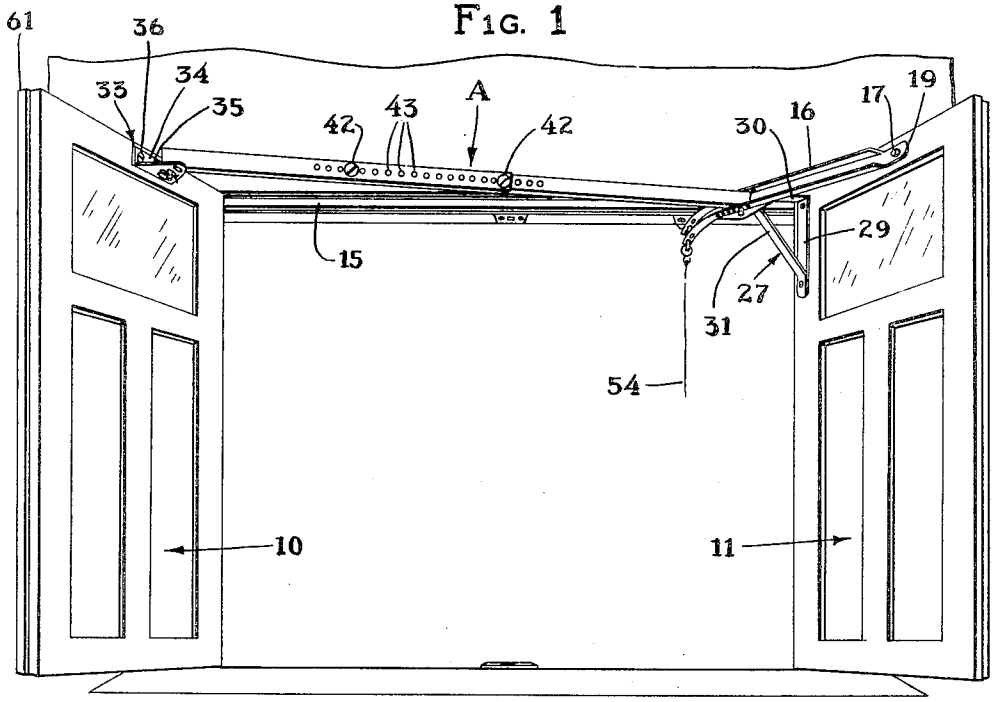
July 17, 1951 T. P. HANNEGAN 2,560,860

DOOR CONTROLLING DEVICE

Filed May 17, 1948

FIG. 1



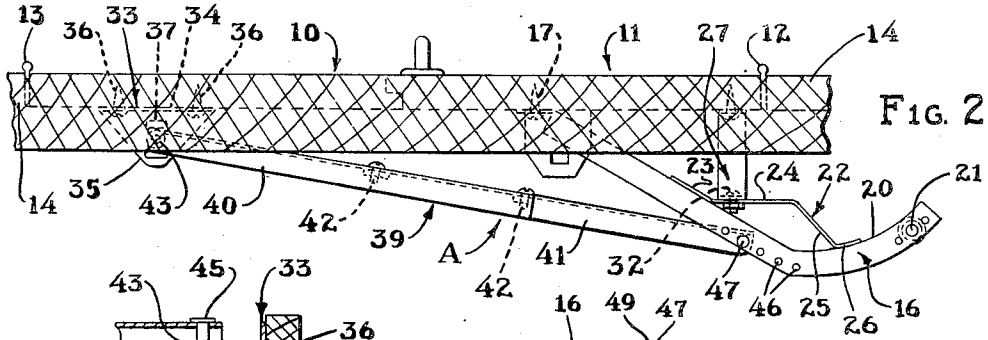


FIG. 2

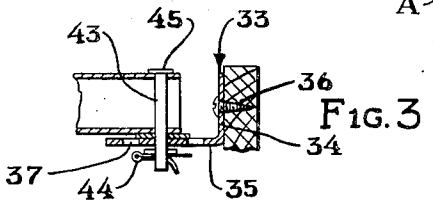


FIG. 3

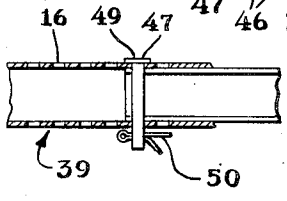


FIG. 4

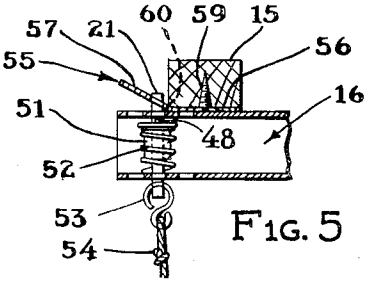


FIG. 5

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DOOR CONTROLLING DEVICE

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Application May 17, 1948, Serial No. 27,413

2 Claims. (Cl. 292—263)

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My invention relates to an improvement in door controlling device and is designed to hold a pair of doors in adjusted relation.

Many garages and similar structures are equipped with a pair of doors hingedly supported on parallel vertical hinges. Locks are usually provided to hold the doors in closed position. However, if it is desired to hold both the doors in open position, separate holding means are most commonly used, one such means being engageable with each door to hold it in open position. In closing the doors it is thus usually necessary to actuate two separate door holding devices.

It is the object of the present invention to provide a means of holding both doors open at any desired angle and to prevent them from swinging in the wind and thereby causing inconvenience and damage. The angle at which either door may be held is adjustably controlled. A holding means rigidly connects the doors so as to definitely hold them in fixed relation and thereby will not swing closed even when a strong wind is directed against the same.

A feature of the present invention lies in the provision of a first bracket which is mounted upon one of the doors and which is equipped with a latch engageable when the door has opened to a predetermined extent. The bracket is connected to the door at a point spaced substantially from the hinge line and therefore forms a rigid connecting link between this door and the door frame to hold the door open.

A feature of the present invention lies in the provision of a link which is pivotally connected to the other door of the pair and is pivotally connected at its opposite end to the link connecting the first door to the door frame. This rigid link thus holds the second door of the pair in fixed relation to the first door when the two doors are in open position.

A feature of the present invention lies in the particular manner in which the links and levers are connected to their respective doors. The latch lever is connected at one end to the first door of the pair at a point spaced from the hinge line and is pivotally connected to the spacing bracket mounted on the first door near the hinge line. The other end of the latch lever extends beyond this bracket and supports a spring urged latch engageable with a suitable keeper plate on the door frame in open position of the door. Thus a triangular structure is provided which forms a rigid means of holding the door in open position.

A further feature of the present invention lies in the manner in which the link connecting the

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two doors is attached. This link is connected to a mounting bracket on the second door and at its other end is hingedly connected to the latch lever outwardly of the spacing bracket on the first door. In open position of the doors the link is vertically aligned with the spacing bracket so that any force on the link is transmitted on substantially a straight line to the first door.

An added feature of the present invention lies in the manner in which the latch engages its keeper plate. The latch is spring urged upwardly into engagement with the keeper. The keeper plate includes a horizontally extending anchoring end and an upwardly and rearwardly inclined cam portion. An aperture is provided in this upwardly inclined portion. Thus the cam portion tends to retract the latch a distance sufficient to allow the latch to engage in the aperture, but can not retract the latch a distance sufficient to cause the latch to pass over the horizontal portion of the keeper. As a result the engagement of the latch in the keeper aperture is assured.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a bottom perspective view of my door controlling device showing the general arrangement thereof.

Figure 2 is a bottom plan view of the structure shown in Figure 1, the doors being shown in closed position.

Figure 3 is a sectional view through the link and bracket connecting the link to one of the doors.

Figure 4 is a sectional view through the pivotal connection between the link and the latch lever.

Figure 5 is a sectional view through the end of the latch lever and its keeper, the doors being shown in open position.

The door controlling device A is designed to connect a pair of doors 10 and 11 which are hingedly connected along parallel vertical hinge lines 12 and 13 to the door frame 14. The door frame 14 is of inverted U-shape including a pair of side members and a top connecting member. The top connecting member is indicated in Figure 5 of the drawings by the numeral 15.

A latch lever 16 is attached to the inner surface of the door 11 by a bolt or screw 17. The lever 16 is generally channel shaped in cross section and is provided with a projecting end 19 bent at an angle to the longitudinal axis of the channel to accommodate the bolt or screw 17. The other end of the lever 16 is preferably

curved as indicated at 20, the end 20 curving toward the plane of the door. The free end of the lever 16 carries a vertically slidable latch bolt 21 which will be later described in detail.

An angularly extending strip 22 is attached to the lever 16 on the side thereof nearest to the door 11. This strip 22 includes an anchoring portion 23, an angularly extending portion 24 which is substantially parallel to the plane of the door, an angularly inclined portion 25, and an anchoring end portion 26 designed to lie against the lever 16. This strip 22 is welded or otherwise secured at its opposite ends to the lever arm 16 to form an integral part thereof.

A triangular bracket 27 is supported on the inner surface of the door 11 near the hinge line thereof. The triangular bracket 27 includes a vertically extending strip 29 designed to overlie a portion of the inner surface of the door 11, a horizontally extending portion 30 extending rearwardly from the inner door surface, and a brace portion 31 connecting the portions 29 and 30. A pivot bolt 32 connects the brace portion 31 to the parallel portion 24 of the strip 22, thus connecting the latch lever 16 to the door 11.

An angularly shaped bracket 33 is mounted upon the inner surface of the door 10. The angle bracket 33 includes a vertically extending attachment flange 34 and a horizontally extending flange 35 at right angles thereto. Screws or bolts 36 connect the flange 34 to the door 10.

The bracket flange 35 is provided with a series of elongated slots 37 which extend therethrough in parallel relationship with the longitudinal axis of the slots extending substantially parallel to the vertical flange 34. A link unit 39 connects the bracket plate 33 and the latch lever 16. The link unit 39 includes a pair of telescoping links 40 and 41 which are preferably of channel shaped cross section and which are adjustably connected together by bolts or other fastening means 42. The bolts 42 extend through any of a series of holes 43 which are longitudinally spaced in the links 40 and 41 and which accordingly allow the length of the link unit to be adjusted.

A pivot bolt or pin 43 extends through the opposite sides of the channel shaped link 40 and through one of the slots 37 in the bracket 33 to pivotally connect the link unit to the bracket 33. A nut or cotter pin 44 may extend through the pivot pin 43 to hold the pin in place, and a head 45 is shown on the other end of the pivot pin.

A series of spaced apertures 46 are provided through the spaced parallel sides of the channel shaped lever 16 to accommodate a second pivot pin 47. The pin 47 may extend through any of the aligned apertures 46 to pivotally connect the link 41 to the lever 16. The pivot pin 47 is provided with a head 49 at its upper end and is held in place by a cotter pin 50 or other suitable means.

The slidable latch bolt 21 is provided with a sleeve 51 having a flange at its upper extremity. A spring 52 is interposed between the flange of the sleeve 51 and the bottom flange of the channel shaped lever 16. A pin or cotter key 48 is provided through the bolt 21 to limit the upward movement of the bolt 21. The flanged sleeve 51 is spring urged against this pin. The lower end of the sleeve 51 is engageable with the lower flange of the lever 16 to limit downward movement of the latch bolt 21.

The keeper for the latch bolt is indicated in general by the numeral 55 and includes a horizontal extending anchoring plate portion 56 and an upwardly and rearwardly inclined cam portion 57. The anchoring portion 56 is secured to the cross member 15 of the door frame by bolts or screws 59. An aperture 60 is provided through the inclined cam portion 57 of the keeper closely adjacent the horizontal portion thereof. The latch bolt 21 in elevated position extends through the aperture 60 to hold the latch arm 16 in fixed relation to the door frame.

The operation of my door controlling device is believed obvious from the foregoing description. It is preferably used with a spring locking arrangement designed to lock the doors in closed position when the doors are swung into this closed position. The locking means is usually mounted on one of the doors such as the door 10 and this door is provided with an overlapping edge 61 which engages over the portion of the outer surface of the door 11 to hold the two doors in closed position.

When the doors are opened the door 10 is swung toward open position, both doors pivoting about their vertical hinges to swing toward the open position indicated in Figure 1 of the drawings. When in opened position, the latch bolt 21 engages the cam portion 57 of the keeper 55 and is depressed, compressing the spring 52. It will be noticed that the inclined portion of the keeper can not compress the spring 52 sufficiently so that the latch bolt 21 will pass beneath the horizontal portion 56 of the keeper. Thus the latch is arranged to definitely prevent the latch bolt from passing beyond extreme position.

When the doors are opened it will be noted that the link unit 39 is substantially in alignment with the bracket 27 so that the strain between the doors is communicated along a substantially straight line between the doors. The engagement of the latch with its keeper forms a positive means of locking the door 11 in open position. Furthermore the link unit 39 forms a definite means of holding the door 10 in properly spaced relation to the door 11. Thus both doors are rigidly held in open position.

When it is desired to close the doors it is only necessary to exert a pull upon the flexible cord or cable 54, which acts to retract the latch bolt 21 sufficiently to clear the aperture 60. The two doors 10 and 11 may then be swung into closed position in the usual manner.

The specific mounting of the levers and links is of particular importance as it permits adjustment of the opening of the doors and also as it permits adjustment of the hardware in the event the doors warp or change position. For example by merely changing the position of the bolt or screw 17 the free end of the latch lever may be raised or lowered to insure proper engagement with its keeper. The slots 37 connecting the link unit 39 to the bracket 33 allow sufficient slidable movement between the bracket and the link unit to permit the link to slide through dead center. It will be noted that in closed position of the doors, the doors 10 must hinge outwardly slightly in advance of the door 11, thus tending to swing the pivot 45 toward the link 16. The slots 37 not only permit adjustment of the location of the adjacent end of the link unit, but also permit the slight sliding action necessary to the operation of the apparatus.

In accordance with the patent statutes, I have described the principles of construction and op-

eration of my door controlling device, and while I have endeavored to set forth the best embodiments thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A door controlling device for use in conjunction with a pair of doors hingedly connected along parallel fold lines to a door frame, the device comprising an arcuate lever fixedly attached at one end adjacent the midpoint of the inner surface of one of said doors and extending at an acute angle to the inner door surface past the hinged edge of the door, a bracing arm connected at one end to said lever at an intermediate point thereof and connected at its opposite end to the door adjacent the hinged edge thereof, spring urged latch means mounted on said lever adjacent the free end thereof, a keeper on the door frame engageable with said latch means in open position of the door, and link means connecting the other of said doors to said lever forward of said latch at a point in substantial alignment with said bracing arm when the doors are in closed position.

2. The structure described in claim 1 in which the keeper has an inclined cam portion engageable with the latch to retract the same as the door is opened and an aperture in said inclined portion into which the latch may engage.

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