Feb. 2, 1926. 1,571,194

P. FRANTZ

DOOR CATCH

Filed April 20, 1925

Fig. 1

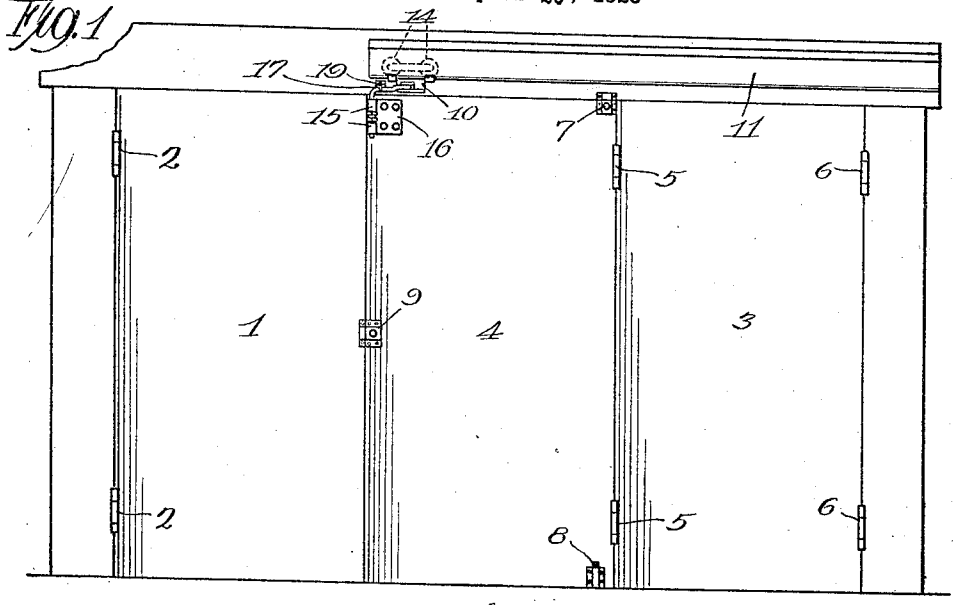



Fig. 3

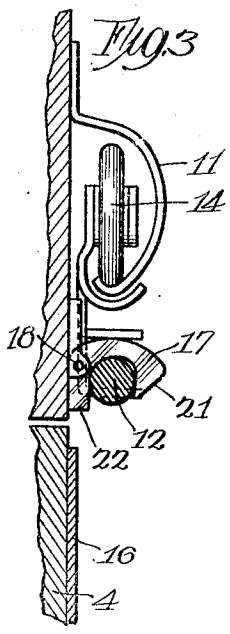
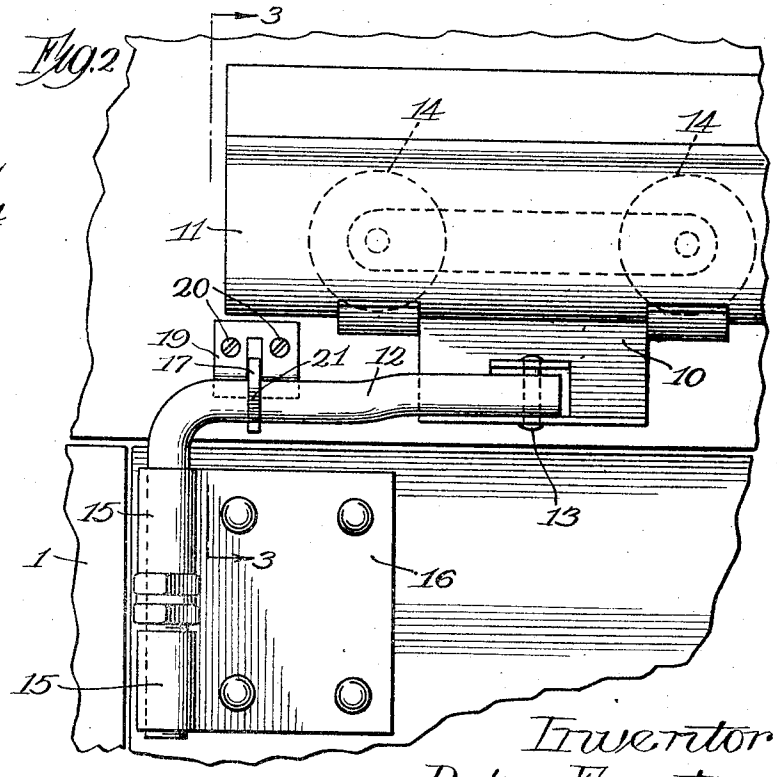



Fig. 2




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# UNITED STATES PATENT OFFICE.

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## DOOR CATCH.

Application filed April 20, 1925. Serial No. 24,533.

*To all whom it may concern:*

Be it known that I, PETER FRANTZ, a citizen of the United States, and resident of Sterling, Whiteside County, Illinois, have invented a certain new and useful Improvement in Door Catches, of which the following is a specification.

This invention relates to garage doors or other similar doors, and more particularly to those composed of a plurality of sections which are hinged together, whereby a swinging and folding door is thus provided, which can swing around and fold back at one side of the doorway.

Generally stated, the object of the invention is to provide a novel and improved catch device for holding the door in closed position, and for insuring correct or proper closing of the door, and the proper positioning of the horizontally swinging arm of the double swivel hanger upon which one section of the door is mounted, when the door is closed.

It is also an object to provide certain details and features of construction, and combinations tending to increase the general efficiency and the desirability of a swinging and folding door and double swivel hanger construction, and the operation thereof, especially in the closing thereof, of this particular character.

To the foregoing and other useful ends, the invention consists in the matters hereinafter set forth and claimed, and shown in the accompanying drawings, in which,—

Fig. 1 is an inside elevation of a garage door construction embodying the principles of the invention.

Fig. 2 is an enlarged view of the hanger and adjacent parts on which one door section is mounted.

Fig. 3 is a detail vertical section on line 3—3 in Fig. 2.

As thus illustrated, the invention comprises a door section 1 which is hinged at 2 at the left of the doorway. The swinging and folding door construction comprises the sections 3 and 4, which are hinged together at 5, while section 3 is hinged at 6 to the right-hand side of the doorway, it being understood that Fig. 1 represents the door construction as it appears from the interior of the garage or other building. Upper and lower catches 7 and 8, or locking bolts, of any suitable character, are provided on the section 4 to hold the door in closed position. A catch 9 may be provided on the section 4 to interlock with the section 1, so as to hold the section 1 in closed position.

The section 4 is supported by a hanger comprising the body 10 that travels on the track 11 supported on the building, inside thereof, directly over the doorway. A horizontally disposed arm 12 is pivoted at 13 on the hanger body, having the wheels 14, or wheels of any suitable character, which travel on the said track. The arm 12 has its outer end bent down and held in the swivel bearing 15, which is integral with the plate 16, secured in any suitable manner to the upper corner portion of the section 4 of the folding door. Thus the horizontally swinging arm 12 has a swivel or pivot at each end thereof, one on the hanger and one on the door, thereby permitting movement of the door laterally of the track where it is supported thereon, as in the final closing movement of a folding door of this kind, should the two sections 3 and 4 be pushed back to the right and folded together and then swung back against the building at the right of the doorway.

It will be seen, therefore, that when the door is closed, by unfolding it and straightening it out, so to speak, so that the sections 3 and 4 will again assume their normal position in the vertical plane of the doorway, the arm 12 will be inclined to swing around freely, with the result that the vertical edge of the section 4 adjacent which the swivel bearing 15 is located, may not assume its position in said plane, but might remain a little out of said plane, and not in proper engagement with the edge of the door section 1 at the left. Therefore, in order to hold the swinging and folding door in properly closed position, a latch 17 is provided and pivoted at 18 on the bracket 19, which is secured by screws 20, or by any suitable means, to the door frame immediately above the doorway, and just under the end of the track upon which the hanger travels. This latch is beveled at 21, so that when the arm 12 swings around and strikes this bevel, the latch will be raised and the arm 12 will swing under and be caught by the hook-like portion of the latch. In order to make the action positive, the latch is provided

with a heel portion 22 against which the arm 12 will engage, thus forcing the latch down from its raised position. In this way, and with the catch arrangement shown and described, which is illustrative of the invention, and which provides a separable connection between the arm 12 and a fixed point upon the door, when the door is closed, the folding door can be pulled out and slammed shut, by pressure against the section 3, for example, and the arm 12 will be caught by the catch 17 and held parallel with the track and in the vertical plane thereof. If the catch 17 were not pivoted, the closing of the door would have to be brought about in such a manner as to insure such a position of the arm 12 at a point some distance to the right of the catch, that the closing movement of the door would cause the arm 12 to move endwise to the left in position to pass under the catch. This would be somewhat difficult, and should the door be closed more or less carelessly, the arm 12 would not be brought into a position parallel with the track, before engaging the catch (assuming the latter to be rigid, instead of pivoted), with the result that the door would not properly close. But with the catch 17 pivoted to swing upward, and with the bevel 21 on the outer end thereof, the arm 12 will be caught and held, even with the sections 3 and 4 unfolded and brought into the same vertical plane before the door is closed, for in that event the further closing movement of the door will bring the inner side of the arm 12 into engagement with the bevel 21, thus causing the catch 17 to rise and then drop into locking engagement with the arm, in the manner shown in the drawings.

Thus, in the closing of the folding door, it is not necessary to cause the arm 12 to be swung around into a position parallel with the track, while approaching its ultimate position at the left-hand end of the track, in order to insure proper closing of the door, for the arm 12 can be swung around into its position parallel with the track after the sections 3 and 4 are brought into the same vertical plane, and the lateral swinging movement of the arm 12 against the stop formed by the body 10 at the left of the pivot 13 can accompany the final outward movement of the section 4 into the closed position thereof. Of course, if the person closing the door is careful to see that the arm 12 is swung around against the body 10 at the left of the pivot 13, while the arm 12 is still some distance to the right of the catch 17, the arm 12 would then pass endwise under the catch without lifting the latter. But such care in closing the door is not necessary, as the arm 12 is capable of lateral movement under the catch 17, into its ultimate or normal position parallel with the track, inasmuch as the catch is pivoted and mounted to automatically swing up and permit the arm to pass underneath in the manner described.

Of course, moreover, with the latch 17 in position as shown, the door cannot close finally with arm 12 extending to the right of the pivot 13, as the hanger body will bump into this latch and compel the arm to swing back to the left of said pivot when the door finally closes.

Thus, the catch 17 is operative to hold the arm 12 against swinging movement when the door is closed, but is inoperative to hold the door in closed position, as against forcible opening of the door from the outside, for in that event the door will begin to fold, and the arm 12 will move endwise toward the hinges 6, and out from under the catch. Thus, of course, the catch 7 is dependent upon the locking bolts 7 and 8 to hold the door in closed position, for without said bolts, or at least one of them, the door can be pushed open by pressure from the outside, notwithstanding the tendency of the catch 17 to retain the door in closed position.

Without disclaiming anything, and without prejudice to any novelty disclosed, what I claim as my invention is:

1. In a swinging and folding door construction, the combination of door sections hinged together, with one section hinged at the side of the doorway, a track over the doorway, a hanger body mounted to travel on said track, a horizontally swinging arm pivoted on said hanger body, means to swivel the outer end portion of said arm on the folding door, and a catch pivotally mounted over the doorway to engage said arm, adapted to be raised by engagement with the inner side of the arm when the door is closed, and adapted to then move downward into latching engagement with the outer side of the arm when the door is closed to hold the arm against swinging movement, said catch being also adapted while in latching position and without motion thereof to permit disengagement of said arm endwise therefrom when the door is pushed open.

2. A structure as specified in claim 1, said catch having a heel portion for engagement with the inner side of the arm, thereby to positively force the catch downward into operative position.

3. A structure as specified in claim 1, said hanger being connected to the section of the door which is supported by another section.

4. In a swinging and folding door construction, the combination of door sections hinged together, with one section thereof hinged at the side of the doorway, a double swivel hanger for supporting the door section which is farthest from the side of the doorway, locking means to hold the door in closed position, and a latch device comprising engaging means movably mounted at a

fixed point over the doorway, tending to retain the hanger-supported section of the door in closed position, adapted to operate automatically by upward movement thereof when the folding door sections are swung into fully closed position, but adapted to automatically unlatch when the door is forcibly opened, whereby said locking means are necessary to prevent forcible opening of the door, by relative folding motion of the door sections, said device alone being inoperative to resist such opening of the door.

5. A structure as specified in claim 4, said latch device co-operating with said swinging arm, whereby the arm may swing laterally with the final closing movement of the door.

6. A structure as specified in claim 4, said latch serving to connect said arm to the upper portion of the doorway, when the door is closed, and permitting lateral swinging movement of the arm with the final closing of the door.

7. A track over a doorway, a hanger to travel on said track, an arm pivoted on said hanger to swing horizontally a closed door in said doorway, a pivotal connection between said arm and the door, and a separable connection interposed directly between said arm and a fixed pivotal point over the doorway, movably supported over the doorway adapted to automatically disengage the arm when the door is pushed inward to permit opening of the door.

Specification signed this 16 day of April, 1925.

PETER FRANTZ.