

C. ALBRECHT, JR.
DOOR OPERATING MECHANISM.
APPLICATION FILED JAN. 16, 1920.

1,366,236.

Patented Jan. 18, 1921.

3 SHEETS—SHEET 1.

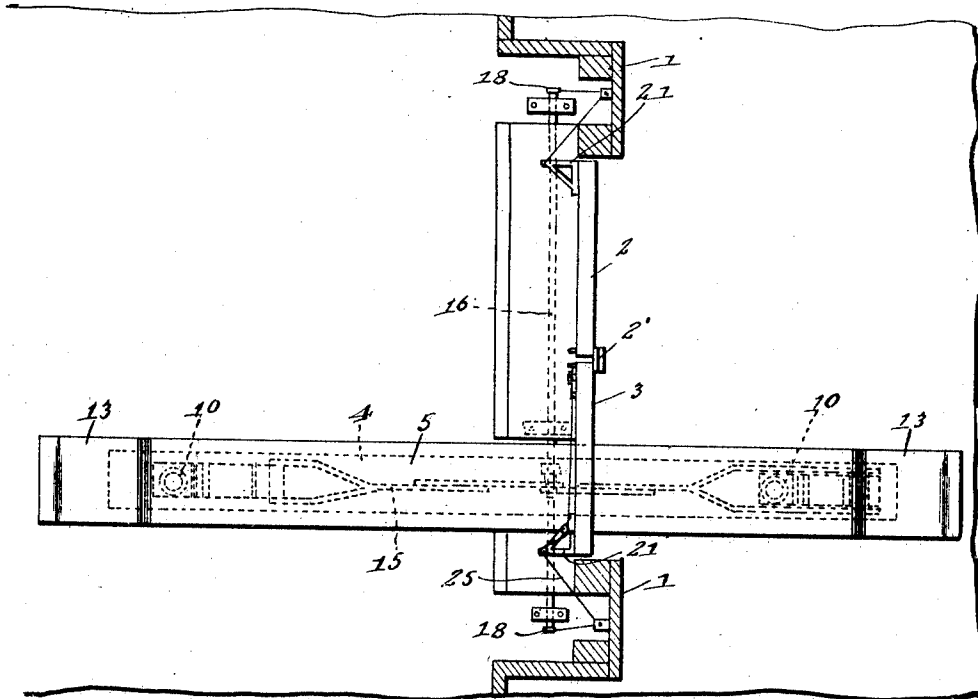


Fig. 1

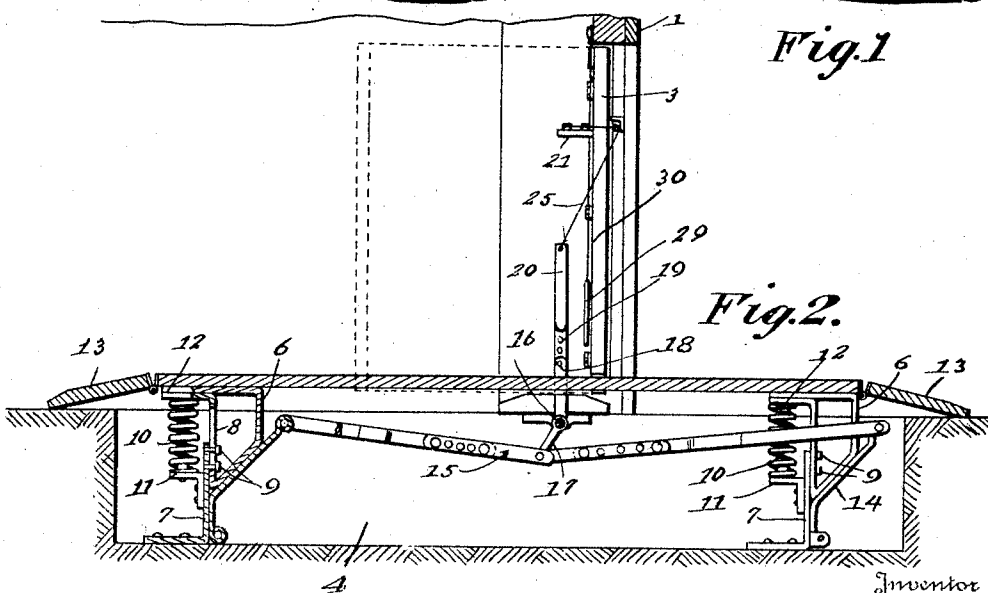


Fig. 2.

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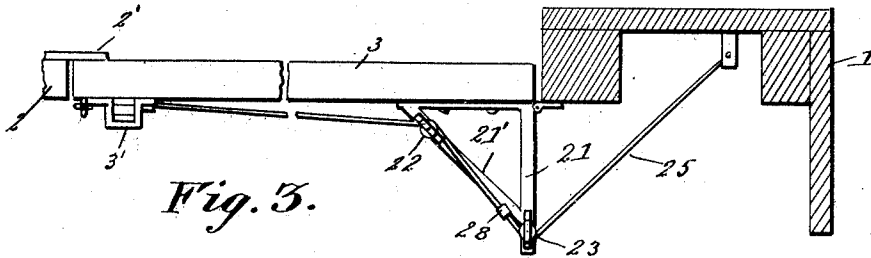


Fig. 3.

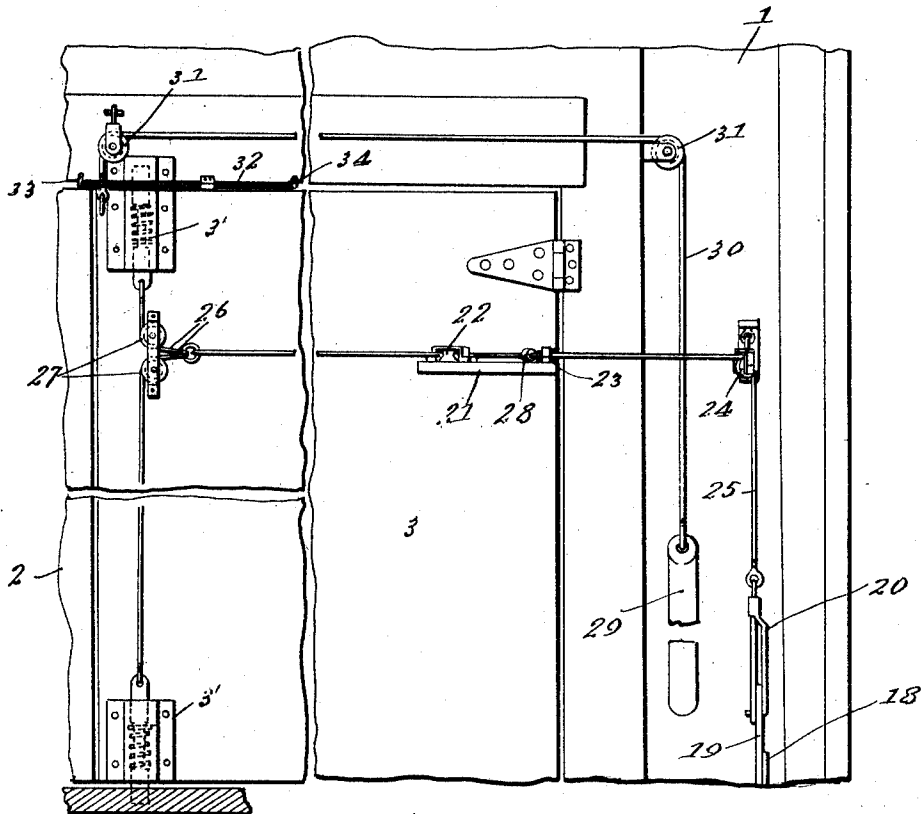


Fig. 4.

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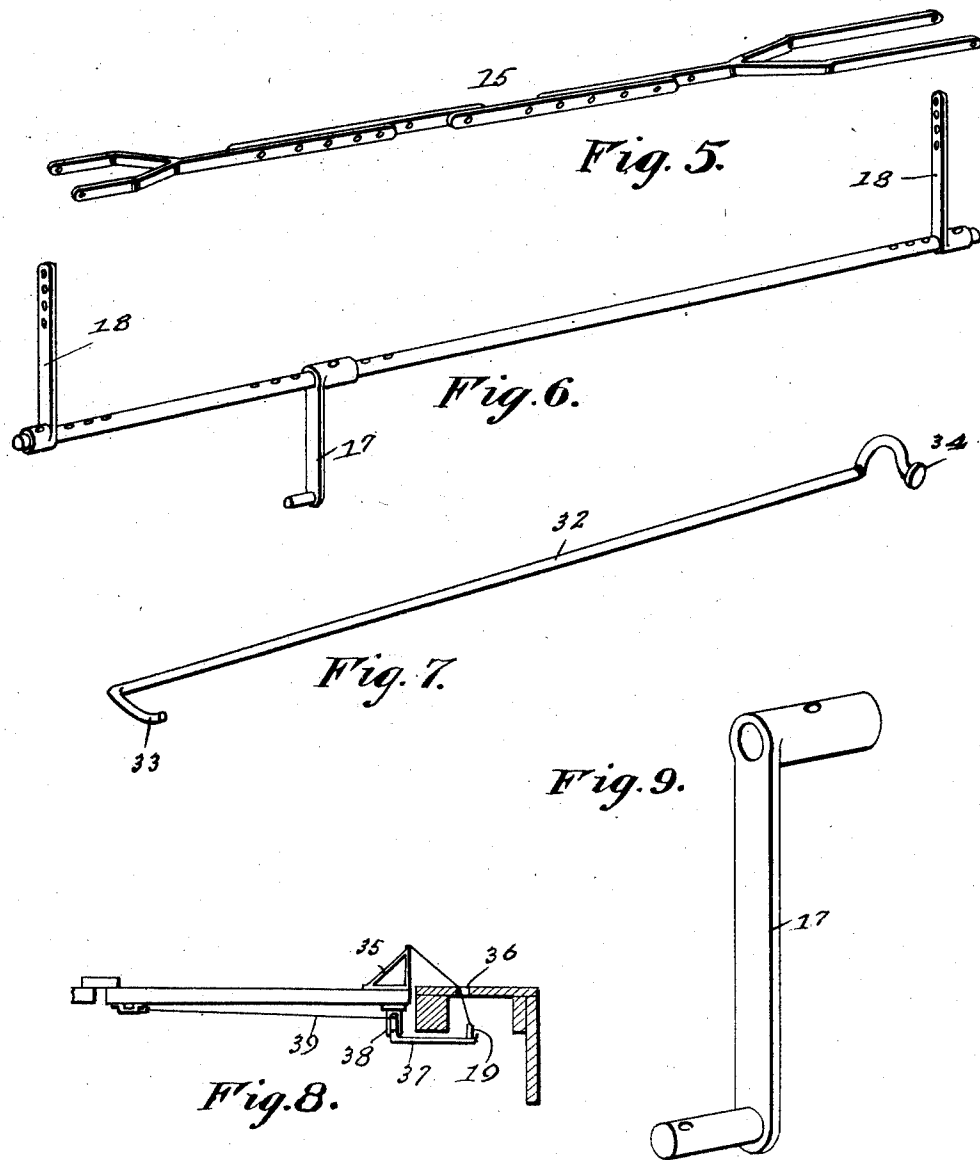
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CHARLES ALBRECHT, JR., OF SCHLEISINGERVILLE, WISCONSIN.

DOOR-OPERATING MECHANISM.

1,366,236.

Specification of Letters Patent.

Patented Jan. 18, 1921.

Application filed January 16, 1920. Serial No. 351,844.

To all whom it may concern:

Be it known that I, CHARLES ALBRECHT, Jr., a citizen of the United States, residing at Schleisingerville, in the county of Washington and State of Wisconsin, have invented new and useful Improvements in Door-Operating Mechanism, of which the following is a specification.

This invention relates to door operating mechanism of the class which releases the latch mechanism and swings the doors to open position by the weight of the vehicle on a movable platform.

The present invention is an improvement over that patented by me on February 19, 1918, No. 1,257,172 and the object of this invention is to simplify the construction and improve the operation of the apparatus shown in said patent.

Another object of this invention is to provide means for operating doors that swing outwardly instead of inwardly.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a plan view of the invention.

Fig. 2 is a vertical section in side elevation of the same.

Fig. 3 is an enlarged plan view.

Fig. 4 is an enlarged front elevation.

Fig. 5 is a detail view of the connecting rods for connecting the cam levers to the crank shaft.

Fig. 6 is a detail view of this crank shaft.

Fig. 7 is a detail view of the rod for preventing the one door from closing before the other.

Fig. 8 is a detail plan view showing a modification.

Fig. 9 is a view of the crank 17.

In these views 1 indicates the door frame to which the doors 2 and 3 are hinged. The door 2 is provided with an overlapping strip 2' against which the door 3 abuts. The door 3 is provided with a spring latch 3' at its top and bottom for locking the doors in closed position.

A recess 4 is formed in the roadway leading through the door and extending toward either side thereof. This recess is bridged by the vertically movable platform 5. This platform is supported by means of the cam members 6 secured to its under face and slidingly engaging the standards 7 located in the recess. The cams are slotted as at 8 and these slots engage the bolts 9 carried by the standards. Springs 10 engage brackets 11 carried by the standards and have their upper ends engaging projections 12 of the cams tend to hold the platform in its upper position. Inclined pieces 13 are hinged to the ends of the platform for permitting the vehicle to pass from the road surface on to the platform. Levers 14 have their lower ends pivotally mounted to the lower ends of the standards and these levers have inclined upper portions and these portions are pivoted to the forked ends of the connecting arms 15. A crank shaft 16 is journaled below the platform and its adjustable crank 17 is connected with the inner ends of the connecting arms 15. These arms are formed of two pieces, each provided with a plurality of perforations to receive connecting bolts so that the two pieces may be adjustably connected together. This formation of the connecting arms is shown in detail in Fig. 5. The crank shaft 16 is provided with a crank 18 at each end thereof and these cranks are adjustably connected to the shaft by means of the bolts and plurality of holes formed in the shaft. As will be seen from Fig. 6 the shaft is also provided with a plurality of holes to receive the bolt which holds the crank 17 in place. I prefer to make the shaft of tubing and as will be seen the three cranks may be adjusted in position on said shaft.

A link 19 is adjustably connected to each of the cranks 18 and a hook 20 is adjustably connected to each link.

An angle bracket 21 is connected with each door and the brace 21' of this bracket carries a small pulley 22 and the outer end of the bracket carries a pulley 23. A pulley 24 is swung to one wall adjacent the door opening. The cable 25 has one end connected with the hook 20 and passes upwardly through the pulley 24 then over the pulley 23 and over pulley 22 and this cable is connected with the pair of cables 26 which pass over the guide pulleys 27 carried by the door 3 and the ends of these cables are connected

with the latches 3'. A small stop 28 is placed on the cable 25 between the pulleys 22 and 23 and this stop is so located with respect to pulley 23 that the first pull on the pulley 25 will cause the cable 26 to retract the latches 3' and then said stop will strike the pulley and thus lock the cable to the bracket so that further movement of the cable will cause the door to swing open.

10 When the door 2 is not provided with a latch the cable for this door is simply attached to the door and the stop 28 is not required.

It will thus be seen that as the vehicle 15 moves upon the platform its weight will lower the platform and the cams will depress the levers 14 and thus rock the crank shaft. This movement of the crank shaft will cause its crank arms to pull on the cables and cause the cables to unlatch the doors and swing them open as before stated. After the vehicle leaves the platform the doors are swung shut by means of the weights 29 which are attached to the doors 25 by the cables 30, said cables passing over the guide pulleys 31.

In order to prevent the door 3 from closing before door 2 I place a rod 32 on the door lintel which has one end bent downwardly and curved as at 33 and its other end is bent outwardly and provided with a rubber tip 34. The bar is so placed that the part 33 will be struck by door 2 as it swings shut while the part 34 will prevent the door 35 3 from closing to a sufficient degree to prevent the door 2 closing. When the part 33 of rod 32 is struck by the door 2 the rod 32 will be rocked so as to move the part 34 out of the path of door 3 so that said door 3 40 will close after door 2.

Where the doors are hung, to swing outwardly as shown in Fig. 8 I place the bracket 35 on the outer edge of each door and have the cables pass through openings 45 36 formed in the wall adjacent the door opening. The ends of the cables may be attached to the outer part of the brackets though they may be passed over said brackets and connected with the door. In any 50 event the pull of the cable would be on the projecting part of the brackets. In this case the means for unlocking the door consists of an L-shaped lever 37 pivoted at the junction of its arms to a bracket 38 which is 55 secured at the door adjacent its hinged edge. The end of the small arm of this lever is connected with the latches by means of the cable 39 and the end of its long arm is located in the top of the link 19 so that 60 as said link is swung outwardly by the movement of the crank shaft it will strike said long arm of the lever so as to rotate said lever from its pivot and thus cause the cable or cables to retract the latches and 65 permit the doors to open.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the 70 combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. In a device of the character described, the combination with a door frame, a door hingedly mounted therein, an angle bracket connected with the door adjacent its hinged edge, a pair of pulleys on said bracket, one of which is located adjacent the outer end thereof, a vertically movable platform adjacent the door frame, a cable adapted to be pulled upon by the depression of the platform, said cable passing over the pulleys, a latch for the door to 85 which the cable is connected and a stop on the cable located between the pulleys for engaging the outermost pulley to cause the pull on the cable to open the door.

2. In a device of the character described 90 the combination with a door frame, of a door hingedly mounted therein, a vertically movable platform located adjacent the door frame, cam members carried by the platform, levers operated by the cams, a crank 95 shaft located below the platform, crank arms adjustably mounted on said shaft, adjustable connecting rods connecting the levers with said crank arms and door opening means connected with the said crank 100 shaft.

3. In a device of the character described, the combination with a door frame, of a door hingedly mounted therein, a vertically 105 movable platform located adjacent the door frame, cams carried by said platform, levers actuated by said cams, a crank shaft located below the platform, adjustable connecting rods connecting the shaft with the levers, said rods having forked ends connected with the levers and means for connecting the door with the crank shaft whereby the rocking movement of the shaft will 110 cause the door to open.

4. In a device of the character described, 115 the combination with a door frame, of a pair of doors hingedly mounted therein and means for preventing one of said doors from closing before the other, such means consisting of a rod located on the door lever and 120 having a downwardly curved part located in the path of the first door and an outwardly curved part located in the path of the second door and holding the second door open until the first door swings shut and 125 strikes the curved part and rotates the rod to move the outwardly extended part out of the path of the second door.

In testimony whereof I affix my signature.
CHARLES ALBRECHT, JR.