JOHN PARKHILL & JAMES PARKHILL.

AUTOMATIC DOOR AND MECHANISM FOR OPERATING THE SAME.

APPLICATION FILED MAY 6, 1907.

955,540. Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

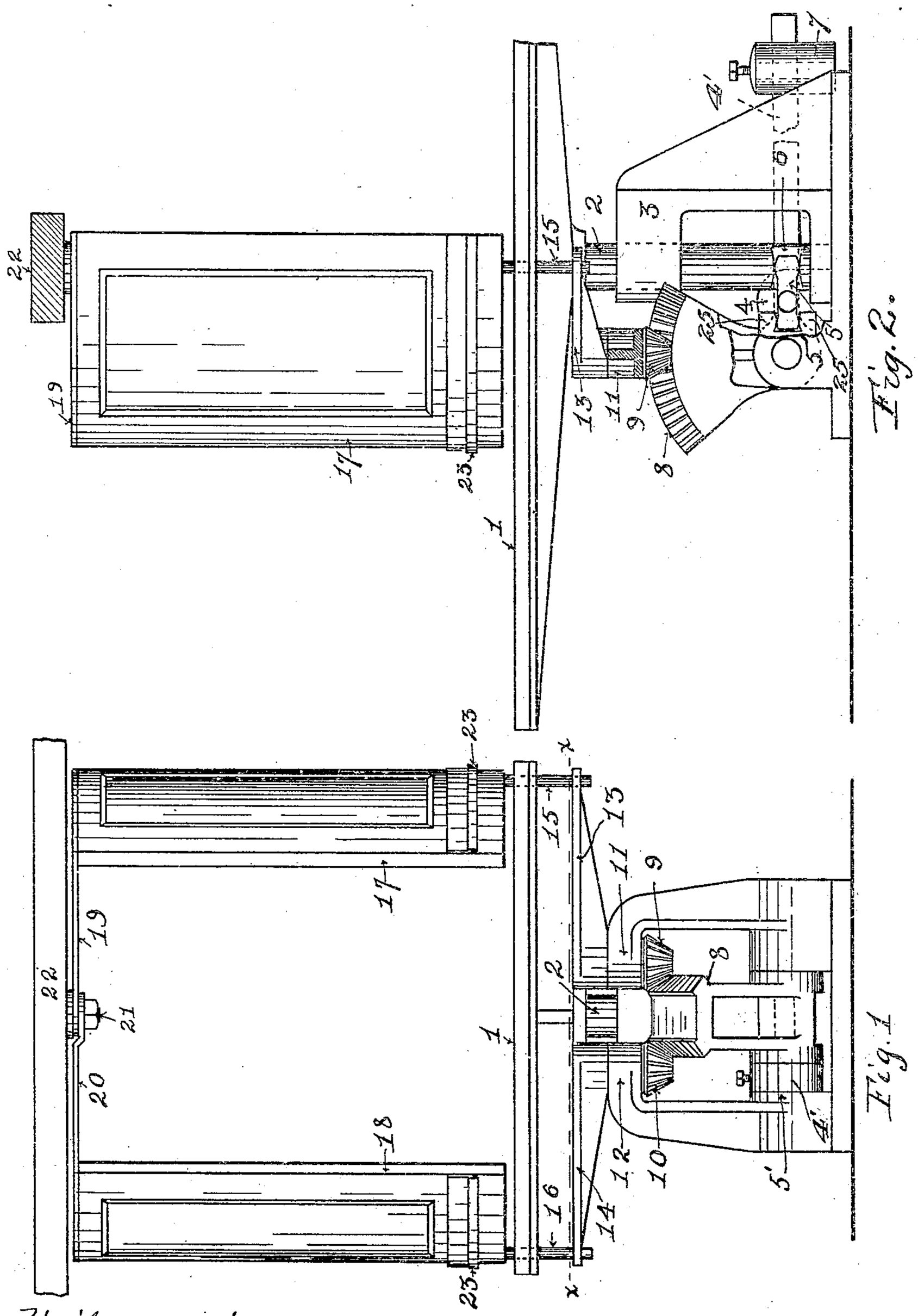

Fig. 2.

Fig. 1.

Witnesses:
Ethel A. Kelly
Catherine Dekegis.

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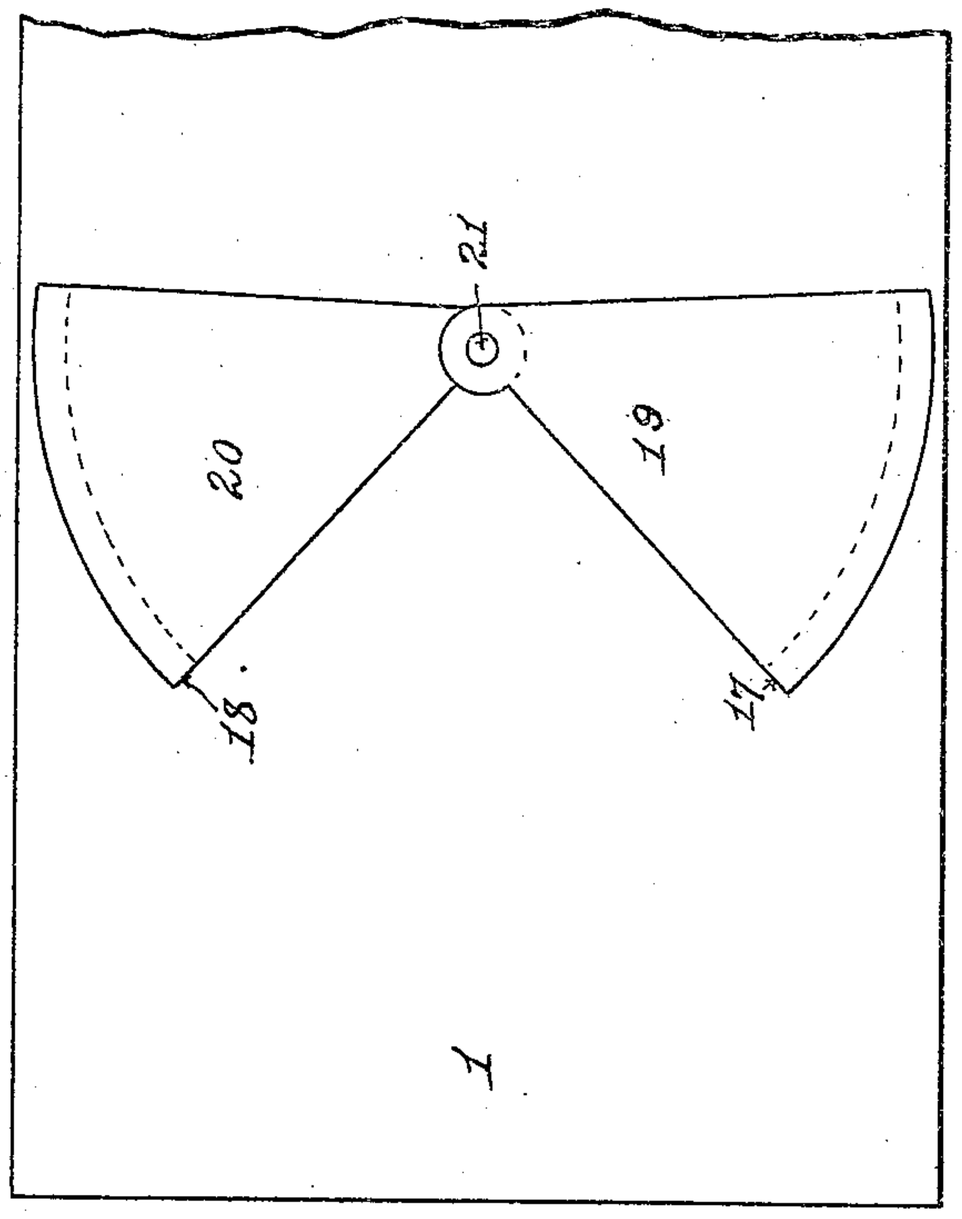

Fig. 4

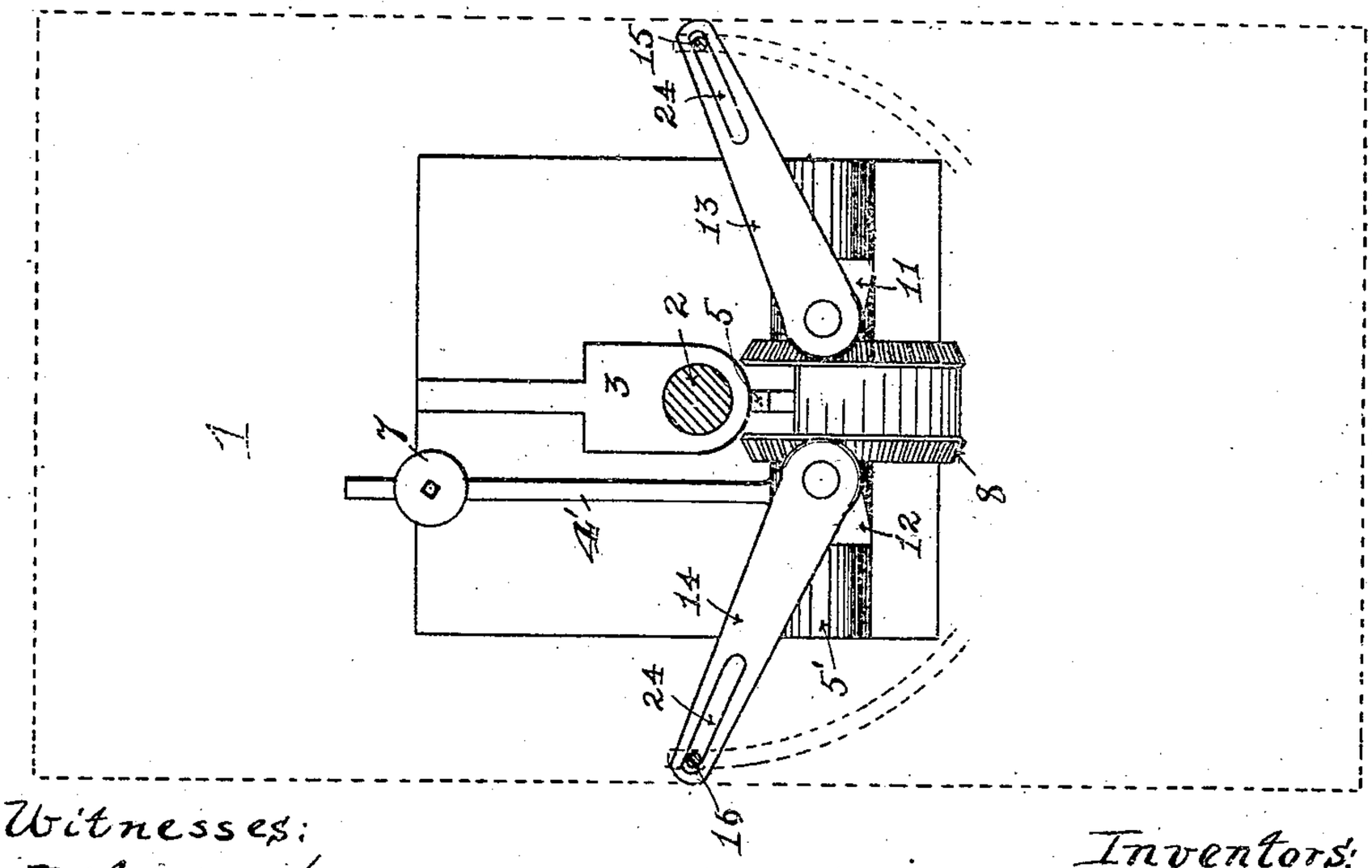

Fig. 3

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UNITED STATES PATENT OFFICE.

JOHN PARKHILL AND JAMES PARKHILL, OF NIAGARA FALLS, NEW YORK.

AUTOMATIC DOOR AND MECHANISM FOR OPERATING THE SAME.

955,540. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed May 6, 1907. Serial No. 372,168.

To all whom it may concern:

Be it known that we, JOHN PARKHILL and JAMES PARKHILL, subjects of the King of Great Britain, residing at Niagara Falls, in the county of Niagara and State of New York, have invented new and useful Improvements in Automatic Doors and Mechanism for Operating the Same, of which the following is a specification.

Our invention relates to automatic doors and mechanism for operating the same.

The object of our invention is to provide automatic doors which shall combine the advantages of doors which swing on pivots with the advantages of doors of the sliding type, which move back into housings when opened; and to provide mechanism for operating doors of such construction.

To this end our invention consists in constructing the doors in the form of cylindrical segments, pivoting them together at their common cylinder axis, and providing mechanism for rotating them upon that axis, which mechanism operates to open the doors automatically upon the approach of a person, and automatically closes them after a person has passed them.

In the drawings herewith, in which like characters of reference indicate corresponding parts, Figure 1 is an end elevation; Fig. 2 a side elevation, partly in section; Fig. 3 a horizontal section on the line *x*—*x* of Fig. 1; and Fig. 4 is a plan view.

The doors are shown in the open position. The doors 17 and 18 consist of cylindrical sections of substantially 45 degrees. These are supported at their tops by segmental plates 19 and 20, which are pivoted at 21 to a beam 22. The doors swing back into housings (not shown), and the normal width of the housing opening is that between the doors as shown in Fig. 1—the platform being carried somewhat beyond on either side so that a person approaching the doors from one side or the other will cause them to open nearly as quickly as if he approached directly in line with the opening. In order to guide the doors in their rotation, we secure curved tracks 23 to their outsides, and taking under these tracks and pivoted to the housing are guide-rollers (not shown). While this is a typical method of guiding the doors, it will be understood that we may either extend the pivot 21 so as to secure sufficient rigidity of action without any guides. It will thus be seen that we secure the advantages of a door which is entirely withdrawn from the passage-way, like a sliding door, and at the same time retain the facility of movement of a hinged door.

We will now describe the means for operating the doors. The platform 1 is mounted on the shaft 2, which is free to move axially in the bearings of the bracket 3. A short lever 5 is pivoted at 4 (see Fig. 2), and its longer arm engages in a slot 6 in the shaft 2, while its shorter end engages in jaws 25 which are made integral with the segment gear 8. The lever 4′ is pivoted in bearings 5′, and carries an adjustable weight 7. Mounted rigidly with the lever 4′ is a segmental gear 8, composed of two oppositely-facing bevel-gear sections, one of which is in mesh with the bevel-gear 9 and the other in mesh with the bevel gear 10. These gears 9 and 10 are rigidly mounted on shafts journaled in bearings 11 and 12, which bearings are carried by brackets cast with the bearings 5′. Mounted rigidly upon the upper ends of the shafts carrying the gears 9 and 10 are levers 13 and 14, which are longitudinally slotted at their outer ends, as shown at 24 in Fig. 3. These slots take over studs 15 and 16, which are rigidly secured to the bottoms of the doors 17 and 18.

It will be evident that, with the weight 7 properly adjusted, the weight of a person on the platform 1 will cause the shaft 2 to depress the longer end of the lever 5, thereby raising the short arm of said lever, which will rotate the segment gear 8 in the direction to swing the arms 13 and 14 to open the doors. When the weight of the person is removed from the platform 1, the weight 7 will act to rock the lever 4′ in the opposite direction and close the doors. It will be noted that the reason for slotting the levers 13 and 14 at 24 is that, in the construction shown, the pivots of these levers are not concentric with the doors.

Having thus described our invention, what we claim is:—

1. In combination with two doors in the form of cylindrical segments pivoted upon a common axis, means for automatically operating the same comprising a platform mounted upon a central vertical shaft, levers actuated by said shaft, gears actuated by one of said levers, lever arms actuated by said gears, and studs connecting said lever arms with said doors.

2. In combination with two doors in the form of cylindrical segments pivoted upon a common axis, means for automatically opening said doors by the weight of a person, comprising a platform, studs secured to said doors and passing through slots in said platform, slotted levers engaging said studs, gearing and levers for actuating said slotted levers coincidently in opposite directions, a shaft carrying said platform for applying the weight of a person to said mechanism to open the doors, and a weight for causing said mechanism to close said doors.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

JOHN PARKHILL.
JAMES PARKHILL.

Witnesses:
E. A. KELLY,
J. WM. ELLIS.