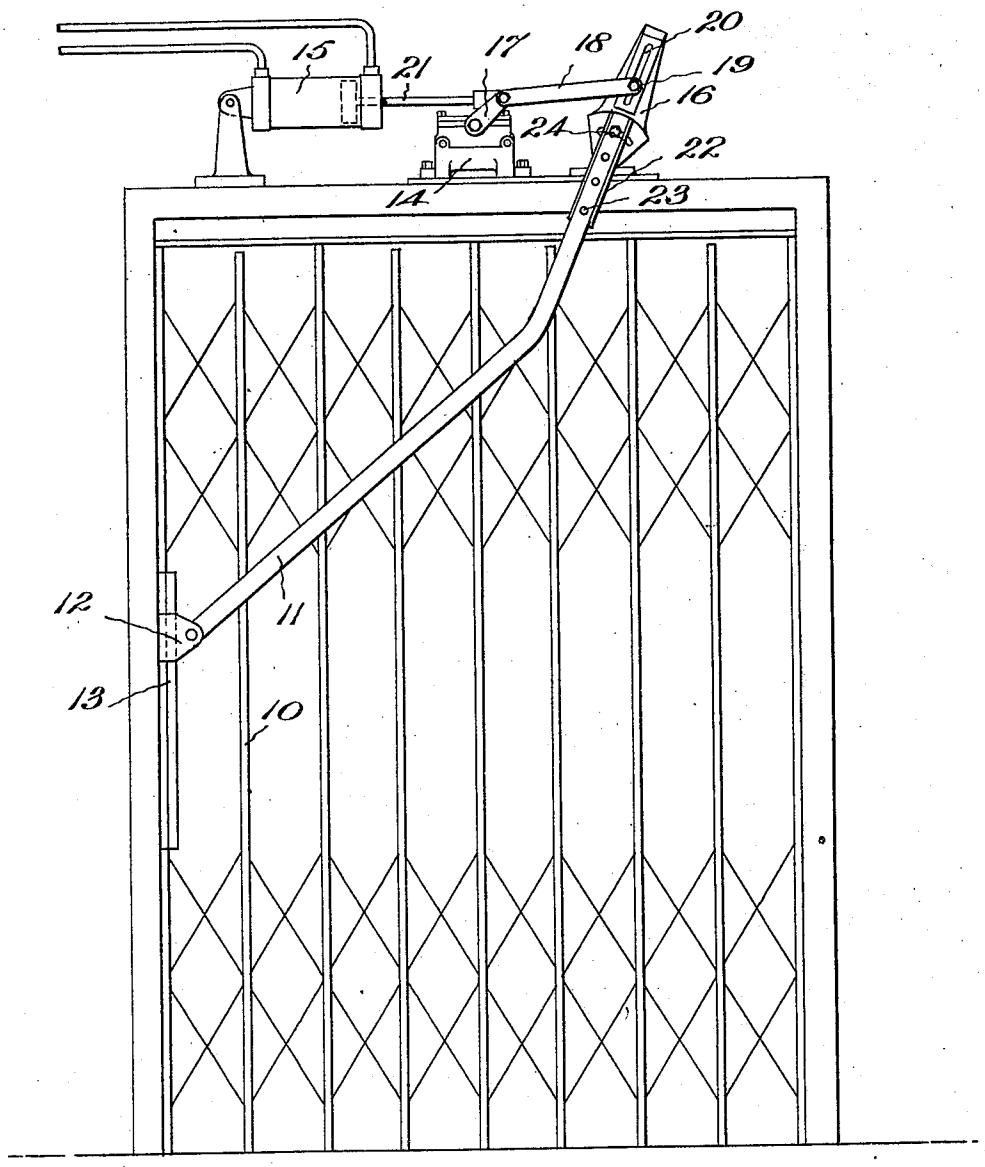
June 11, 1929. H. W. SHONNARD 1,716,567

ADJUSTABLE DOOR OPERATOR

Filed March 8, 1926 2 Sheets-Sheet 1

Fig. 1.



Harold W. Shonnard
Inventor

By his Attorney Howard Kaye

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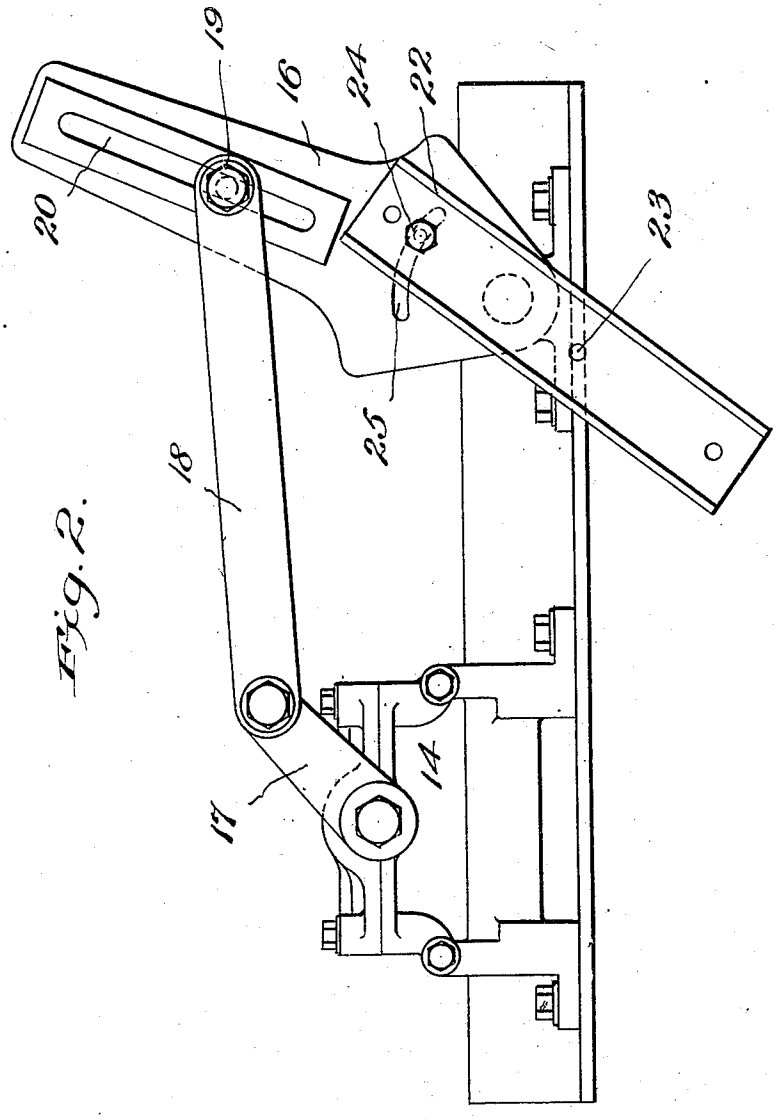


Fig. 2.

Harold W. Shonnard
Inventor

By his Attorney Hamlack Kaye

Patented June 11, 1929. 1,716,567

UNITED STATES PATENT OFFICE.

HAROLD W. SHONNARD, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO ELEVATOR SUPPLIES COMPANY, INC., A CORPORATION OF NEW JERSEY.

ADJUSTABLE DOOR OPERATOR.

Application filed March 8, 1926. Serial No. 93,086.

The present invention relates to adjustable means whereby either a door checking means or a mechanical door closer, or both, may be made to operate successfully with doors or gates of different widths.

While the invention may be used in connection with doors for any purpose, it is particularly useful in connection with sliding or folding doors or gates on elevators, and will be herein shown and described with one form of gate commonly employed on elevators, by way of example.

In elevator practice it is usual to employ both sliding doors, hung upon rolling sheaves, and folding gates constructed of bars pivoted together on the "lazy tongs" principle, which fold up into a small space when opened and expand across the door opening when closed.

My invention may be used with either of these types of doors, and is applicable either with a door check to prevent slamming or with pneumatic or other power means for operating the door or with both together. In this specification I have illustrated the invention as used with both of these, but it is to be understood that the invention may be used with manually operated doors if desired.

The doors or gates used in elevator practice are of different widths, and it has been hitherto customary to construct the door checking and door operating means for each door in accordance with the distance through which it is intended to be moved back and forth in opening and closing.

It is the principal object of the present invention, however, to supply means whereby a single standard door checking means or a single standard door-mover, or both together, may be used for doors of different widths, without materially increasing the expense of a given installation. It is a further object of the invention to provide means for the purpose named that may be used by any ordinary mechanic without the use of special tools. The invention is illustrated by way of example in a preferred form in the accompanying drawings, wherein Figure 1 is a view in elevation of a folding gate equipped with my invention, and Figure 2 is a similar view on a larger scale of the adjustable connection as used with a door checking means alone.

In Figure 1 there is shown at 10 a folding gate of the type well known in elevator practice which is opened and closed by being folded or slid back and forth in its own plane, either by hand or by means of a swinging arm 11 which is pivotally attached to the bracket 12. This bracket slides up and down on a bar 13 attached to the front edge of the gate in the usual manner. This arm may be used either to connect the gate with any well known form of checking means, as for instance that shown at 14, or it may be used to operate the gate by transmitting the necessary effort from a pneumatic or other mechanical door closer shown at 15.

In the construction shown in Figure 1 the arm 11 is employed in both capacities. For this purpose I employ a rocking lever 16, the bottom of which is pivotally attached just above the gate 10, and preferably on top of the door frame, as shown.

The rocking lever 16 is operatively connected with the door check 14 by means of the links 17 and 18, the latter of which is provided with an adjustable bolt 19 working in a slot 20 in lever 16.

Where the gate is operated mechanically, and in the form shown, a connecting rod 21 is appropriately attached to the link 18 and connects it with the mechanical operator 15.

Upon the front of the rocking lever 16 there is provided a channel bar having parallel raised sides or rails 22, and this channel is pivoted to the rocking lever 16 so as to be centered upon the same axis of revolution as the rocking lever itself.

The upper end of the arm 11 is fixed in the channel between the rails 22 by means of the bolts 23 or otherwise.

An adjustable bolt 24 passes through the end of the arm 11 and the channel through a curved slot 25 in the rocking lever 16 to secure the channel 22 in any desired angular position with respect to the rocking lever 16.

It will be clear that the construction shown is adapted to the operation of doors of different widths by making the adjustments provided for by the construction described.

If a narrower door than that shown is to be operated the bolts 19 and 24 are loosened and the bolt 19 is moved to a higher position within the slot 20 and there tightened.

The change in angular position of the swinging lever 16 necessitated by this operation does not alter the initial position of the arm 11 shown in Figure 1, because relative movement between said arm and the lever 16 is permitted by the loosening of the bolt 24.

This bolt is tightened after proper adjustment of the bolt 19 and the parts are then in the proper position for operation of a narrower door, since a given movement of the arm 18 corresponds to a shorter horizontal movement of the bracket 12 than would result in the position shown in Figure 1.

On the other hand, a wider door may be operated by bringing the bolt 19 lower down in the slot 20 than is shown in Figure 1. The adjustment permitted by movement of the bolt 24 within its slot makes it possible to adjust the entire device to different extreme positions of the moving edge of the gate and, therefore, permits not only the extent of movement of the door to be regulated but also permits adaptation to different extreme positions corresponding to the positions of the vertical sides of the door opening.

The invention is not limited to the precise details shown but is intended to be claimed to cover any adjustable connection between the door or gate on the one hand and a door operator on the other hand (either a door check or door mover or both) according to the size and position of the door opening to be accommodated.

What I claim is—

1. A sliding door, a door operator, a rocking member operatively connected with said operator, a fulcrum for the rocking member fixed with relation to said door, an arm adapted to swing upon the same center as said rocking member and in a plane parallel thereto and operatively connected with the door and means for securing said arm in different angular positions with respect to the rocking member.

2. Apparatus as in claim 1, wherein the rocking member is provided with a channel pivotally attached thereto and wherein the arm is fixed within said channel.

3. Apparatus as in claim 1 wherein the rocking member has a curved slot and wherein the arm is pivotally attached to the rocking member and has a bolt passing through said curved slot.

4. Apparatus as in claim 1 wherein the rocking member is connected with the operator by an arm provided with an adjustable bolt movable in a slot in the rocking member.

5. Apparatus as in claim 1 wherein the door operator comprises a door check, a mechanical door-moving means, connecting means between the check and the door on one side and connecting means between the check and the door moving means on the other side.

6. A sliding door, and operating means therefor, said operating means comprising a lever, a fulcrum therefor fixed with relation to said door, an arm, and means for fixing the arm to the lever in different angular positions, a link, means for pivotally connecting said link to the lever, means for fastening said pivotal connection to said lever at different radial distances from the fulcrum of said lever, and means for exerting force through said link.

In testimony whereof I have hereto affixed my signature this 5th day of March, 1926.

HAROLD W. SHONNARD.