No. 652,018. Patented June 19, 1900.

J. C. DUNER.

GATE.

(Application filed Feb. 15, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

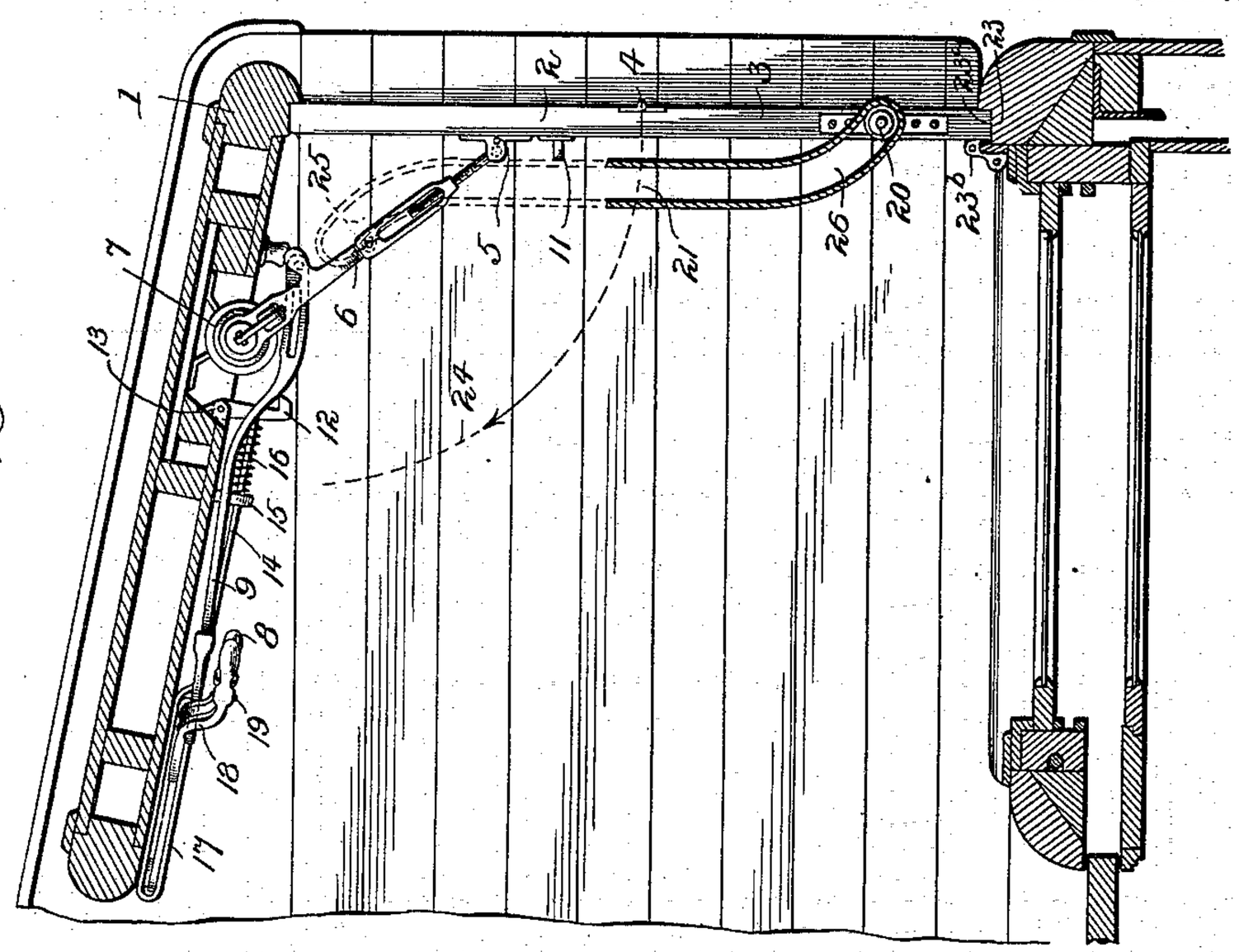
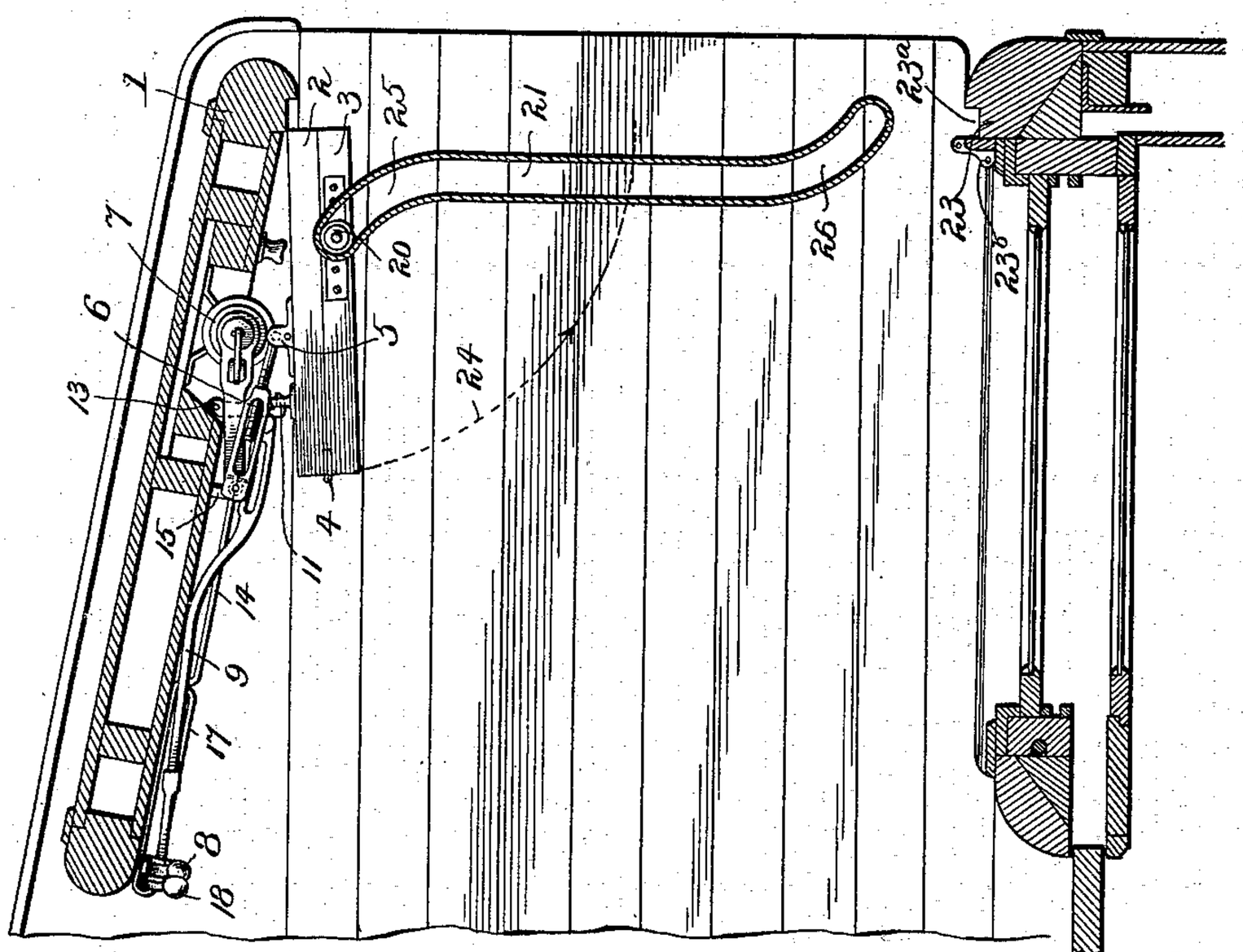


Fig. 1.



Witnesses:
John Enders Jr.
Geo. C. Davison

Inventor:
John C. Duner
By Paul Synnestvedt
Att'y.

No. 652,018. Patented June 19, 1900.

J. C. DUNER.

GATE.

(Application filed Feb. 15, 1900.)

(No Model.) 2 Sheets—Sheet 2.

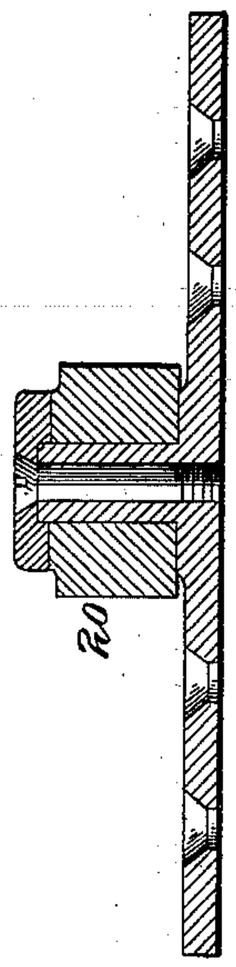


Fig. 4.

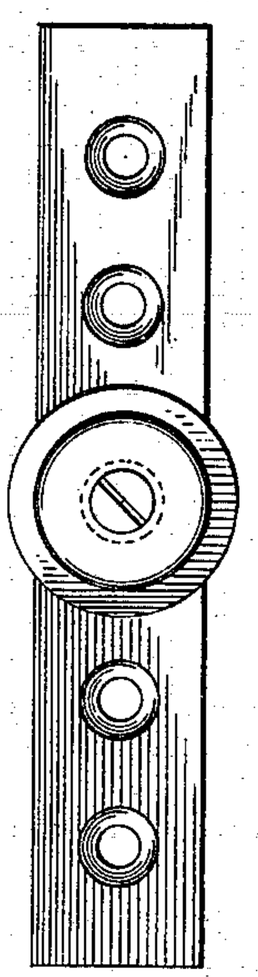


Fig. 5.

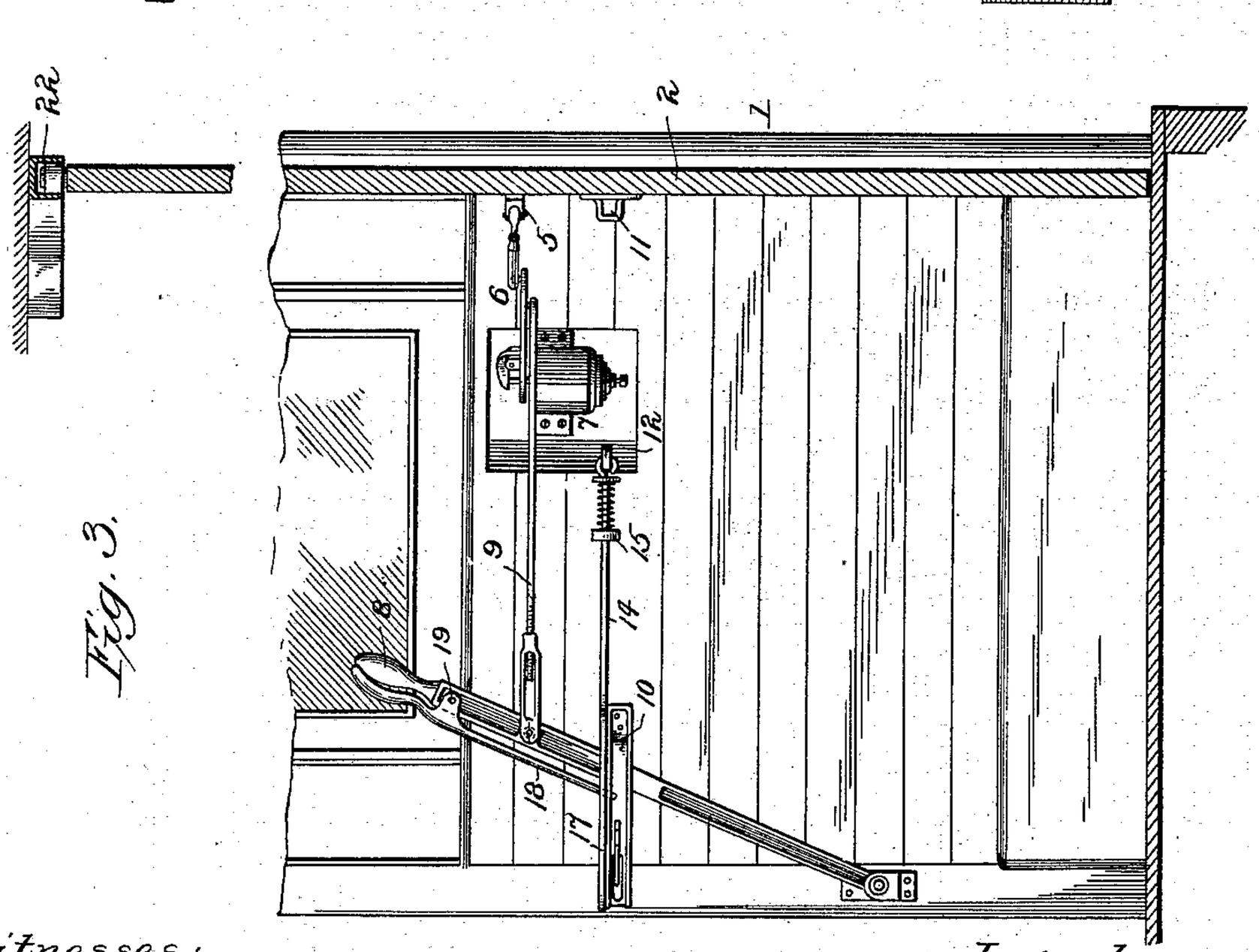


Fig. 3.

Witnesses:
John Enders, Jr.
Geo. C. Dawson.

Inventor:
John C. Duner
By Paul Synnestvedt Att'y.

UNITED STATES PATENT OFFICE.

JOHN C. DUNER, OF CHICAGO, ILLINOIS.

GATE.

SPECIFICATION forming part of Letters Patent No. 652,018, dated June 19, 1900.

Application filed February 15, 1900. Serial No. 5,275. (No model.)

To all whom it may concern:

Be it known that I, JOHN CHARLES DUNER, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented a certain new and Improved Gate or Door, of which the following, taken in connection with the accompanying drawings, is a specification.

The first of the objects of my invention is to provide a door or gate which will be capable of being opened and closed in a minimum amount of space and which, consequently, will interfere but little with any person or persons who may be standing adjacent to it when it is being manipulated. It is known that with the usual style of hinge or swinging door—such as is used, for example, on elevated trains—considerable room is required for the operation of the door, and if passengers are standing close together and near the door, upon the platform, it is frequently necessary for them to move their position before the door can be opened or closed.

My invention can of course be used in any place in which it is applicable, but is designed particularly for use on cars employed in suburban or street railroad traffic.

In carrying out my invention I construct a door comprising a plurality of parts hinged together, one of the parts being hinged or pivotally mounted upon the door frame or jamb and the other provided with a projection or roller arranged to engage a suitable guideway or slot, which may be either above or below the door, or both, so placed and constructed that when the entire door swings upon its main hinge the several parts of the door will swing upon the hinges by which they are pivoted to each other into position to close the door-opening on closing movement of the operating means and into position to leave the opening free and clear on opening movement of the operating means, the path of movement of the several parts of the door being within a confined or limited space, as will be hereinafter more particularly described, so as to interfere as little as possible with any person or persons who may be standing adjacent to the door while it is being manipulated.

The operating means which I prefer to employ in connection with my present invention is generically the same as that forming the subject-matter of a pending application filed by me April 29, 1899, Serial No. 714,950, but specifically embodies certain improvements, which will be hereinafter more fully described.

Referring now to the accompanying drawings, it will be seen that in Figure 1 thereof I have shown a plan section illustrating my improved type of door in open position, in Fig. 2 the door in closed position, in Fig. 3 a side elevation designed to illustrate more clearly the operating means and the improvements thereon, in Fig. 4 a sectional view, on an enlarged scale, of the projection or roller upon the edge of the door, and in Fig. 5 a plan view of the said device.

To a frame or jamb 1 is pivotally secured a door comprising a plurality of parts, as 2 and 3, which parts are pivotally secured together, as at 4, and provided with operating means connected at 5 for opening and closing the door, the said operating means comprising, essentially, a toggle-lever 6, a spring and check device 7, a hand-lever 8, connections 9, and guide-bracket 10, all arranged and operating substantially as shown in the prior application hereinabove referred to.

Upon the part 2 of the door I provide a staple or eye-bracket 11, designed when the door is in an open position to engage a hook 12, which is pivotally mounted in a bracket 13, attached to the door-frame. To the hook 12 is secured a rod 14, passing through a guide-bracket 15, which forms an abutment, against which the spring 16 acts in a direction to hold the hook or catch 12 in engaging position. The other end of the rod 14 is formed into a loop 17, which rests above the guide-bracket 10 and through which projects the lower end of a sublever 18, which is pivoted to the hand-lever at 19 in position to be engaged by the hand, so as to unlatch and release the door when it is desired to shut the same.

Preferably on the upper edge of the door and attached to the part 3 thereof I arrange a projection or roller-stud 20, constructed to move in a guide slot or track 21, formed of an inverted-U section, as shown at 22, (see Fig. 3,) the said guide-slot being secured to the frame or ceiling above the door. The curve or inclined or offset portion of the slot is such that when the door opens the roller

will cause the part 3 to draw away from the post or jamb 23 and be, as it were, retracted toward the center of motion of the part 2, the part 2 meanwhile swinging about its pivot on the arc 24, the parts of the door when fully opened occupying the position clearly shown in Fig. 1, in which they are, as it were, folded upon each other, in performing which opening movement but little more room is required than that contained within the line 24 and an extension thereof leading to the post 23. By giving to the guide-slot 21 a curve, such as is shown at 25 and 26, I secure very easy and reliable movement of the parts, as will be clear from an examination of the drawings, Figs. 1 and 2.

The closing operation of the door is substantially the reverse of that just above described, the parts when in closed position occupying the position shown in Fig. 2 and the closing movement being effected, like the opening movement, without occupying substantially more space than that embraced within the line 24. The post 23 has a groove 23^a, into which the edge of the door is guided by the shoe 23^b, this provision preventing this edge of the door from being pushed inward.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A door comprising a plurality of parts pivotally attached together, one of said parts being pivotally mounted upon a suitable support, a guide arranged on a horizontal plane relative to the pivotal axes of the said parts, said guide having a portion of its length inclined or offset substantially as shown at 25, and means whereby the said parts are guided in opening and closing movement by the said guide, substantially as described.

2. A door comprising a plurality of parts pivotally attached together, one of said parts being pivotally mounted upon a suitable support, a guide arranged on a horizontal plane relative to the pivotal axes of the said parts, said guide having a portion of its length inclined or offset substantially as shown at 25, and a projection or roller engaging said guide whereby the said parts in opening and closing are guided into position substantially as described.

3. A door comprising two parts hinged together, one of said parts being hinged to a suitable support, a guide-track above said door, said track being curved at its ends substantially as shown, a projection on the upper edge of the door attached to one of said parts and engaging said guide, and means for manipulating said door to open and close the same, substantially as described.

4. A door provided with an automatic closing device, an opening-lever, connections therebetween, a latch arranged to be engaged by said door when in open position, and mechanism adjacent to said opening-lever for disengaging said latch substantially as described.

J. C. DUNER.

Witnesses:
PAUL CARPENTER,
PAUL SYNNESTVEDT.