Dec. 25, 1923. 1,478,856

J. H. HOCKENBERRY

DOOR CONTROL DEVICE

Filed Nov. 20, 1922

Fig. 1

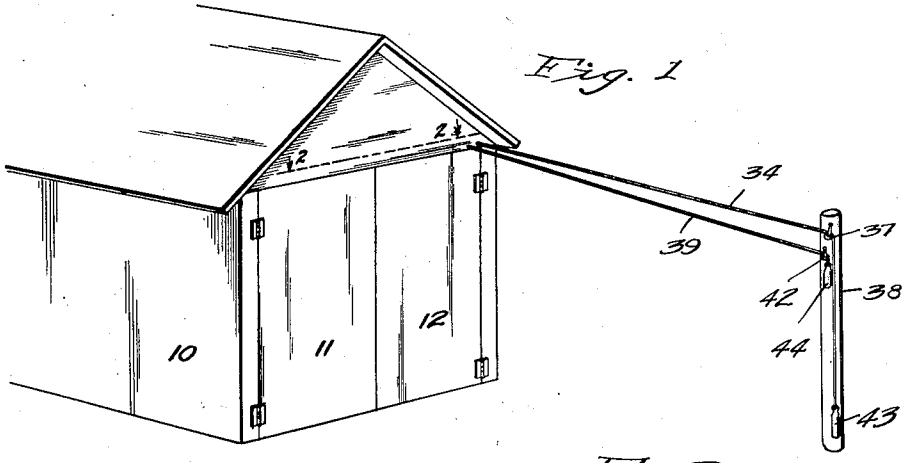


Fig. 2

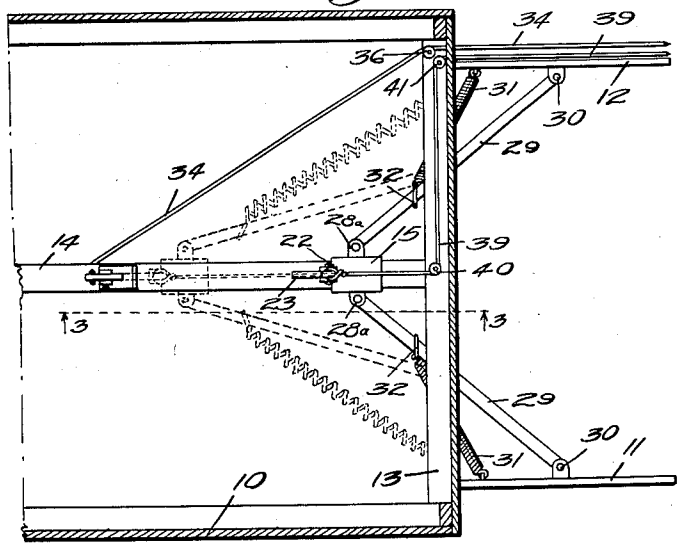


Fig. 4

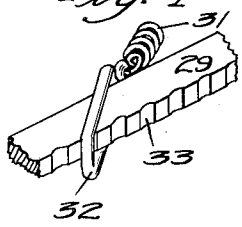
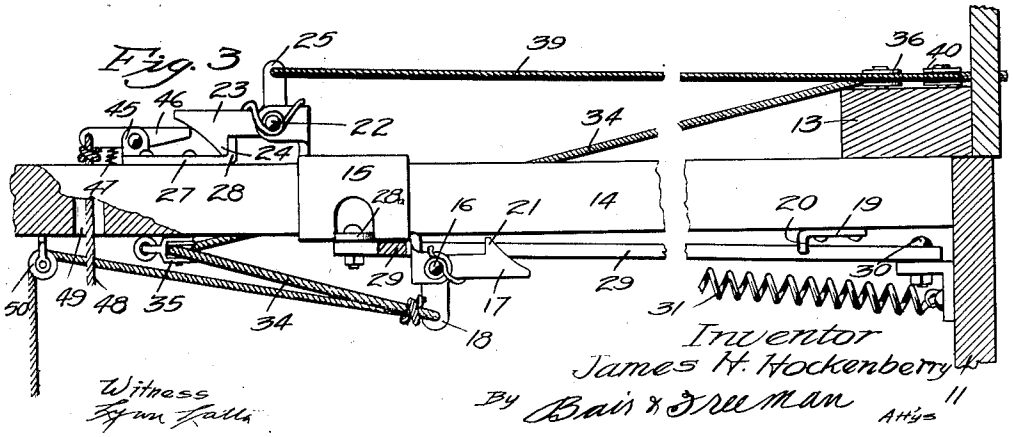


Fig. 3



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UNITED STATES PATENT OFFICE.

JAMES H. HOCKENBERRY, OF WINTERSET, IOWA.

DOOR-CONTROL DEVICE.

Application filed November 20, 1922. Serial No. 602,204.

To all whom it may concern:

Be it known that I, JAMES H. HOCKENBERRY, a citizen of the United States, and a resident of Winterset, in the county of Madison and State of Iowa, have invented a certain new and useful Door-Control Device, of which the following is a specification.

My invention relates to door controlling devices of the kind, which can be used for convenient manipulation of a door from points distant from the door.

The object of my invention is to provide in combination with one or more swinging doors, simple, inexpensive and efficient means, whereby such doors, for instance when installed on a garage, may be conveniently and readily operated from a distance outside the building or from within the building without the necessity of going to the doors themselves for opening or shutting them.

Still a further object is to provide in connection with such a structure, means for automatically locking the doors in either closed or open position.

Still a further object is to provide tension devices, whereby door or doors may be normally, yieldingly held in one position of movement, and to so arrange the tension devices, that they may be readily adjusted for varying the tension thereof.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a perspective view of one end of a garage or the like, equipped with a door control device embodying my invention.

Figure 2 shows a horizontal, sectional view taken on the line 2—2 of Figure 1.

Figure 3 shows a detail, sectional view taken on the line 3—3 of Figure 2 with the doors closed, parts being broken away and parts being omitted for better illustration of the parts shown; and

Figure 4 shows a perspective view of the means for attaching one of the tension springs.

It can readily be understood that in the case of garage doors and under many other conditions, it is desirable that the doors may be opened or closed from points outside the building.

In the particular form of my invention here illustrated, I have shown a building indicated by the reference numeral 10, which may be a garage or the like, and have shown my device installed in connection with a pair of hinged doors.

It will be understood that the device may be embodied in a variety of forms and may be readily adapted for use with doors of different sizes and arrangements.

The building 10 has at one end, the pair of swinging doors 11 and 12. Above the doors 11 and 12 is a horizontal plate 13, shown for instance in Figures 2 and 3. Preferably secured to the plate 13 and extending rearwardly therefrom in the upper part of the building is a frame member 14, which is arranged high enough so that it will not interfere with the use of the building for the purpose for which it is intended.

The frame member 14 is preferably rectangular in cross section and extends longitudinally of the building. Mounted on the frame member 14 is a bracket or the like 15, which is arranged to slide longitudinally on the frame member 14. Pivoted to the lower forward portion of the bracket 15 at 16 is a latch or hook member 17, having a downwardly projecting arm 18.

Secured to the under surface of the frame member 14 adjacent to the point of the forward limit of movement of the bracket 15 is an engaging member 19 which may comprise a small plate or bar, having at one end the downwardly projecting portion 20, adapted to coact with the hook element 21 of the catch 17.

Pivoted as at 22 to the upper rear part of the bracket 15 is a catch member 23, having the hook element 24 and the upwardly extending arm 25.

On the upper surface of the frame member 14 near the point of the rearward limit of movement away from the doors of the bracket 15 is a catch device, which may comprise the bar or strip 27, having the upwardly, extending portion 28 adapted to coact with the hook element 24 of the catch device 23. The bracket 15 has laterally projecting ears 28, to which are pivoted links 29, which extend toward the doors and diverge from each other and are pivoted at

their forward ends, as at 30, to the respective doors 11 and 12.

Secured to the doors 11 and 12 between the hinge lines thereof and the pivot points 30 are coil springs 31, which extend rearwardly and inwardly and have at their inner ends, loops 32, which receive the links 29. The links 29 may be provided with notches 33, as illustrated for instance in Figure 4, and it will be obvious that the springs 31 tend to hold the loops 32 in such position, as to cause them to bind on the links 29, so that so long as the springs are under tension, the loops 32 will be frictionally held in any of their adjusted positions on the links 29.

It will be seen that by moving the loops 32 until they extend substantially transversely of the links 29, they may be so loosened, as to permit their being moved either way lengthwise of the links 29.

By adjusting the loops 32 to different positions on the links 29, the tension on the springs 31 may be varied.

It will be noted that by the peculiar arrangement of the links 29 and springs 31, I have provided a means whereby the springs mounted on the doors themselves and the links 29 for operating the doors will tend to pull the doors to open position.

Secured to the downwardly extending member 18 is a flexible rope or cable 34, which extends rearwardly around a pulley 35 hung on the lower part of the frame member 14, and thence forwardly and laterally around the pulley 36 on the plate 13, and thence through a suitable opening at the front of the garage 10, thence forwardly from the garage and around a pulley 37 on the support, such as the post 38.

Secured to the upwardly extending arm 25 of the catch 23 is a flexible rope or cable 39, which extends forwardly around the cable 40 on the plate 13, thence laterally around a pulley 41 on the plate 13, thence through a hole at the front of the garage and over a pulley 42 on the post 38.

On the outer ends of the ropes 34 and 39 are weights 43 and 44, whereby the ropes 34 and 39 are held taut. On the member 27 are ears 45, between which is pivoted a trigger or releasing device 46, the forward end of which is normally held down by means of a spring 47 arranged between the rearward end of said trigger and the frame member 14, as shown in Figure 3.

The forward end of the trigger 46 is designed to stand in such position as to be slightly below the catch 23 in substantially the position shown in Figure 3 when the hook element 24 of the catch 23 stands in position in engagement with the portion 28 of the member 27.

Secured to the rear end of the trigger 46 is a rope 48 extending downwardly through a hole 49 in the frame member 14 and designed to be ended at any suitable point within the building.

Secured to the downwardly extending arm 18 of the catch 17 is a flexible rope or cable 49, which extends around the pulley 50 and may be thence extended to any desired point for operating the catch 17 and the doors from within the building.

In the practical use of my improved door control device, the structure is properly installed and thereupon when the doors are closed, the parts stand in the position shown in Figures 1 and 3 and in dotted lines in Figure 2.

If, when the doors are closed, one should drive to position in front of the garage and desire to open the doors, he may do so without getting out of a car or the like by pulling on the rope 39. The first effect of such pulling is to raise the catch 23 and release it from engagement with the portion 28 of the catch member 27. If the pull on the cable 39 is then continued, it will be obvious that the catch 23 will be pulled forwardly for causing the bracket 15 to slide forwardly on the frame member 14. The effect of this forward sliding movement is to push the doors 11 and 12 open.

The springs 31 may or may not be used in a device of this character. Where the springs are used, they are preferably of such tension, that when the catch device 23 is released, the springs will force the doors open.

However, as has already been explained, the doors may be forced manually to open position by pulling on the rope 39.

Assume that the doors are open, and when one is driving from the garage, he may when he reaches the post 38, and instead of getting out of the car, pull on the rope 34, whereupon the bracket 15 will be drawn rearwardly, thereby carrying with it the links 29, and causing the doors 11 and 12 to move to their closed position.

It will be understood that when the door is open, the catch 17 ordinarily engages the member 20. On the closing movement just described, the first effect of the pull on the rope 34 is to release the catch.

When the doors swing to their closed position, the catch 23 will automatically move to engaging position with the member 28.

It will be understood that the catches 17 and 23 are of ordinary well-known construction, having spring devices for tending to move them toward the frame member 14.

Assume that the doors are in closed position, and one desires to open them from the inside, all that is necessary to do is to pull on the rope 48, whereupon the trigger 46 will engage and release the catch member 23 and thereafter the springs 31 will swing the doors 11 and 12 open. They will have

enough momentum in their swinging movement to bring the catch member 17 to position for automatically engaging with the catch member 20. If when one is in the garage, he desires to shut the doors, he may do so by pulling on the rope 49, which has the same effect as pulling on the rope 34.

It will be seen that where my construction is installed, the doors of the garage or other building may be readily and easily operated either from inside the building or from outside without dismounting from a vehicle and without going to the doors for moving them.

The parts of my device are of very simple and inexpensive construction and may be readily and easily assembled and installed wherever desired.

The parts of the device are so located that they do not interfere with any of the ordinary work inside or outside the garage.

It will, of course, be understood that I do not desire to limit myself to any particular kinds of buildings. The device may be used with one door or two doors by making slight modifications.

Some changes may be made in the construction and arrangement of the parts of my door control structure without departing from the essential features and purposes of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents, which may be reasonably included within their scope.

I claim as my invention:

1. The combination of a building structure, having a pair of hinged doors, a frame member, a bracket slidably mounted on said frame member, links pivoted to said bracket and to said doors, spring actuated catch members on said bracket, engaging members on said frame member for coacting with the catch members, guide elements and flexible devices connected with the respective catch members and extended around said guide members to points outside the building structure for pulling the bracket in different directions for opening and closing the doors, springs connected with said doors between the hinge lines thereof and the points where said links connect with said doors, and loop devices for connecting the springs with the respective links by frictional engagement with the links.

2. The combination of a building structure, having a pair of hinged doors, a frame member, a bracket slidably mounted on said frame member, links pivoted to said bracket and to said doors, spring actuated catch members on said bracket, engaging members on said frame member for coacting with the catch members, guide elements and flexible devices connected with the respective catch members and extended around said guide members to points outside the building structure for pulling the bracket in different directions for opening and closing the doors, springs connected with said doors between the hinge lines thereof and the points where said links connect with said doors, and loop devices for connecting the springs with the respective links by frictional engagement with the links, means for releasing one of said catch devices from within the building structure, and means for operating said device from inside the building structure for closing the doors.

Des Moines, Iowa, November 2, 1921.

JAMES H. HOCKENBERRY.