

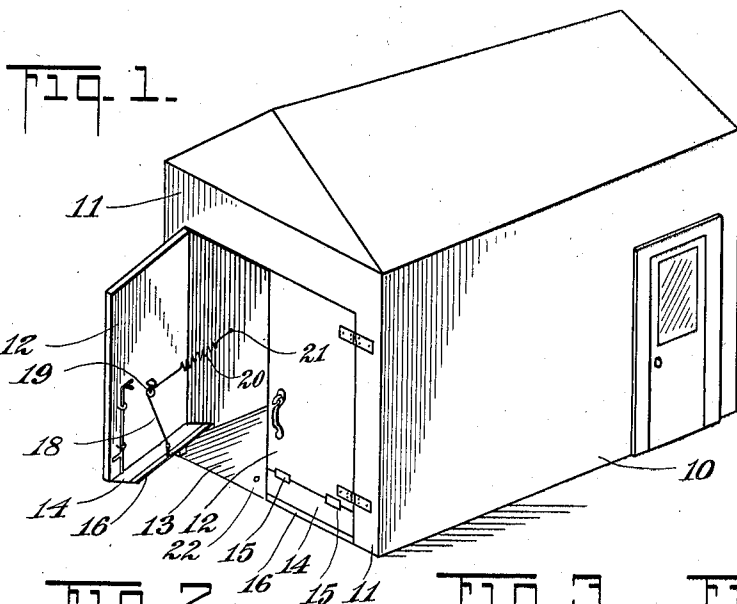
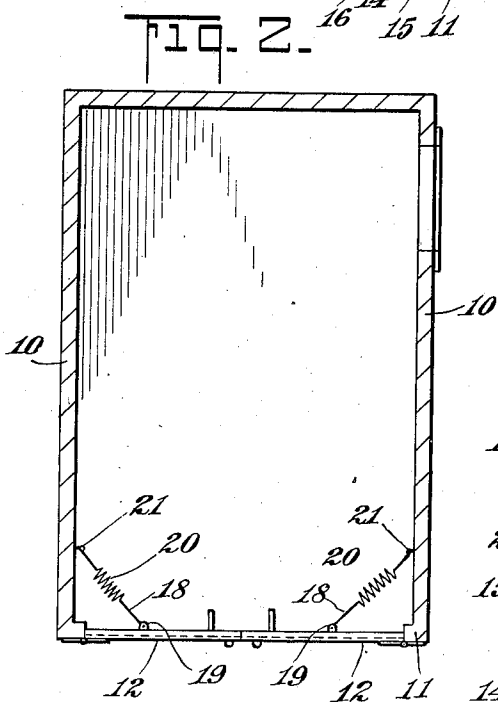
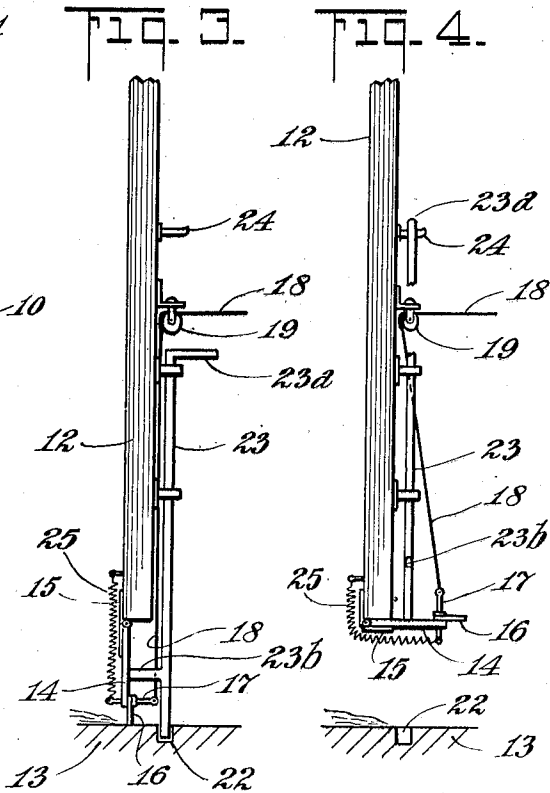
Dec. 7, 1937.

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2,101,147

AUTOMATIC UPWARDLY MOVABLE DOOR OR PORTION THEREOF

Filed Nov. 20, 1936



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2,101,147

AUTOMATIC UPWARDLY-MOVABLE DOOR
OR PORTION THEREOF

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Application November 20, 1936, Serial No. 111,761

7 Claims. (Cl. 20—16)

This invention relates to doors or like opening closures, and more especially to such structures wherein there is need to free their lower edges from obstructions when same are moved either to open or closed position.

An object of the invention is to provide a garage door, for instance, with an automatically-movable lower edge portion adapted to permit unobstructed opening and closing of the door even when piled-up ice and snow, raised concrete as from ground expansion, or other obstruction might otherwise interfere.

Another object is to provide such a device with means such that the initial opening movement of the door outwardly, will automatically actuate and move inwardly and upwardly a lower portion thereof, including preferably a weather-strip member, and the continued movement will hold said portion in raised position, substantially until the final closing movement is completed.

A further object is to provide locking means for such doors or like opening closures, which will both lock the door closed (or open) and rigidly hold the lower edge portion in the plane of the door, so as to keep out the weather or unauthorized intrusion.

All these and other objects, as suggested herebelow, are attained by the method and means now to be described, and illustrated in the accompanying drawing, in which—

Figure 1 is a perspective view of a garage structure, showing this invention applied to its swinging doors.

Fig. 2 is a horizontal sectional view of the garage from above, taken along the upper edge of the doors.

Fig. 3 is a side elevational view of an overlapping door, in closed and locked position, showing the bolt-holding means, and the lower edge portion in down position.

Fig. 4 is a view like Fig. 3, but showing the lower edge portion in up or open unlocked position.

Like numerals refer to like parts throughout the several views.

The garage or structure shown here includes side walls 10—10, front wall 11, a pair of outwardly-swinging doors 12—12, and floor 13.

The lower edge portion of each door has been cut away to a height of four or five inches, say, and a movable door member 14, preferably of sheet metal, is hinged at 15—15 as shown, flush with the outside of the door, and largely filling

the space between the door and the floor. Of course, a continuous hinge, or one integral with the metal member 14 may be employed.

A weather strip member 16 is preferably secured along the lower edge of member 14, in manner as shown, to effectively seal the opening.

An inwardly-projecting holding post 17 is affixed, more or less centrally as shown, to the lower edge of member 14, and to this is secured a cable or other flexible member 18, which passes through a pulley 19 affixed to a point on the inside of the door overhead, and then through an interposed spiral spring 20 to a stationary point 21 on a garage wall.

During the initial movement in the opening of the door, members 14—16 are thus caused to swing inwardly about hinges 15, to so clear any obstruction on the ground outside the door as it is opened. Springs 20 may stretch at the same time, and the tension set up in the cable holding means continues to hold the hinged door member in up position, as shown in Fig. 4. As the door is closed, this same situation prevails, until the movement is almost completed, when the spring is no longer in tension, and the cable loosens to permit the members 14—16 to drop again into vertical door-aligned position by gravity. Or spiral spring 25, Fig. 3, may be used in lieu of gravity.

A holding bolt 23 having a handle portion 23a and a flap-holding portion 23b, is slidably held to the inside of the door, as shown, its lower end being adapted to drop into a hole 22 in floor 13 to lock the door in place, at which time the bolt handle is turned as shown in Fig. 3, so that the portion 23b projects outwardly beneath the door to engage the member 14 and prevent its being swung inwardly when the door is closed and locked. The unlocked position of this bolt is shown in Fig. 4.

To open the door, outwardly or to the left as viewed in Figs. 3 and 4, even though there be an obstruction as suggested in the path of the door's lower edge, it is only necessary to turn handle 23a a quarter turn and lift it to the position shown in Fig. 4, the handle 23a resting on holding member 24, as shown, and then swing the door outwardly. Member 14—16 will swing back to free the obstruction, and remain in elevated position, as shown in Fig. 3, throughout the outward and inward swing, during the final portion of which last it will drop again to closed position, as shown in Fig. 3.

By positioning members 21 close to the door

hinges, springs 20 are then only needed for safety when doors are swung outward too far.

It is to be understood that the present disclosure is for the purpose of illustration only, and that the invention is not limited thereto. To those skilled in the art, many modifications of the invention will be readily apparent, and it will also be obvious to such skilled persons that parts of the device may be used without other parts thereof, many such combinations readily suggesting themselves. Therefore, it should be and is to be understood that for a definition of the limitations of the invention, reference must be had to the appended claims.

Having now described the invention, what is claimed as new and for which Letters Patent of the United States is desired, is:

1. In an outwardly swinging door having a substantially-horizontal lower edge, means for permitting said edge to clear an obstruction, said means including a lower edge portion attached to the door and adapted to swing inwardly.

2. The invention as in claim 1, including automatic means actuated by the initial movement of the door, adapted to raise the door edge portion above the obstruction and to hold it there while the door is wholly or partly open.

3. The invention as in claim 1, the door edge portion being flush with one surface of the door and hinged along its edge, in combination with means projecting beneath the main door edge

and engaging the relatively-movable door edge portion to prevent the same being moved out of alignment with the door when same is closed.

4. In combination, an outwardly-swinging door having its lower edge spaced from the floor, an inwardly-swinging door portion hinged to said lower edge of the door, and resilient means connecting the swinging door portion to a stationary support, such that said means will raise and hold the door portion during the door's outward swing.

5. The invention as in claim 4, said resilient means including a continuous cable-and-spring member moving in a pulley attached to the door above its lower edge.

6. The invention as in claim 4, the lower edge of said door portion carrying a flexible weather strip.

7. A door comprising a relatively-thick upper door portion, a relatively-thin lower door portion hinged thereto, and means for locking the upper and lower door portions in closed position, said means comprising a bolt vertically-slidable in fasteners in the upper portion, having a projection at its lower end adapted to enter and be held in an opening in the floor, and having a laterally-extending projection adapted to swing beneath the lower edge of the upper door portion and engage and lock the lower door portion.

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