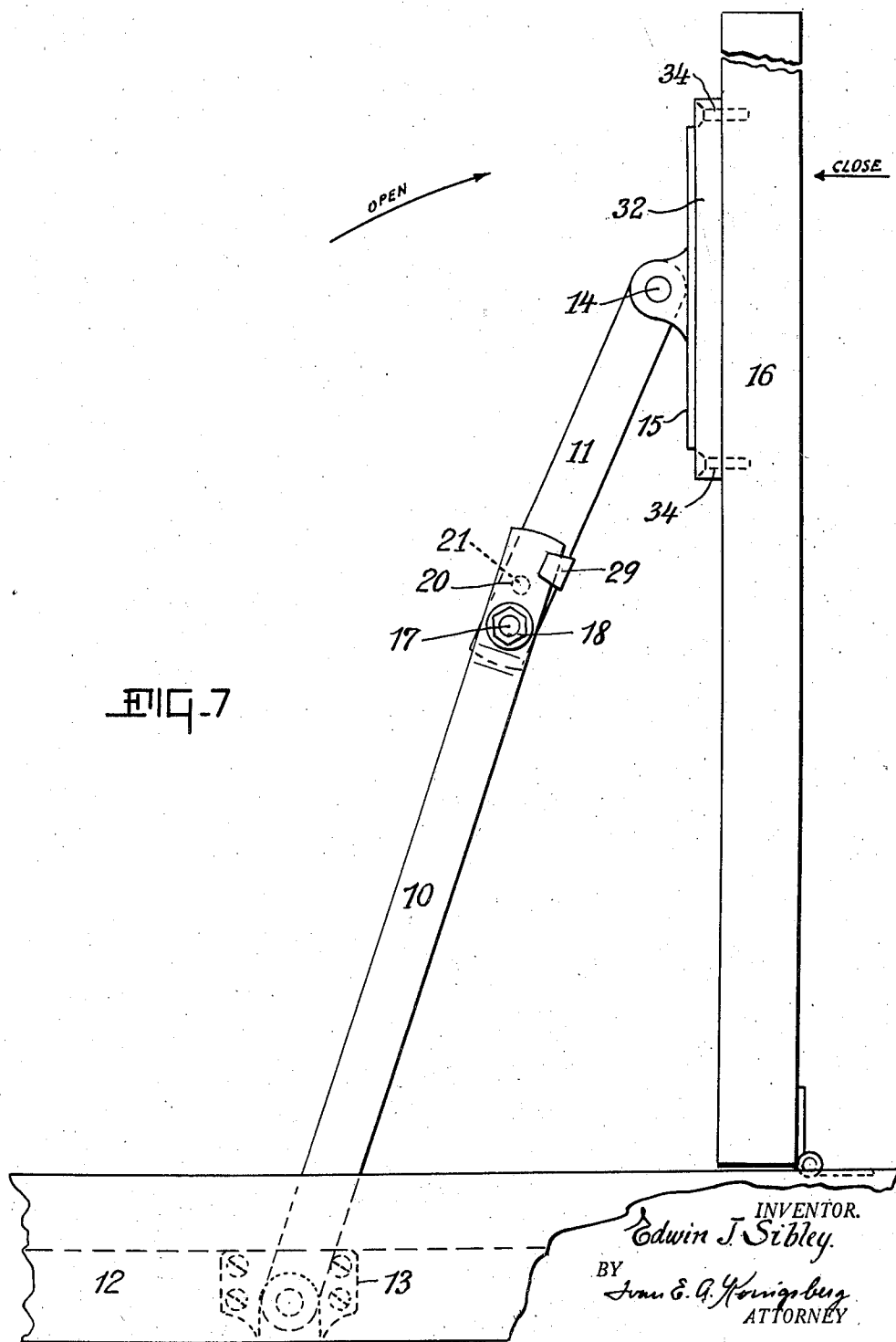


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2 Sheets-Sheet 2



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DOOR STAY AND HOLDER

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2 Claims. (Cl. 292—263)

This invention relates to improvements in combined door stays and door holders of the overhead type. The object of the invention is to provide a generally improved overhead door holder and stay, the improvements being chiefly concerned with safety of operation, beauty and simplicity of design, including strength, compactness and light weight. Specifically, one object of the invention is to include as a feature of improvement a certain novel manner of connecting the door holder to a door so as to warn against violent closing of the door, when the door holder is locked in open position. Preferably, the door holder according to this invention is constructed to limit the opening of a door to an angle of ninety degrees.

The several objects and features of the invention are set forth in the following specification and illustrated in the accompanying drawings in which

Fig. 1 is a view of the door holder as it appears when mounted upon a door and with the parts in closed position.

Fig. 2 is a top view of the door holder as illustrated in Figure 1.

Fig. 3 is a detail view partly in section of the mechanism for connecting the door holder to a door.

Figs. 4 and 5 are sectional views on lines 4—4 and 5—5 of Figure 3.

Fig. 6 is an enlarged detail view partly in section of the lock for locking the two arms of the holder together.

Fig. 7 is a plan view with parts broken away showing the holder in open position.

The door holder comprises two arms 10 and 11. The arm 10 may be called the frame arm because it is pivoted to the crown sill or other like member 12 of a door casing or frame by means of a suitable bracket 13. The other arm 11 may conveniently be called the door arm because it is pivoted at 14 to a member 15 which in turn is movably connected to the door 16. The member 12 of the door frame is not shown in Figure 2. The outer ends of the two arms are pivoted together by a bolt 17 which is threaded into the one arm and upon which bolt the other arm is adjustably secured by a nut 18, Fig. 6.

When the door is fully opened the two arms 10 and 11 are automatically locked together by a locking bolt mechanism shown in detail in Figure 6. The outer end 19 of the frame arm 10 is provided with a hole or socket 20. The door arm carries a bolt 21 which is constantly urged

upwards by a spring 22 seated within a socket 23. The upper end of the bolt is formed with a rounded head 24. The bolt also carries a lug 25 adapted to engage into a recess 26 when the bolt is in its upper locking position. The bolt is unlocked by rotating it whereby the lug 25 rides down out of the recess 26 and the head 24 is lowered below the upper surface of the arm 11. The bolt has a thumb piece 27 for rotating it by hand or by applying a forked handle in an obvious manner and not shown. When the bolt is lowered, the said lug 25 snaps into a small recess 28 on the casing which contains the spring 22, see Figure 1. This holds the bolt against accidental rotation and operation. The arm 11 also carries a stop lug 29 which will be explained later.

The said member 15 is a bracket member to which the door arm 11 is pivoted at 14. The bracket member is in the form of a flat plate having two feet 30 and 31, Figure 3, which are mounted to slide within a channel 32. The channel has a central fixed stop 33 secured thereto and the channel itself is secured to the door 16 by screws 34 which pass through stop blocks 35 and 36 in the channel. Between the central fixed stop 33 and the stop blocks there are placed springs 37, 38.

The operation and use of the door stay and holder are as follows. The frame arm 10 is connected to the door frame by screwing the bracket 13 up against the frame as shown in Figure 1. The door arm 11 is connected to the door by the two screws 34 which secured the bracket 15 to the door. When the door is closed the parts are in the positions shown in Figures 1 and 2. At this time the bolt 21 will be in its lower unlocking position as seen in Figure 1. When now the door is opened as in Figure 7, the arms 10 and 11 swing in the brackets 13 and 15 and around the pivot bolt 17 into their open position. The two arms come to rest when the outer end 19 of the frame arm 10 passes in under and against the stop lug 29. This brings the socket 20 and the bolt 21 into alinement. Then the bolt 21 is rotated and automatically snaps upward, its rounded head 24 engaging the socket and thus the two arms are locked together in open position.

When the door is open and the door holder is locked as aforesaid it happens that accidental strains are put upon the mechanism by persons who attempt to slam the door shut without first unlocking the bolt 21. Such strains or pressure if not otherwise provided for may cause breakage

or shearing off of the securing screws or the hinge screws. To prevent such trouble is the object of the construction of the bracket member 15 with the springs 37 and 38. By looking at Figures 7 and 3 it is obvious that an excess closing pressure applied to the door will result in compression of the spring 38 because the central stop 33, i. e. the door will compress the spring 38 towards the foot 31 of the bracket 15, i. e. the arm 11. In other words provision is made for a yielding movement of the door as against the door holder. Thus a person attempting to close the door by pressure is warned to desist and turn the bolt 21 to unlock the two arms before closing the door.

On the other hand, when the door is opened, it is desirable to prevent a too violent slam of the outer end 19 of the frame arm against the stop lug 29 on the door arm. To prevent such slamming is the function of the other spring 37 in the channel 32, it being obvious that a violent knock against the stop lug, i. e. the door arm will be compensated for or taken up by compression of the spring 37 which acts as a cushion between the foot 30 of the bracket 15 to which the door arm is pivoted and the door, i. e. the central fixed stop 33.

From the foregoing it will be seen that the door holder herein disclosed embodies a yielding connection in two directions between the door arm and the door to cushion the door holder against slamming when the door is open and closed and in the latter case to function also as a warning.

It will be seen in Figure 7 that in the fully open position of the parts, the pivot 17 is out of line with the two pivots of the arms in the brackets 13 and 15 so that if the door is otherwise free to be closed, the joint at 17 will break outward at once when the door is moved towards its closed position.

When the door is open the two arms form almost a straight line from the door frame to a point which may preferably be located one third of the width of the door from the outer edge thereof. Though of course, the precise location will depend upon local condition. The spring 37 acts as a shock absorber when the door is violently

opened, easing the strain both to hinges and the fitting itself. When the door is locked open the spring 38 serves as a warning to release the bolt first and also relieves the strain. A quarter turn of the frame piece 27 places the bolt in a neutral position so that the door may completely open and close. When it is desired to lock the door open the bolt is released and then engages the socket in the upper arm at the first full opening.

I claim:—

1. A door holder comprising a pair of pivotally connected arms, means for pivotally connecting the free end of the one arm to the door frame, a channel fixed to the door, a stop fixed with relation to the door and extending into the said channel, a plate, abutments on said plate extending into said channel in interlocking relation therewith, said plate and abutments being capable of movement longitudinal of said channel, springs within the channel between the said fixed stop and the said abutments to cushion movements of the said plate in two directions parallel to the plane of the door, means for pivotally connecting the free end of the other arm to the said plate and a slidable turnable bolt for locking the two arms together in open position.

2. A door holder comprising a pair of pivotally connected arms, means for pivotally connecting the free end of the one arm to the door frame, a channel fixed to the door, a stop fixed with relation to the door and extending into the said channel intermediate the ends thereof, a plate, abutments on said plate extending into said channel in interlocking relation therewith, said plate and abutments being capable of movement longitudinal of said channel, said plate concealing the longitudinal opening in said channel, springs within the channel between the said fixed stop and the said abutments to cushion movements of the said plate in two directions parallel to the plane of the door, means for pivotally connecting the free end of the other arm to the said plate and a slidable turnable bolt for locking the two arms together in open position.

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