Sept. 29, 1931. P. SMITH 1,824,968

DOOR OPERATING DEVICE

Filed May 28, 1930 2 Sheets-Sheet 1

Fig. 1.

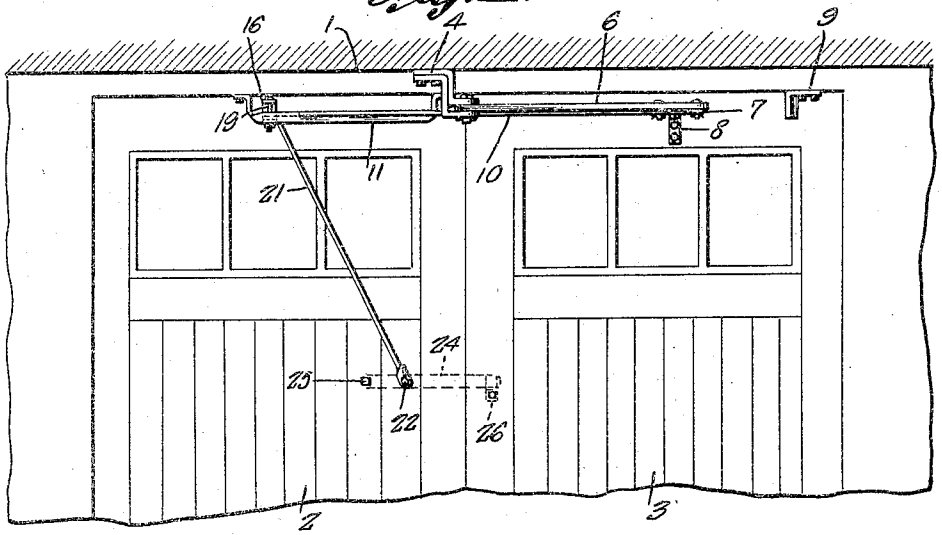


Fig. 4.

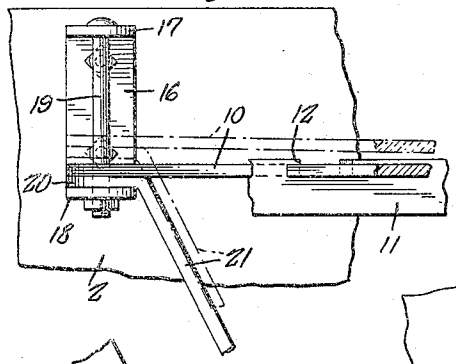


Fig. 5.

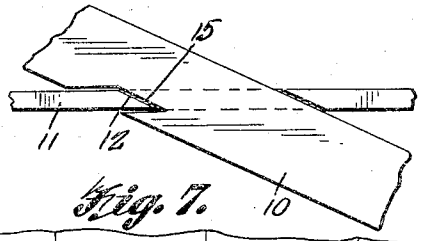


Fig. 7.

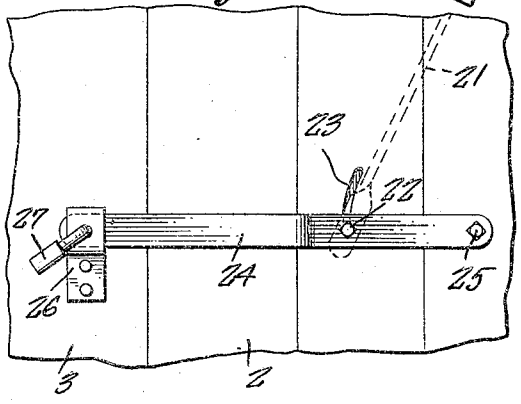
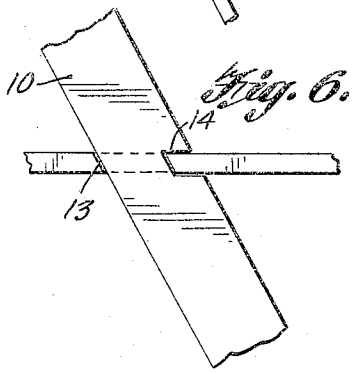


Fig. 6.



Paul Smith,

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Fig. 2.

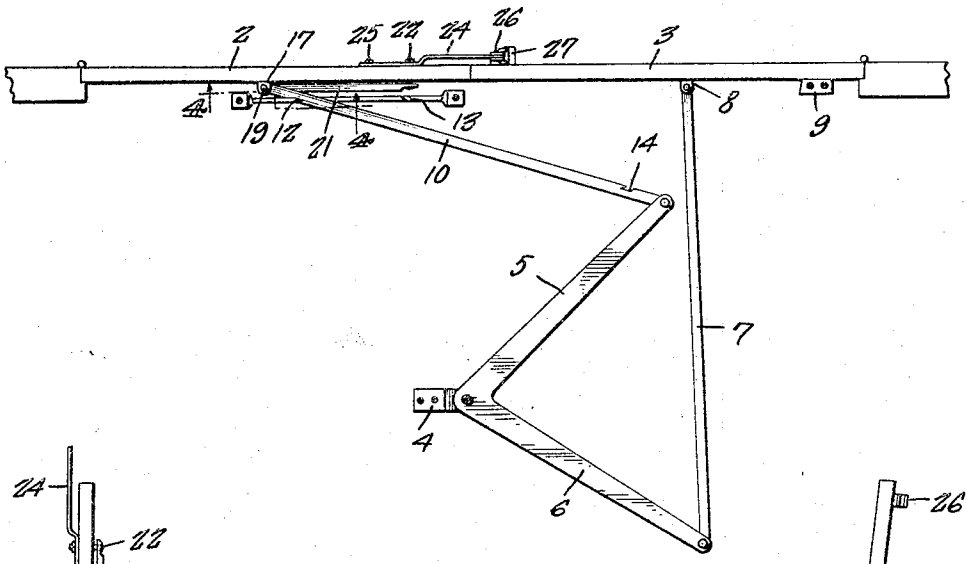
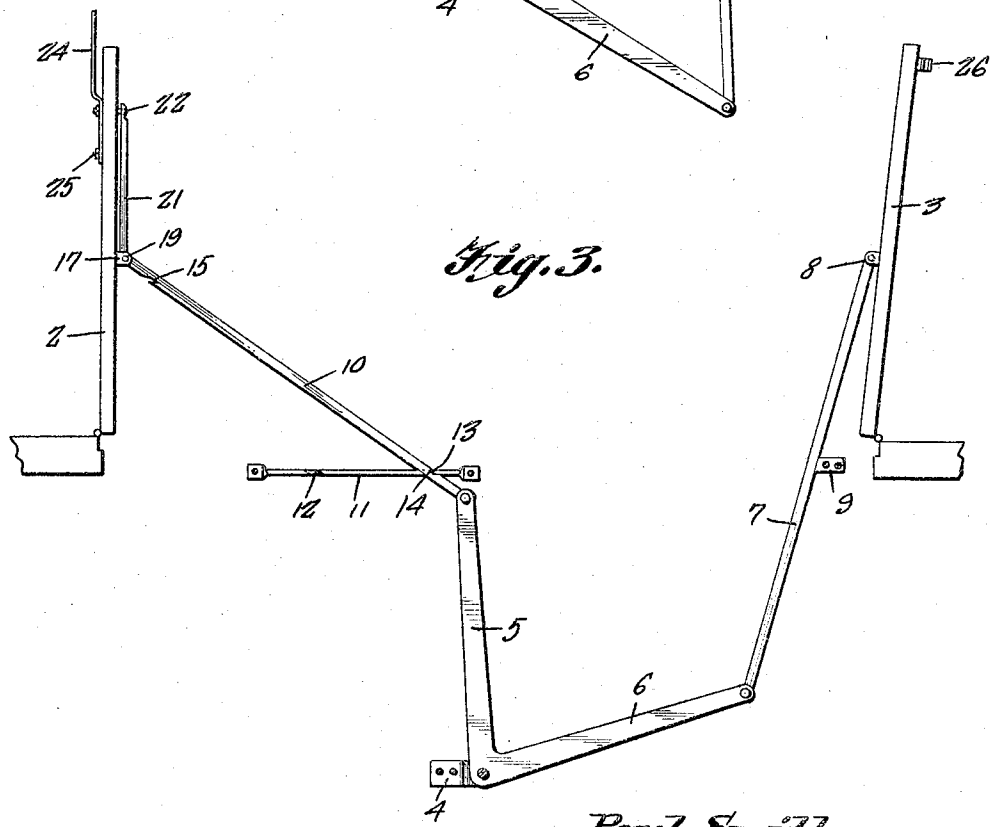


Fig. 3.



Paul Smith, INVENTOR

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ATTORNEY

WITNESS:

Patented Sept. 29, 1931 1,824,968

UNITED STATES PATENT OFFICE

PAUL SMITH, OF FARMINGDALE, NEW YORK

DOOR OPERATING DEVICE

Application filed May 28, 1930. Serial No. 456,734.

My present invention has reference to a door operating device.

An object of the invention is the provision of a simple, cheaply constructed and easily applied means whereby the double doors of garages or the like may be simultaneously swung to open and closed position in an easy and expeditious manner.

A further object is the provision of a means for this purpose whereby the doors will be automatically latched in either their open or closed positions, the latching means being such as to resist strain thereagainst so that the liability of the doors blowing or accidentally swinging to either closed or open positions will be entirely and effectively prevented.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therefrom as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

In the drawings:

Figure 1 is a fragmentary view of the interior of a garage, looking toward the doors and illustrating the application of the improvement.

Figure 2 is a plan view thereof.

Figure 3 is a similar view illustrating the arrangement of parts when the doors are swung to open position.

Figure 4 is an enlarged detail sectional view approximately on the line 4—4 of Figure 2.

Figure 5 is a detail plan view to illustrate the locking engagement between the combined throw and latch bar and the guide track therefor, as when the doors are closed.

Figure 6 is a similar view to show the locking engagement when the doors are open.

Figure 7 is a detail elevation of one of the doors to illustrate the handle or operating lever thereon.

On the ceiling of a garage or the like, 1 inward of but approximately in a line with the meeting edges of the hinged doors 2 and 3, I secure a bracket 4 that has a depending portion which affords a pivot for a bell crank lever. For distinction one of the arms of the bell crank lever is designated by the character 5 and the second arm by the character 6.

The arm 6 has pivotally secured to its outer end a rod 7, and this rod in turn is pivotally connected to a bracket 8 on the inner face of the door 3.

Fixed to the top of the frame for the doors 2 and 3, in a position to be contacted by the rod 7, when the doors are in open position, and likewise in a position to be contacted by the inner face of the door 3, when the doors are in closed position there is a stop member 9.

Pivotally secured to the upper end of the arm 5 of the bell crank lever there is a bar 10. This bar normally rests on the upper edge of a substantially U-shaped member which I will term a track or rail. The angle upstanding ends of the rail 11 are offset and flat and are fixed to the top of the door frame. The upper edge of the rail, at points adjacent to the angle ends thereof is provided with notches 12 and 13, respectively, and the side walls of these notches are inclined in the same direction.

The opposite edges of the bar 10 at points adjacent to and equidistantly spaced from the ends of the said bar are notched, as at 14, and 15, respectively, and the end walls provided by these notches are cut angularly and the said angle walls are arranged at an opposite inclination with respect to the angle side walls provided by the notches or grooves 12 and 13.

On the inner face of the door 2, adjacent to the top thereof I fix a substantially U-shaped bracket 16. The bracket is vertically arranged, and its outstanding angle ends are indicated for distinction by the numerals 17 and 18. There is passed through

suitable openings in the angle ends 17 and 18 of the bracket a pivot bolt 19 which is engaged by a suitable nut, and this pivot 19 passes through a pivot opening in the outer or free end of the bar 10.

The bolt 19 also passes through a suitable opening in the offset end 20 of an angularly disposed downwardly directed arm 21, the end 21 underlying the end of the bar 10 engaged by the pivot bolt 19.

The lower end of the arm 21 is flattened and has passed therethrough a pivot such as a bolt 22 that also passes through an arcuate slot 23 in the door 2. The bolt is secured to the operating handle or lever 24 which is arranged on the outer face of the door 2, one end of the said lever being pivoted to the door 2, as at 25, and the second or outer and offset end of the lever being received in but vertically slidable through an angle bracket in the nature of a keeper 26 which is securely fixed on the door 3. The keeper and the outer end of the lever 24 have openings designed to register when the lever is swung horizontally or into the keeper, and these openings are designed to receive there through the hasp of a pad-lock 27.

The operation of the device may be briefly described as follows: When the doors are in closed position the weight of the combined throw and latch bar 10 will cause its notched portion 15 to gravitate into the notch 13 in the rail 11. As the angle walls provided by the notch 15 contact with the opposite sides of the rail 11 it will be noted that the doors are effectively latched in such closed position. The arms of the bell crank lever, the length of the rod 7 and that of the bar 10 are such as to positively insure the notched portion 15 of the bar 10 being received in the groove or notch 13 of the rail 11 when the door 3 is brought against the step member 9. It is, of course, to be understood that the opening in the bar 10 through which the pivot bolt 19 passes is somewhat enlarged to insure the free downward swinging of the said bar 10. When the doors are closed the lever 24 may be locked in the keeper 26. When the doors are to be opened the lever 24 is swung upwardly, causing the lift arm 21 to elevate the bar 10 above the notch in the rail 11, and an outward pull on the lever causes the swinging of the bell crank lever and the push exerted thereby on the rod 7 and bar 10 to swing the doors to open position. When the rod 7 engages with the stop 9 the notch 14 and the bar 10 will register with the notch 13 in the rail 11 and the bar will gravitate into the notch or groove 13, the angle walls provided by the notch 14, contacting with the opposite sides of the rail 11 will effectively and positively hold the doors open until the lever 24 is again swung to raise the notched portion 14 of the bar out of the notch or groove 13 in the rail, so that the doors can now be swung to closed position.

It is thought that the foregoing description, when read in connection with the accompanying drawings will fully acquaint those skilled in the art to which the invention relates with the details of the construction, the operation thereof and the manifest advantages of the invention over those for a similar purpose.

Having described the invention, I claim:

1. An operating device for abutting hinged doors, comprising a bell crank, a rod pivoted to one arm of the crank and to one of the doors, a bar having notched edges pivoted to the second arm of the crank and pivoted for slidable movement to the second door, a rail on which the bar rests and having spaced notches to receive therein the notched portions of the bar when the doors are opened or closed and means for raising the bar to bring the same out of the notches of the rail to permit of the opening or closing of the doors.

2. An operating device for abutting hinged doors, comprising a bell crank, a rod pivoted to one arm of the crank and to one of the doors, a bar having notched edges pivoted to the second arm of the crank and pivoted for slidable movement to the second door, a rail on which the bar rests and having spaced notches to receive therein the notched portions of the bar when the doors are opened or closed, a lift arm underlying the loosely pivoted end of the bar and a pivoted lever for swinging the lift arm to raise the bar out of the notches in the rail to permit of the opening or closing of the doors.

3. An operating device for abutting hinged doors, comprising a bell crank, a rod pivoted to one arm of the crank and to one of the doors, a bar having notched edges pivoted to the second arm of the crank and pivoted for slidable movement to the second door, a rail on which the bar rests and having spaced notches to receive therein the notched portions of the bar when the doors are opened or closed, a lift arm underlying the loosely pivoted end of the bar, a pivoted lever for swinging the lift arm to raise the bar out of the notches in the rail to permit of the opening or closing of the doors, said levers being pivoted to one of the doors, a bracket keeper on the second door for the lever and means for locking the lever in the keeper.

4. An operating device for abutting hinged doors, comprising a bell crank, a rod pivoted to one arm of the crank and to one of the doors, a bar having notched edges pivoted to the second arm of the crank and pivoted for slidable movement to the second door, a rail on which the bar rests and having spaced notches to receive therein the

notched portions of the bar when the doors are opened or closed, a lift arm underlying the loosely pivoted end of the bar and a pivoted lever for swinging the lift arm to raise the bar out of the notches in the rail to permit of the opening or closing of the doors and a stop element in the path of contact with the rod for limiting the opening of the doors and designed to be contacted by one of the doors when the doors are closed, and said stop holding the notched portion of the bar in register with the notched portion of the rail when the doors are opened or closed.

5. An operating device for abutting hinged doors comprising a bell crank pivotally supported approximately in a line with the abutting doors, a rod pivotally secured to one of the arms of the crank and to one of the doors, a stop element to engage with the rod when the door is opened and to engage with the door when the latter is closed, a bar pivotally secured to the second arm of the bell crank and having its opposite edges adjacent to its ends notched and the side walls provided by the notches being cut angularly at the same pitch, a U-shaped bracket on the second door, a pivot passing therethrough and said pivot passing freely through an opening in the outer arm of the bar, a lift arm having an angle end underlying the bar and through which the pivot passes, a pivot bolt passing through the second end of the lift arm and through an arcuate slot in the last mentioned door, a lever pivoted on the upper face of the last mentioned door secured to the pivot for the lift arm, a keeper on the first mentioned door for the lever, a fixedly supported rail on which the notched bar rests, and said rail having notches at points adjacent to the ends thereof whose side walls are cut at the same pitch and which notches are designed to receive therein the notched portions of the bar when the doors are swung to open and closed positions.

In testimony whereof I affix my signature.

PAUL SMITH.