a pin 26 passing through the plates 23 and includes arms 27 and 28.

The arm 27 is engaged by a pin 29 on the member 19 within the slot 21 and the arm 28 engages the lower end of a hollow cylinder 30 within which slides the lower end of a plunger 31. A spring 32 is disposed between the end of the plunger 31 and the closed end of the cylinder 30. The upper portion of the plunger 31 slidably engages a sleeve 34 secured within an aperture 35 in the upper portion of the plate 14. The sleeve 34 has an upper enlarged portion 36, a spring 37 being disposed therebelow at the lower end engaging a washer 38 secured to the plunger 31.

The upper end of the plunger 31 engages a keeper 40 disposed on the door frame. The keeper 40 includes a hollow cylinder 41 closed at one end and having a piston 42 slidable therein. The piston 42 has a reduced portion 43 engageable with an aperture 44 in a plate 45 positioned below the cylinder 41 and attached to the door frame by screws 45'. A spring 46 surges the piston 42 downwardly. It will be seen that the piston 42 is disposed in line with the plunger 31. This piston 42 prevents foreign material from entering the cylinder 41.

A strike plate 47 having a turned edge 48 is secured to the door 12 at the level of the operating member 19 and is adapted to engage the inclined cam surface 19'.

The catch 10 further includes a manually operated lock device 50 which includes a cam member 51 operated by a button 52 sliding in a slot 53 in the plate 14, the plate 14 being recessed adjacent this slot so that the button 52 is flush with the contour of the door. The cam member 51 includes an inclined surface 54 engaging an arm 55 of a bell crank 56 pivoted as at 57. The other arm 58 of the crank 56 is bifurcated and engages the under face of the washer 38. The door 11 may be locked in position by urging the button 52 upwardly until the end of the cam member 51 engages a depression 55' in the arm 55. A pin 59 limits the travel of the bell crank 56.

In use the door 11 is first closed and then the door 12 is closed, the plate 47 engaging the cam surface 19' and thereby urging the plunger 31 upwardly into engagement with the fixture 40. The door 12 may then be locked. If, by chance, the door 11 is not entirely closed before this operation, the parts will not be strained as under this condition the spring 32 is compressed. It will be seen that the relative strength of the spring 32 is greater than that of the springs 37 and 46.

If it is desired to hold the door 11 closed without closing the door 12 the manually operated lock device 50 is used as previously described. The door 11 may be held tightly closed by the piston 42 engaging the top of the door.

In Figs. 9 and 10 I have shown the catch 10' as used with folding doors 60 which are connected by hinges 61. In this application a rounded end 62 on the member 19a (which corresponds to the member 19 previously described) is substituted for the cam surface 19'. The action of the catch 10 when used with a folding door is similar to that described for the double door, the catch being operated by the closing of the second door.

From the above description it will be apparent that I have invented a novel door catch that is highly efficient in use.

Having thus described my invention, I claim:

1. A door catch adapted to be attached to one of a pair of doors, said door catch including a plate, an operating member slidable on said plate, said operating member including a projecting end adapted to be engaged by the other door upon closing of the other door and to be urged inwardly, a bell crank on said plate, means on said operating member engaging said bell crank, a closed hollow cylinder, the other arm of said bell crank engaging the hollow cylinder, a plunger having an end portion slidable in said cylinder, a spring within said cylinder engaging the lower end of said plunger, other spring means to urge said plunger downwardly, said plunger being adapted to be urged into engagement with a door frame by movement of said operating member, and manually operated means independent of said operating member to urge said plunger into engagement with said door frame.

2. A door catch adapted to be attached to one of a pair of doors, said door catch including a plate adapted to be mounted on one door, an operating member, guide means secured to said plate and supporting said operating member, said operating member including a projecting end adapted to be engaged by the other door upon closing of the other door and to be urged inwardly, a bell crank on said plate, means on said operating member engaging one arm of said bell crank, a closed hollow cylinder, the other arm of said bell crank engaging the lower closed end of the hollow cylinder, a plunger having an end portion slidable in said cylinder, a spring within said cylinder engaging the lower end of said plunger, spring means to urge said plunger downwardly, said plunger being adapted to be urged into engagement with a door frame by movement of said operating member, and manually operated means independent of said operating member to urge said plunger into engagement with said door frame.

3. A door catch adapted to be secured upon one of a pair of doors and including a plate, an operating member slidable upon the plate, said operating member including a projecting end portion adapted to be urged inwardly, a plunger slidable upon said plate in a direction at right angles to the direction of movement of the operating member, means tending to urge the plunger to retracted position, a bell crank pivoted on said plate, means on the operating member and engaging one end of the bell crank to shift the latter, and a resilient connection between the other end of the bell crank and the plunger.

4. A door catch including a plate adapted to be secured upon one of a pair of doors, an operating member slidable upon the plate, said operating member including a projecting end portion adapted to be engaged by the other door and to be urged inwardly, a plunger slidable upon said plate in a direction at right angles to the direction of movement of the operating member, a spring tending to urge the plunger to retracted position, a cylinder slidable on said plunger, said cylinder having a closed end, a second spring stronger than the first spring and disposed in said cylinder and engaging the closed end of the cylinder and the end of the plunger, a bell crank pivoted on said plate, and means on the operating member and engaging one end of the bell crank to shift the latter, the other end of the bell crank engaging the closed end of the cylinder.

5. A door catch adapted to be secured upon one of a pair of doors and including a plate adapted to be mounted on one door, an operating member slidable upon the plate, said operating member including a projecting end portion adapted to be engaged by the other door and to be urged inwardly, a plunger slidable upon said plate in a direction at right angles to the direction of movement of the operating member, a spring tending to urge the plunger to retracted position, a cylinder slidable on said plunger, said cylinder having a closed end, a second spring in said cylinder and engaging the closed end of the cylinder and the end of the plunger, said second spring being stronger than the first spring, a bell crank pivoted on said plate, means on the operating member and engaging one end of the bell crank to shift the latter, the other end of the bell crank engaging the closed end of the cylinder, a second bell crank on the plate, means on one arm of said second bell crank and engaging said plunger to shift the latter, and a manually operated, slidably mounted, cam member on said plate and adapted to rock said second bell crank.

6. A door catch adapted to be secured upon one of a pair of doors and including a plate, an operating member mounted to reciprocate upon the plate, said operating member including a projecting cam end portion adapted to be urged inwardly, a plunger slidable upon said plate in a direction substantially at right angles to the direction of movement of the operating member, a bell crank pivoted on said plate and having one arm engaging the operating member, a resilient connection between the other arm of the bell crank and the plunger and means to normally hold said operating member in advanced position and said plunger in retracted position.

MARCEL V. MUSSA.