F. J. LONGUSKIE.

DOOR OPERATING MECHANISM.

APPLICATION FILED FEB. 11, 1919.

1,330,713.

Patented Feb. 10, 1920.

4 SHEETS—SHEET 1.

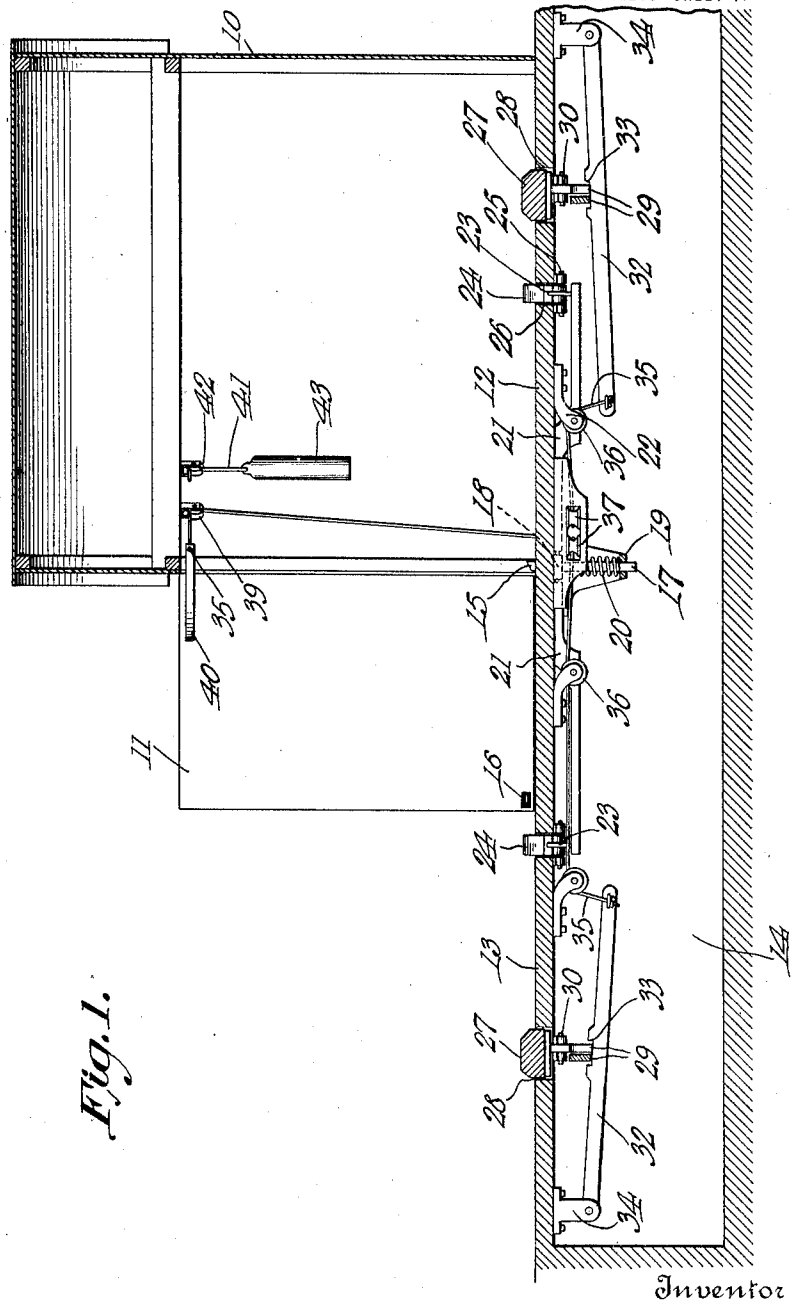


Fig. 1.

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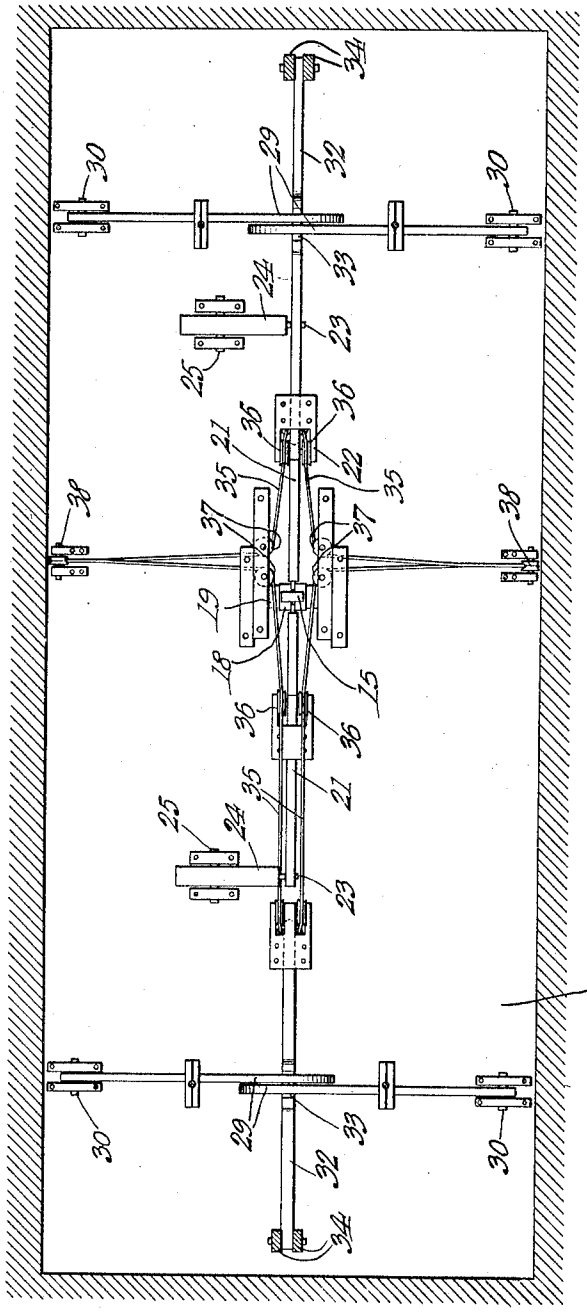


Fig. 2.

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4 SHEETS—SHEET 3.

Fig. 4.

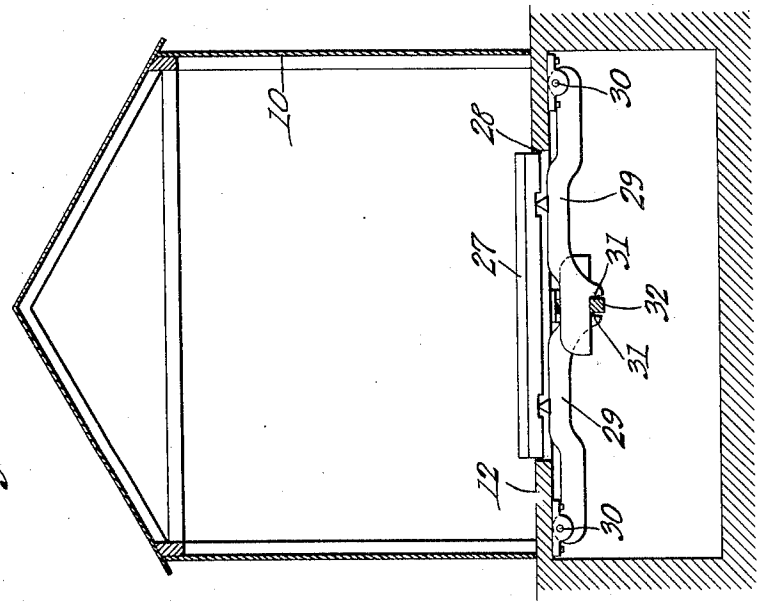
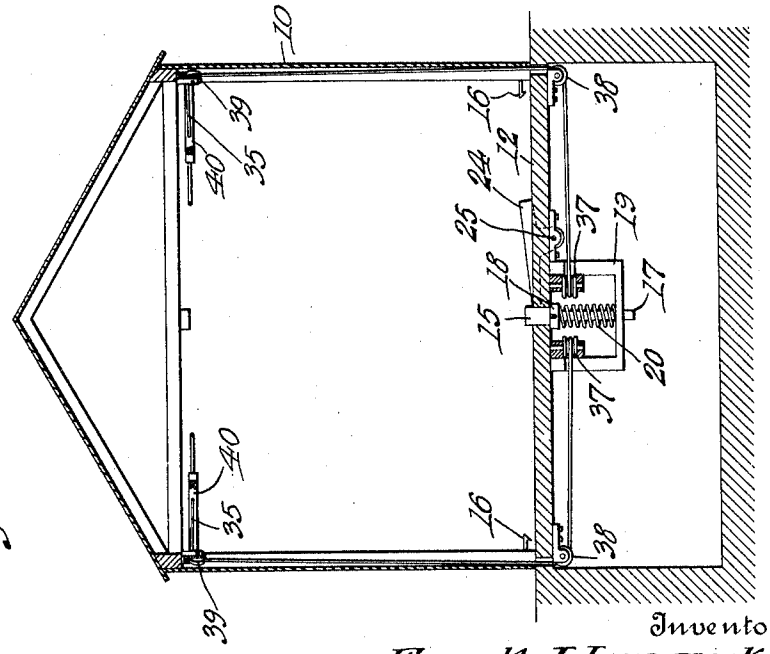


Fig. 3.



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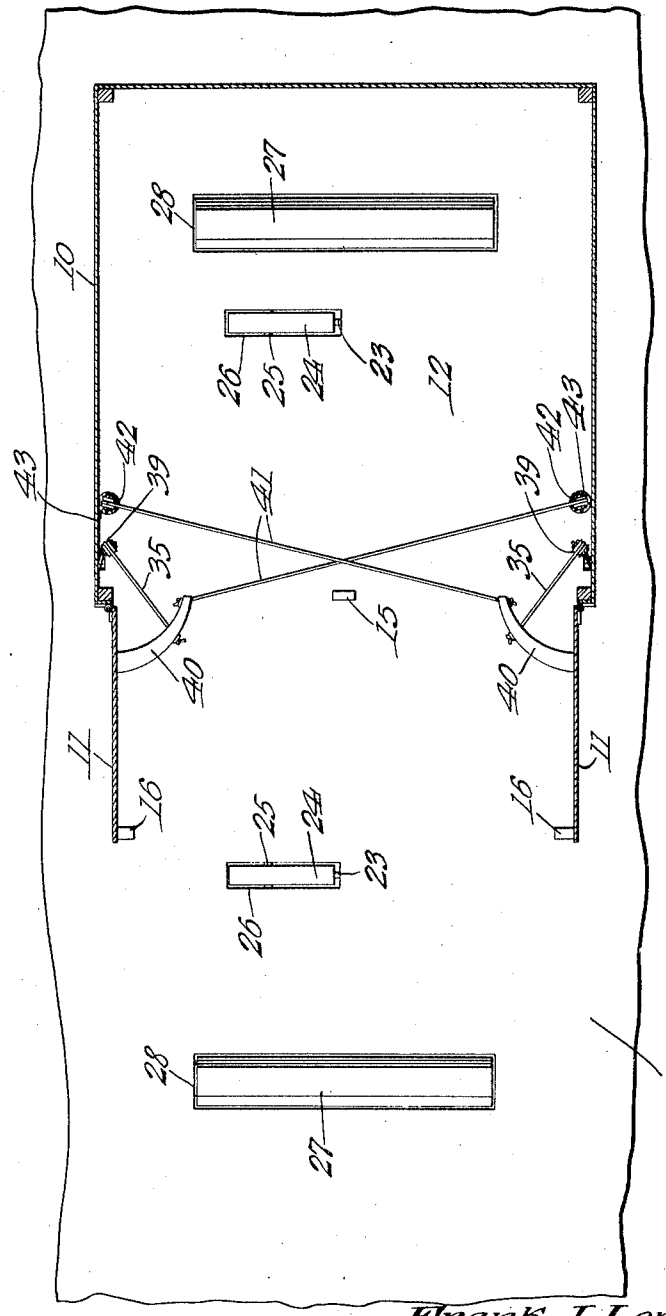


Fig. 5.

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UNITED STATES PATENT OFFICE.

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DOOR-OPERATING MECHANISM.

1,330,713. Specification of Letters Patent. Patented Feb. 10, 1920.

Application filed February 11, 1919. Serial No. 276,398.

To all whom it may concern:

Be it known that I, FRANK J. LONGUSKIE, a citizen of the United States, residing at Pontiac, in the county of Oakland and State of Michigan, have invented new and useful Improvements in Door-Operating Mechanism, of which the following is a specification.

This invention relates to means for releasing and opening the doors of a garage or other building.

An object of the invention is to provide means located upon both the inside and outside of a building for releasing the door holding means, so as to permit the doors to be opened.

Another object is to provide automatic means for opening the doors after they have been released, so that the vehicle may pass therethrough without the driver leaving his seat.

A still further object is the provision of means for closing the doors, both after the vehicle enters and leaves the building, the door closing means being controlled by the vehicle passing into and out of said building.

With the above and other objects in view, the invention includes a latch operating lever located in the path of and adapted to be depressed by the vehicle to release the latch and permit the doors to open, through the medium of suitably arranged weights, an obstacle also located in the path of and depressed by the vehicle to close the door after the passage of the vehicle therethrough.

The invention further consists of the following novel features and details of construction, to be hereinafter more fully described and illustrated in the accompanying drawings:

In the drawings:—

Figure 1 is the vertical sectional view taken longitudinally to a building and showing the arrangements of the operating levers located beneath the floor of and the approach to the building.

Fig. 2 is a plan view with the floor removed.

Fig. 3 is a transverse sectional view showing the operation of the door latch.

Fig. 4 is a similar view taken on a line with the door closing obstruction and

Fig. 5 is a horizontal sectional view taken directly beneath the roof of the building.

Referring in detail to the drawings, wherein like characters of reference denote corresponding parts throughout the several views, the building to which the invention is shown applied is indicated at 10, while the doors are shown at 11. The doors are hinged along one edge so as to swing horizontally in the opening or closing and while two doors are shown, it is of course obvious that the invention may be used in connection with a single door. The floor of the building is indicated at 12 and this floor may extend beyond the outside of the building so as to form an approach platform 13, while located beneath the floor 12 and beneath the platform 13 is a well or depression 14 within which the door operated mechanism to be later described is located.

The doors are held in closed position through the medium of a latch 15, which extends upward through an opening in the floor 12 and is adapted to be engaged by a cleat 16 carried by each of the doors 11. The upper face of the latch 15 is beveled so that when this latch is engaged by the cleat 16, the former will be depressed and the latter engaged behind the latch to prevent the doors from opening. The latch 15 is provided with a downwardly extending shank 17 and formed at the upper end of this shank is a shoulder 18, while between the shoulder and the bracket 19, is a spring 20, which serves to yieldingly support the latch upward in the path of the cleat 16. The bracket 19 is secured to the underside of the floor 12 and is provided with an opening for the passage of the latch shank 17.

Pivotally secured to the latch 15, is one end of a lever 21, this lever being pivotally mounted between ears 22 secured beneath the floor 12. The opposite end of the lever 21 is pivotally connected through the medium of a link 23 with one end of a lever 24, pivotally mounted as shown at 25 in

an opening 26 formed in the floor 12. One end of the lever 25 is normally disposed above the surface of the floor 12, so that a vehicle passing thereover will depress this end of the lever and through its connection with the latch 15, will depress the latch against the action of the spring 20 so as to permit of the release of the doors. This construction is duplicated upon each side of the doors, that is upon the inside and outside of the building so that a vehicle passing either into or out of the building will depress one of the levers 24 to release the latch 15.

Located transversely of the building is an obstacle 27, the latter being in the form of a bar operating within an opening 28 in the floor 12 and normally disposed above the surface of the latter. The obstruction 27 is pivotally secured near each end thereof to one of a pair of transversely disposed levers 29, the latter being pivoted beneath the floor 12 at their outer ends as indicated at 30. The inner ends of each of the levers 29 are formed with shoulders 31, the said shoulders being spaced slightly from the said inner end and these inner ends rest upon the upper edge of a longitudinally disposed lever 32, which is provided with a notch 33 upon its upper edge for this purpose. One end of the lever 32 is pivotally secured between ears 34 secured beneath the floor 12, while its opposite end has connected thereto one end of a flexible element 35. This flexible element may be in the form of a cable or chain and fastened around a pulley 36 carried by the brackets 22 and around pulleys 37 and 38 secured beneath the floor 12 and thence upward through an opening in the floor where it passes over a pulley 39 depending from the top of the building. The extremity of this rope or cable is connected to an arm 40 secured to the door 11, one of these arms being connected to each of the doors for connection with each of the flexible elements.

The weight of the vehicle resting upon or passing over the obstruction 27, will depress the levers 29 and 32 and exert a downward pull upon the rope or cable and close the doors. This construction is also duplicated upon the outside of the building so that a vehicle going in either direction will operate to close the doors, the flexible elements connected to the lever 32 upon the outside of the building being connected to the flexible elements which are secured to the lever 32 beneath the floor 12.

Also connected to each of the arms 40, is one end of a chain or cable 41, which passes over a pulley 42 depending from the roof of the building and has secured to its opposite end a weight 43, the latter acting to automatically open the doors upon the release of the latch 15.

In the operation of the invention, the doors of the building being closed, a vehicle desiring to enter the building will pass over the lever 24 located within the platform 13, depressing the said lever and releasing the latch, whereupon the doors will be opened by the weights 43. After entering the building, the front wheels of the vehicle will rest upon the abutment 27 upon the inside of said building, depressing the abutment and closing the doors through the levers 29 and 32 and the flexible element 35. The cleats 16 will then depress and engage the latch 15 to hold the doors in closed position. The person upon the outside of the building will be prevented from opening the doors, due to the fact that the weight of the vehicle rests upon the abutment 27. In passing out of the building, the front wheels will leave the obstruction and pass over the lever 24, so as to release the latch and permit the doors to open under the influence of the weights 43, the closing operation being effected through the medium of the obstruction 27 upon the outside of the building.

The invention is susceptible of various changes in its form, proportions and minor details of construction, and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having thus described the invention what I claim as Letters-Patent is:—

1. A door closing mechanism comprising a vertically movable obstruction located in the roadway transversely of and spaced from the door and raised above the surface of the roadway when the door is in open position, and means including a pair of pivoted levers actuated by the obstruction and connected to a cable to close the door.

2. A door closing mechanism comprising a vertically movable obstruction located in the roadway transversely of and spaced from the door and raised above the surface of said roadway when the door is in open position, and means including interengaging right angularly arranged levers acted upon by the obstruction when the latter is depressed to close the door.

3. A door closing mechanism comprising a vertically movable obstruction located in the roadway transversely of and spaced from the door and raised above the surface of said roadway when the door is in open position, a cable connected to the door and extending beneath the roadway, a lever disposed longitudinally of the roadway beneath the obstruction and having one end connected to the cable, and its opposite end pivotally secured, and a pair of levers pivotally mounted at their outer ends and having their inner ends engaged with the first mentioned lever and interposed between

said lever and the obstruction, whereby, when the latter is depressed, the levers will be operated to close the door.

4. A door closing mechanism comprising a vertically movable obstruction located in the roadway transversely of and spaced from the door and rising above the surface of said roadway when the door is in open position, a cable connected to the door and extending beneath the roadway and transversely pivoted means disposed beneath the obstruction and acting upon the cable to close the door when the obstruction is depressed.

In testimony whereof I affix my signature.

FRANK J. LONGUSKIE.