

M. COSSEY.
 OPERATING MECHANISM FOR SLIDING DOORS.
 APPLICATION FILED NOV. 27, 1909.

1,023,723.

Patented Apr. 16, 1912.

Fig. 1.

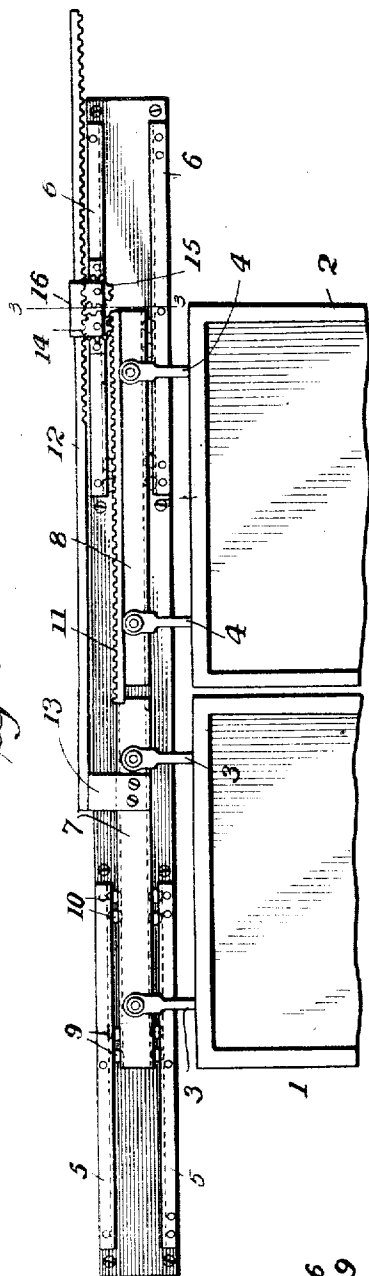


Fig. 2.

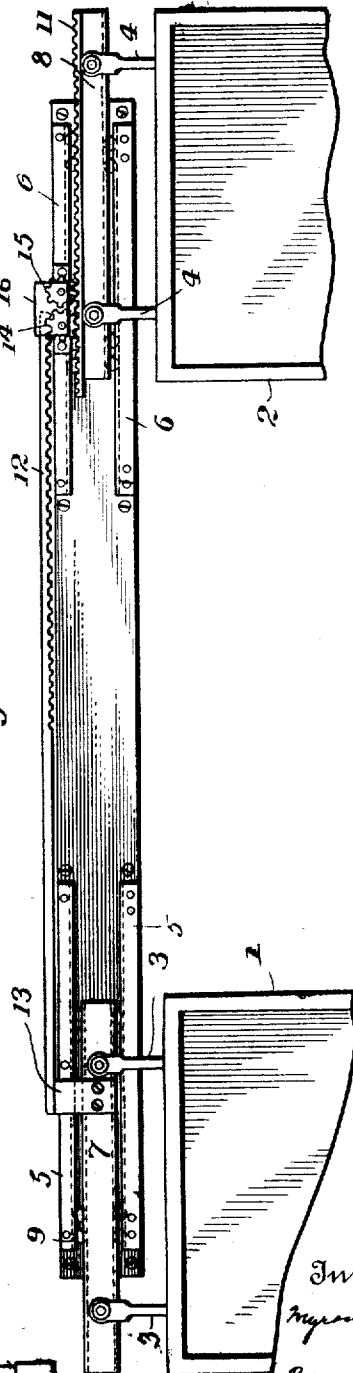
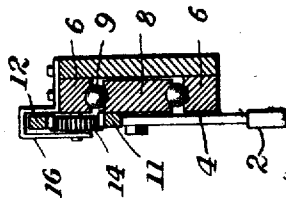


Fig. 3.



Witnesses
Joseph H. H. H.
Milton A. H. H.

Inventor
 Myron Cossey
 By
 Foster, Freeman, Watson & Co.
 Attorneys

UNITED STATES PATENT OFFICE.

MYRON COSSEY, OF BROOKLYN, NEW YORK, ASSIGNOR TO RELIANCE BALL-BEARING DOOR HANGER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

OPERATING MECHANISM FOR SLIDING DOORS.

1,023,723.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed November 27, 1909. Serial No. 530,264.

To all whom it may concern:

Be it known that I, MYRON COSSEY, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Operating Mechanism for Sliding Doors, of which the following is a specification.

This invention relates to double sliding doors and particularly to mechanism for effecting simultaneous operation of the doors in opening and closing.

It relates to doors of the general type disclosed in my prior Patents 632,224, August 29, 1899, and 809,781, January 9, 1906. Its objects are to produce a structure which will be durable, efficient and certain in operation, and which can be installed easily without the necessity of fine adjustment.

The novel features will be apparent from the following description, taken in connection with the accompanying drawings.

In the drawings,—Figure 1 is a front elevation showing the upper part of two doors with my improvements secured thereto; Fig. 2 is a similar view with the doors in open position; and Fig. 3 is a detail cross section of the controlling racks and housing taken on the line 3—3 of Fig. 1.

As shown in these drawings, the two door or gate sections 1 and 2 are shown as supported by hangers 3 and 4 secured to the upper edge thereof. Above the door sections there are trackways 5, 6, which are similarly constructed and which have a length equal to about that of the width of the door. As disclosed in my prior patents these trackways have upper and lower grooves to receive the balls or antifriction devices which engage the longitudinally movable bars 7 and 8. These bars have upper and lower grooves in which the antifriction devices run, and in the particular form shown I make use of two pairs of separated balls 9, 10 above and below each bar running in the trackways. As indicated in my prior patents these balls serve to maintain the bar rigidly in position while permitting its easy movement longitudinally, and the use of pairs of balls instead of single balls tends to strengthen and render more rigid the connection between the bar and the trackway. The hangers 3, 4 are connected to these bars, and thus the doors

1 and 2 are supported from the trackways 55 and can be easily moved laterally.

In order to make the two doors move together, so that by pushing one door open or closed, the other door will have a similar movement, I make use of the improved arrangement of rack bars and intermeshing gears. On the bar 8 I place a rack bar 11 having teeth on its upper surface, and this rack bar is secured to the bar 8 throughout substantially its entire length, but may project slightly beyond the end of bar 8 as shown, and it is thus held rigidly and firmly. A rack bar 12 is secured at one end to a bracket 13 which is in turn secured to the bar 7, this bar 12 projecting over the door 2 in the same plane with and parallel to the rack bar 11. It is provided with teeth on its under surface at its free end, and throughout about half of its length. In connection with these rack bars I make use of two toothed wheels 14, 15, meshing with the two rack bars and mounted upon fixed bearings secured to the frame constituting the trackway 6. These wheels do not mesh with each other, but each meshes with both racks at certain times, and they are arranged substantially over the rear edge of the door 2 when that door is in closed position. A housing 16 extends over these gears and constitutes part of the bearing for them, and at the same time constitutes a guideway for the free end of the rack bar 12. The rack bar 12 naturally tends to rest upon the gears by gravity, but the housing 16 prevents any accidental displacement of that bar and holds it in engagement with the gears.

It will be observed that when the rack bar 11 is in the position occupied when the doors are closed it will at least be in engagement with one of the two gears. The same thing will be true of the rack bar 12 when the doors are in open position, so that there will always be at least one of the gears in engagement with both rack bars, and by using two gears it is not necessary that the position of the gear be adjusted with such fineness as would be necessary where one gear alone was used. The two separated gears furthermore serve to steady and more effectively prevent accidental bending of the free end of the bar 12, making the operation smoother and more effective.

5 tive. It will be observed that the free end of the bar 12 projects beyond the rear edge of the door 2 when that door is closed a distance equal to about that which the door has when open. The space between door jambs is limited and therefore the rack bars cannot be made long enough to project beyond the door jambs without especially constructing its jambs to permit the entry of the racks.

10 By the above construction my device embodies only one rack which has a loose or free end and this rack is held by the two separated gear wheels which tend to steady it, and thus the operation is rendered easy and steady, and the construction is durable and is not such as would be likely to get out of order.

20 Having thus described the invention, what is claimed is:

1. In a device of the class described, the combination with two door or gate members movable laterally toward and from each other, of a trackway above said door members, a supporting bar connected to each door member and adapted to travel in said trackway, a rack bar having upwardly facing teeth secured to one of said supporting bars throughout substantially its entire length, a rack bar having teeth on its under surface secured to the other supporting bar at one end only and having its free end projecting over and parallel with the first mentioned rack bar, and two separated gear wheels between and engaging said two rack bars at a point substantially over the rear edge of one of said doors when it is pushed forward to closed position.

2. In a device of the class described, the combination with two door or gate members movable laterally toward and from each other, of a trackway above said door members, a supporting bar connected to each door member and adapted to travel in said trackway, a rack bar having upwardly facing teeth secured to one of said supporting bars throughout substantially its entire length, a rack bar having teeth on its under surface secured to the other supporting bar at one end only and having its free end projecting over and parallel with the first mentioned rack bar, the length of said projecting portion being about twice the width of a door section, two separated gear wheels

each engaging both of said racks substantially over the rear edge of one of said doors when closed, and a housing for said gears constituting a guide for the free end of said rack.

3. In a device of the class described, the combination with two door or gate members movable laterally toward and from each other, of an endwise movable bar above each door member, hanger connection between each bar and the door beneath it, trackways having parallel surfaces above and below said movable bars, antifriction devices between said surfaces and bars, a rack bar having upwardly facing teeth secured to one of said movable bars throughout substantially its entire length, a rack bar having downwardly facing teeth secured to the other movable bar at one end and having its free end projecting above and parallel with the first mentioned rack bar, and two separated rotatable toothed wheels between and engaging said toothed bars.

4. In a device of the class described, the combination with two door or gate members movable laterally toward and from each other, of a trackway above said door comprising upper and lower fixed members and an intermediate movable member, hangers supporting said doors from said movable members, a rack bar having upwardly facing teeth secured to one of said movable members at the rear along the top, a rack bar having teeth on its under surface secured to the other movable member at one end only and having its free end projecting over and parallel with the first mentioned rack bar, two slightly separated gear wheels between and engaging said two rack bars having a bearing in the side of the upper fixed member, at a point substantially over the rear edge of one of said doors when it is pushed forward to closed position, and a housing constituting a guide for the free end of said rack secured to the upper fixed member and extending over said gear wheels and forming a supporting bearing therefor.

In testimony whereof I affix my signature in presence of two witnesses.

MYRON COSSEY

Witnesses:

JOSIE C. PRATT,
H. B. McMANUS.