

Sept. 8, 1942.

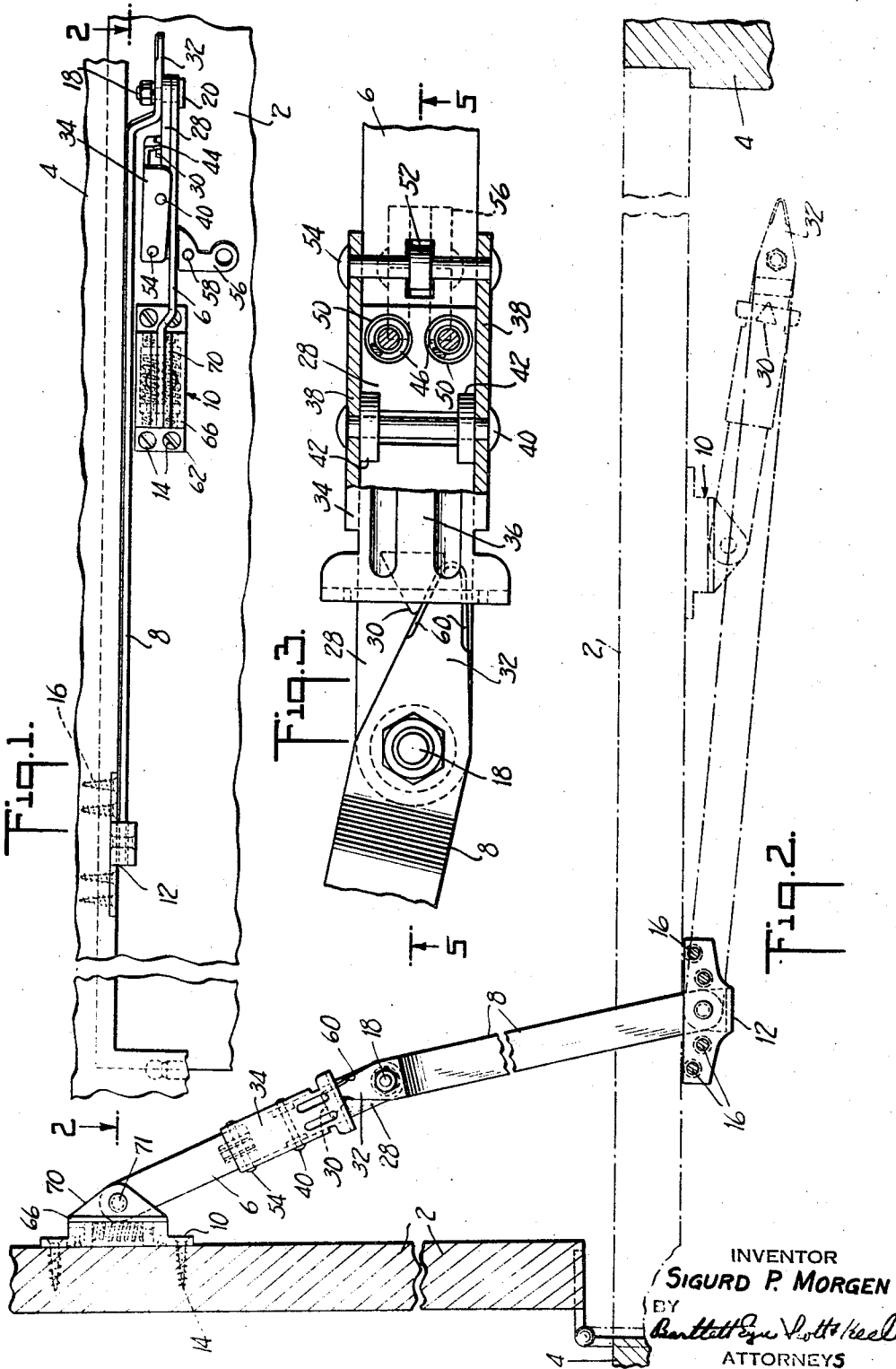
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DOOR HOLDER

Filed March 25, 1939

2 Sheets-Sheet 1



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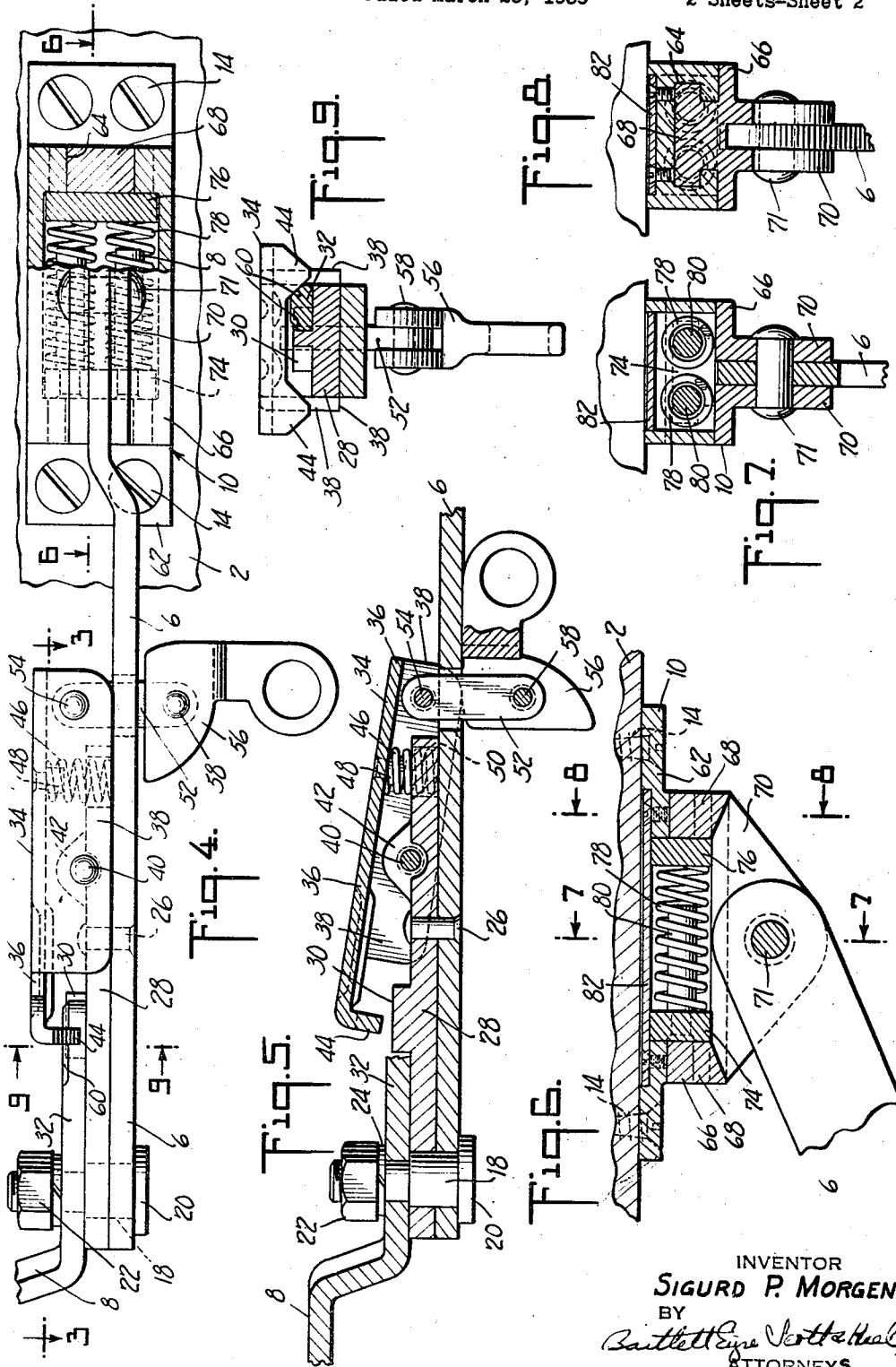
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DOOR HOLDER

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The present invention relates to door holders, and has special reference to door holders of the type that are adapted to secure the door in an open position at a predetermined limit of swing, and are releasable by exerting closing force on the door or by mechanical manipulation of the holder.

One of the objects of the invention is to provide a holder of the character indicated which is of simple and rugged construction, economical to manufacture, and convenient in use.

Another object of the invention is to provide a novel and improved holder of this character which is applicable to either right or left hand doors without disassembly of any part of the holder or change from the normal manufactured condition of the same.

Another object of the invention is to provide novel and improved means for protecting both the door and the holder from shock at all times.

The preferred embodiment of the invention is illustrated, by way of example, in the accompanying drawings, in which:

Figure 1 is a side view of the upper portion of a door and door case to which my improved device is applied, the door being shown closed;

Fig. 2 is a sectional plan view, taken substantially on the line 2—2 of Fig. 1, with the door and holder in open position and showing by dotted lines the door and holder in closed position;

Fig. 3 is a sectional view on an enlarged scale, partly in elevation, taken substantially on the line 3—3 of Fig. 4;

Fig. 4 is a side view, partly in section, of a portion of the holder with the parts shown in door open position;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is a sectional view taken substantially on the line 6—6 of Fig. 4;

Figs. 7 and 8 are sectional views respectively taken on lines 7—7 and 8—8 of Fig. 6; and

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 4.

My improved door holder is illustrated in the drawings applied to a door 2 and a door case 4. The device is located near the top of the door on the inside of an outswinging door, or the outside of an inswinging door.

The device comprises a short arm 6 and a long arm 8 which at their inner end portions are pivotally connected together, and their outer ends are pivotally connected with brackets 10 and 12, respectively. The bracket 10 is shown secured by screws 14 to the top rail of the door with the

short arm 6 approximately parallel with the door when the door is closed, and the long arm 8 folded over the short arm 6 and parallel therewith. The bracket 12 may be fastened by screws 16 to the soffit of the door jamb as shown.

The pivotal connection between the inner ends of the door holding arms 6 and 8 comprises a stud bolt 18 which extends through apertures in the two arms. The bolt 18 has a head 20 engaging the underside of the arm 6, and a nut 22 screw-threaded on the upper end thereof against a spring washer 24. Secured to the top side of the inner portion of the arm 6 by one or more rivets 26 is a plate 28 having its longitudinal sides flush with the longitudinal sides of said arm and having its end provided with an aperture through which the pivot stud bolt 18 extends. The top side of this plate has formed thereon a triangular shape stop lug 30. The arm 8 has an extension 32 beyond the pivot stud 18 which has its sides converging substantially to a point.

When the door is swung open, its movement is limited by the engagement of one side of the extension 32 with a side of the stop lug 30. During this opening movement of the door, the arms tend to straighten but before the fully extended position is reached, the stop extension 32 engages the stop lug 30, thus preventing the arms from passing their dead center.

When the holder is folded as in door-closing position, it is ready for application to either right or left-hand doors by simply positioning the brackets. All that is required to change from one hand to the other is to revolve the door bracket and jamb bracket 180 degrees about their axes.

In the illustrated construction, means is provided which when the stop extension 32 and the stop 30 engage, is capable of acting automatically to retain said stops in engagement and thus hold the door open. As shown, this means comprises a latch 34 which has a top wall 36 and depending longitudinal side walls 38 which are pivotally mounted on a pin 40 that extends through apertures in the side walls and through upstanding ears 42 on the plate 28. One end of the latch wall 36 is turned downwardly and shaped to form depending V-shaped lugs 44 that are spaced apart.

The latch 34 is yieldingly pressed in one direction about the pivot pin 40 by means of springs 46 which have their upper ends surrounding studs 48 on the underside of the wall 36 of the latch, and their lower ends received in sockets 50 in the plate 28. The latch 46 is adapted to be tilted against the tension of the springs 46 by means

of a link 52 which extends through a straight sided aperture in the arm 6, and has its upper end pivotally mounted on a pin 54 extending between the side walls 38 of the latch, and its lower end extending into bifurcated portions of a cam lever 56 and pivoted on a pin 58. By turning the cam lever 56 from the position shown in Fig. 4 to the position shown in Fig. 5, the latch 34 may be tilted against the tension of the springs 48.

With this construction, when the latch is in the position shown in Fig. 4 and the door is swung toward its wide open position, the pointed stop extension on the arm 8 by engagement with the outer side of one of the V-lugs 44 on the latch 34 forces the latch upwardly against the tension of the springs 46 so as to permit the pointed extension to engage the stop lug 30. The sides of the pointed extension 28 are chamfered off at 60 so as to permit the pointed end to easily ride on the inclined surface of one of the lugs 44 and through the resulting cam action to lift the latch. Upon such engagement of the pointed extension 22 with the stop lug 30, the latch springs 46 cause the latching end of the latch to come down and by engagement with the outer side of the extension 32 hold said extension and the stop lug 30 in engagement and thus firmly hold the door open. To close the door sufficient force may be applied thereto to cause the inside of the V-lug to ride up on the chamfered edge of the extension 32, thus releasing the latch therefrom.

The latch 34 may also be released from the stops 32 and 30 by turning the cam lever 56 from the position shown in Fig. 4 to that shown in Fig. 5. When the latch is thus released, it remains in this condition permitting the door to be freely opened and closed until the cam lever is returned to its first position.

Owing to the pointed construction of the extension 32, the triangular form of the stop lug 30, and the spacing of the V-shaped lugs 44, the latching action will operate in the same manner regardless of the direction of swing of the door to which it is applied.

It will be apparent that my improved door holder is of simple and rugged construction and economical to manufacture, that it is applicable to either right or left hand doors without disassembling any part of the holder or any change from the normal manufactured condition of the same, and that the latching mechanism may be easily and conveniently operated.

In the illustrated construction, novel and improved cushioning means is provided for protecting the door and holder from shock at all times. This cushioning means is incorporated in the bracket 10 for attaching the arm 6 to the door. As shown the bracket 10 comprises a base 62 having flanges through which the bracket is secured to the door by means of the screws 14. The base 62 has a longitudinal T-slot therein which receives a slide 66, the slide having two spaced T-shaped projections 68 at the ends thereof which are in sliding engagement with the walls of said T-slot. Said slide 66 has projecting flanges or lugs 70 which form a clevis that receives the end of the door-holding arm 6, the latter being mounted on a pin 71 extending through apertures in said clevis. The base 62 of the bracket is provided with a rectangular opening in which is mounted plates 74 and 76 that are arranged adjacent the inner ends of the T-projections 68. Between these plates 74 and 76 are a pair of coiled springs 78 which are under compression. The springs are held in place by posts

80 projecting from the spring plate 74 and about which the springs are coiled. The under side of said opening in the bracket base 62 is closed by a cover plate 82.

Upon force moving the slide 66 longitudinally in either direction, one of the T-projections 68 of the slide, depending upon the direction of the force, will move one of the spring guide plates 74 or 76 therewith, compressing the springs 78 until the force is absorbed. If the force is beyond the strength of the springs, spring posts 80 will come in contact with the spring plate 76, thus positively limiting the movement of the slide 20. It will be apparent that this cushioning means effectively protects both the door and the holder from shock at all times.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. In a door holder, door holding arms, means pivotally connecting the inner ends of said arms, the outer ends of said arms being adapted to be respectively connected with a door and a door case, cooperating stops near the inner ends of said arms adapted to engage to limit the opening movement of the door, a device mounted on the top side of one of said arms acting automatically when said stop members engage to engage over the top side of the other arm to hold the door open, and controllable means for releasing said device, said device when indoor—holding position tending to press the over-lying portions of said arms together.

2. In a door holder, door holding arms, means pivotally connecting the inner end portions of said arms, the outer ends of said arms being adapted to be respectively connected with a door and a door case, cooperating stops near the inner ends of said arms adapted to engage to limit the opening movement of the door, a latching device mounted on the top side of one of said arms acting automatically when said stops engage to engage over the top side of the other arm to retain said stops in engagement to hold the door open, said device being adapted to release said stops upon tipping movement of said device in one direction, and controllable means for thus releasing said device and for holding it in released position.

3. A structure according to claim 2 in which said last-mentioned means comprises a link having one end pivotally connected with one end of said latching device and its other end extending downwardly through a slot in the arm carrying said latching device, and a cam lever pivotally connected with said link and engaging the underside of said arm whereby upon turning the cam in one direction said link is pulled downwardly to effect said tilting movement of said device.

4. In a door holder of the class described, two door holding arms, means for pivotally connecting the inner end portions of said arms, means for pivotally connecting the outer end of one of the arms to a door, means for pivotally connecting the outer end of the other arm to a door case, a stop member on the upper side of one of the arms, the inner end of the other arm having an extension beyond its inner pivot and said extension having front and rear sides converging toward its outer extremity, said stop being adapted to be engaged by one of the converging sides of said extension to limit the opening movement

of the door, a device acting automatically when said stop member is thus engaged to engage said extension and hold it against said stop member to hold the door open, and controllable means for releasing said device, said holder being adapted to be adjusted to position said extension on the other side of said stop so as to cause the other converging side of said extension to engage said stop to accommodate the holder for right and left-hand doors.

5. In a door holder of the class described, two door-holding arms, means for pivotally connecting the inner ends of said arms, means for pivotally connecting the outer end of one of said arms to a door, means for pivotally connecting the outer end of the other arm to a door case, a stop member on one of the arms adapted to be engaged by either side of the inner end of the other arm to limit the opening movement of the door, said holder being adapted to be adjusted to cause the stop member to be engaged by either side of said inner end to accommodate the holder for either right or left-hand doors, a device acting automatically when said stop member is engaged by either side of said end to engage said end to hold it in position against said stop member to hold the door open, and controllable means for releasing said device.

6. In a door holder, door-holding arms, means pivotally connecting the inner ends of said arms, the outer ends of said arms being adapted to be respectively connected with a door and door case,

means comprising a spring actuated latching device pivotally mounted on one of said arms for locking said arm to the other arm when the door reaches the limit of its swing, and controllable means for releasing said latching device and for holding it in released position comprising a link having one end pivotally connected with one end of said latching device and its other end extending downwardly through a slot in the arm carrying said latching device, and a cam lever pivotally connected with said link and engaging the underside of said arm whereby upon turning the cam in one direction said link is pulled downwardly to release said latching device and hold it in released position.

7. In a door holder, door-holding arms, means pivotally connecting the inner end portions of said arms, means for pivotally connecting the outer end of one of the arms to a door, means for pivotally connecting the outer end of the other arm to a door case, a stop member on the upper side of one of the arms, the inner end of the other arm having an extension beyond its inner pivot adapted to engage said stop member to limit the opening movement of the door, and a latching device pivotally mounted on the top side of the arm carrying said stop member and adapted to engage said extension to hold said extension against said stop member, and means for releasing said latching device from said extension to permit the door to close.

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