

No. 658,413.

Patented Sept. 25, 1900.

J. H. WHITAKER.  
AUTOMATICALLY OPERATING DOOR.

(Application filed July 14, 1900.)

(No Model.)

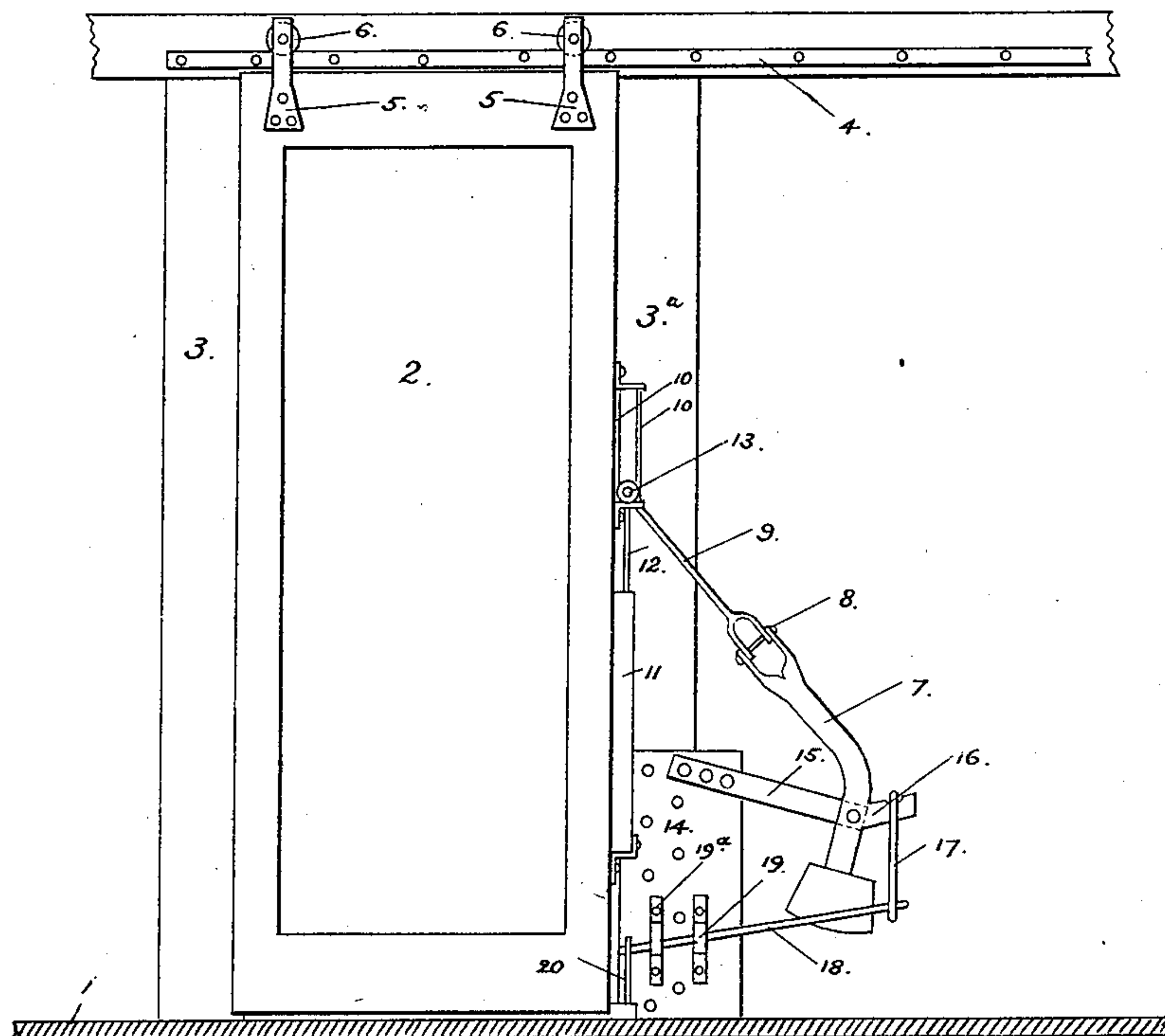


Fig. 1.

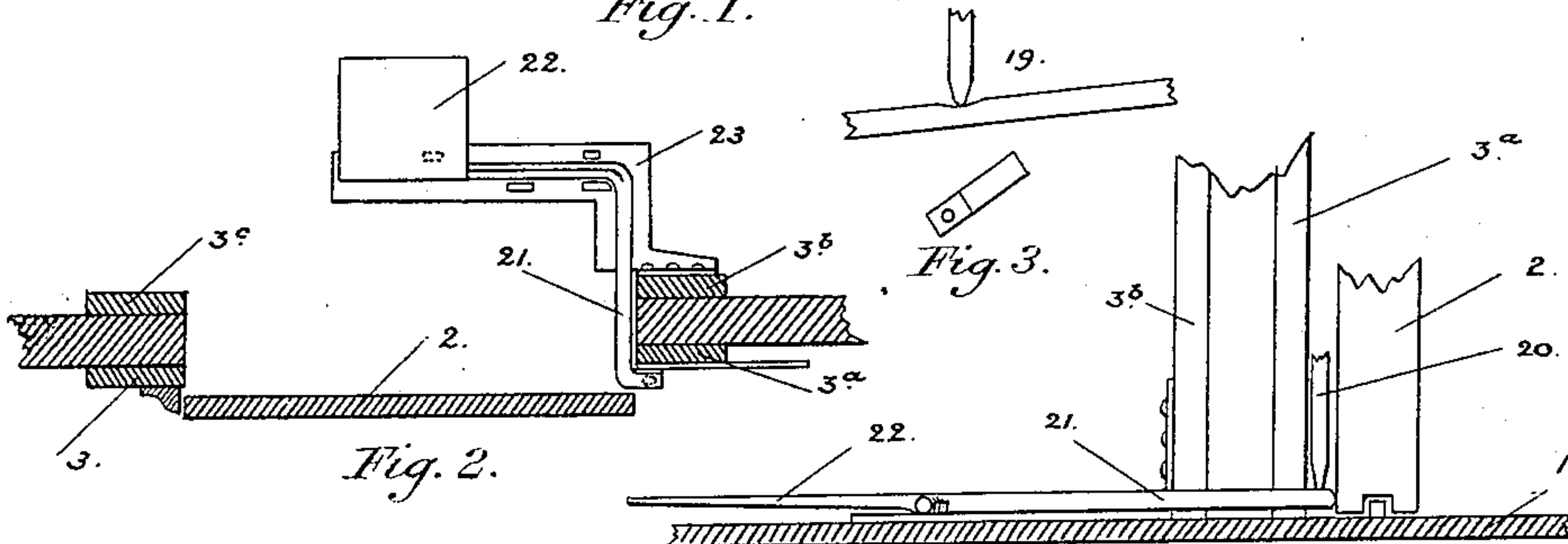


Fig. 2.

Fig. 3.

Fig. 4.

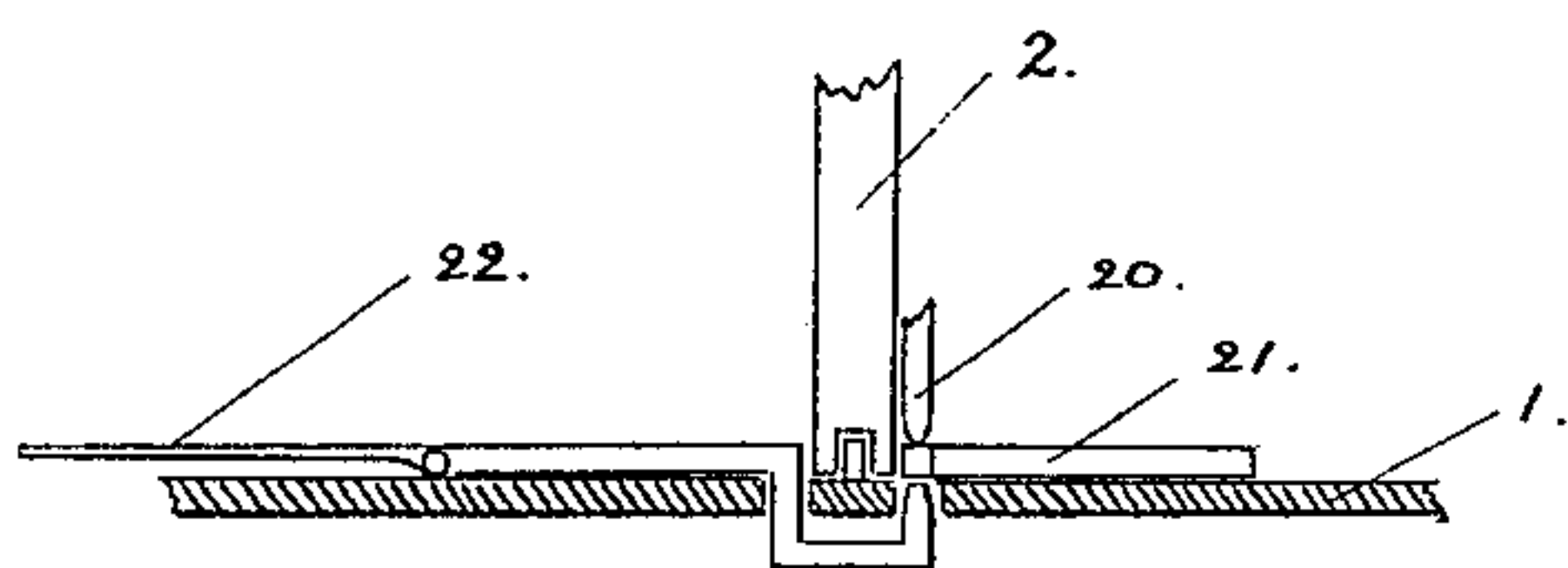


Fig. 5.

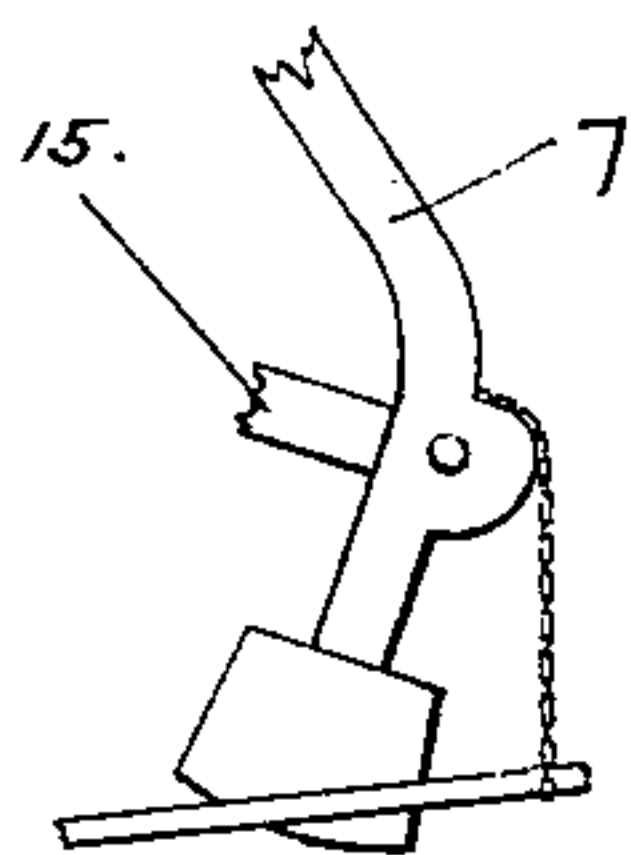


Fig. 6.

Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN H. WHITAKER, OF DAVENPORT, IOWA.

## AUTOMATICALLY-OPERATING DOOR.

SPECIFICATION forming part of Letters Patent No. 658,413, dated September 25, 1900.

Application filed July 14, 1900. Serial No. 23,564. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. WHITAKER, a citizen of the United States of America, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Automatically-Operating Doors, of which the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description.

This invention relates to that class of automatically-operating doors which are opened and closed by means of mechanism connected with the door and which mechanism is actuated through the depression of a tread-plate slightly elevated above the floor and located a short distance from the door. Various forms of mechanism for so operating doors are disclosed in my Patents No. 496,027, dated April 25, 1893; No. 505,376, dated September 19, 1893, and No. 632,299, dated September 5, 1899.

In all of my previous inventions it has been necessary to cut out a portion of the floor for the reception of the tread-plate and the mechanism connecting it with the weighted arm, which is connected with and which controls the movement of the door.

In applying my inventions as heretofore disclosed to practical use I have found some difficulty and hindrance in placing them in general use, because many of the floors are constructed of tile, mosaic, cement, or similar material, which is difficult to cut away. I have accordingly invented and constructed a mechanism for causing the door to be operated in substantially the same manner as in my previous inventions, but which obviates the necessity of cutting away a portion of the floor to receive it, and this is the chief object of my present invention, aside from the general objects stated in my earlier inventions and which are apparent in this invention.

In the drawings, Figure 1 represents a front elevation of a door to which my improved mechanism is applied. Fig. 2 is a plan view of the tread-plate and parts which rest upon the floor, the door, walls, and door-casings being shown in transverse cross-section. Fig.

3 is a detail view of the fulcrum-bearing for the lever-arm. Fig. 4 is a view, partly in vertical section, showing the elevation of the tread-plate above the floor. Fig. 5 is a similar view, but shows how the door may, if desired, be operated from either side. Fig. 6 shows a modification of the manner of operating the weighted arm.

In the drawings the floor is numbered 1.

2 represents the door; 3, 3<sup>a</sup>, 3<sup>b</sup>, and 3<sup>c</sup>, the door-casings; 4, the rail, secured horizontally above the door, and 5 5, the brackets for sustaining the rollers or pulleys.

6 6 are the rollers or pulleys, mounted to revolve in the brackets and upon the rail 4.

In my present invention I use the weighted arm 7, hinge connection 8, upper arm 9, guide-rods 10 10, cylinder 11, piston-rod 12, with head or plunger at its lower end, and the roller 13, (shown in Fig. 1,) and these parts are substantially the same as shown in my Patent No. 632,299, dated September 5, 1899, except as hereinafter stated, and for particular description of such parts reference is made to that patent.

In this invention I prefer to use a thin sheet of metal 14, which I fasten in any suitable manner to the lower portion of the door-casing 3<sup>a</sup> and which supports certain parts of the mechanism. This sheet of metal is, however, not essential, as the door-casing itself might be used to sustain such parts.

15 represents a brace-bar to which the weighted arm 7 is pivoted. From the pivot-point on the weighted arm I extend rearwardly a short arm or bar 16, which may be either rigidly secured to the weighted arm or made integral therewith.

17 represents a connecting link or bar which is loosely secured to the arm 16, its lower end being connected with and sustaining the outer end of the lever-arm 18. This arm 18 is fulcrumed at 19, as shown in the detail view, Fig. 3, its inner end being loosely connected with the upper end of the vertical bar or rod 20. The lever-arm may be further guided by means of a guide-piece 19<sup>a</sup>, secured to the metal sheet 14 and slotted to allow vertical movement of said lever-arm.

21 represents the operating angular rock-



ing bar or lever, which I prefer to use in the form shown in Fig. 2. That portion of the rocking bar which is farthest from the door and which extends parallel with the movement of the door I prefer to make hexagonal in cross-section, so that when in operation it will rock on one of the edges; but this is not essential to the successful operation of my device. At or near the end of that part of the rocking bar just described I firmly fix the tread-plate 22, the outer end of which is elevated above the floor-level about as shown in Fig. 4. That portion of the rocking bar which extends at right angles to the hexagonal portion and toward the door may be of any desired form, and adjacent to the rear edge of the door the rocking bar is again bent at right angles. This brings the inner end of said rocking bar directly under the vertical bar 20, with which it may, if desired, be loosely connected. To sustain said angular rocking bar in place, I provide a base-plate 23, upon which the rocking bar rests. This base-plate rests upon the floor, but near one extremity thereof it is bent upward, and the upwardly-projecting portion is secured to the door-casing 3<sup>b</sup> by means of screws or in any other suitable manner. Projecting upward from the base-plate is a series of guide-lugs or short posts, between which the rocking bar operates. Upwardly-projecting flanges would serve the same purpose as the guide-lugs. From this description it will be seen that by stepping upon and depressing the tread-plate 22 the inner end of the rocking bar will be elevated and will in turn force the vertical bar 20 up. The lever-arm being fulcrumed at 19 and its inner end being connected with the vertical bar 20, its outer end will be drawn downward, and this end being operatively joined with the weighted arm 7 through the connecting-link 17 and short arm 16 the weight end of the arm 7 will be swung toward the closed door, and the upper end of the arm 9 will be drawn backward, drawing the door with it, thus opening said door. When the weight has been released from the tread-plate and the person has passed through the opened doorway, the weight end of the arm 7 will swing backward and the door will automatically close. The oil-chamber 11 and piston-rod 12 will operate to prevent jar and sudden closing in the same manner as shown in Patent No. 632,299.

If it is desired to operate the same door from either side, a rocking bar and base-plate will be used on each side of the door; but one will be of the form shown in Fig. 5, its inner end being bent downward so as to pass under the door, and then upward so that its normal position will be directly below and close to the inner end of the rocking bar and on the other side of the door. It will be seen that the mechanism will be operated in the same manner as already described.

The short bar 16 and the connecting-link 17 may be dispensed with by forming a cam or eccentric on the weight-arm 7 and securing a chain or cable at the upper portion of the cam, its lower end being secured to the lever-arm. (See Fig. 5.) Other modifications and changes may readily be made which would not be a departure from the scope of my invention.

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

1. A sliding door, a pivoted angular arm its upper extremity loosely secured to the rear of the door, its lower end provided with a weight, a tread-plate, an angular rocking bar to which the tread-plate is secured; said rocking bar resting upon the floor, with its inner extremity located near the rear edge of the door; and intermediate mechanism operatively connecting the rocking bar with the pivoted angular arm for the purposes stated.
2. In combination, a sliding door provided with pulley-wheels near its upper edge, a rail secured horizontally and upon which the pulley-wheels are mounted, a cylinder secured to the rear edge of the door, a piston vertically operative within said cylinder, a roller, an angular pivoted arm to whose upper extremity is secured the roller and the upper end of the piston and whose lower end is provided with a weight, guide-rods secured to the rear edge of the door above the cylinder between which guide-rods the roller is adapted to operate vertically; an angular rocking bar located above the floor, a tread-plate secured at or near the outer extremity of said rocking bar, a base-plate upon which the rocking bar rests, intermediate mechanism operatively connecting the rocking bar with the weighted angular arm so as to swing the latter on its pivot when the tread-plate is depressed for the purposes herein stated.
3. In combination, a sliding door, a cylinder secured to its rear edge, a piston vertically operative in the cylinder, guide-rods secured to the rear edge of the door and above the cylinder, a roller adapted to operate vertically between the guide-rods, a pivoted angular arm, its upper extremity connected with the roller and the upper end of the piston-rod, its lower end provided with a weight; an angular rocking bar resting upon the floor, a tread-plate secured thereto, a vertical bar whose lower end is loosely connected with the inner end of the rocking bar, a lever suitably fulcrumed, one end connected with the upper end of the vertical bar, and means for connecting its other end with the weighted arm for the purposes stated and substantially as set forth.
4. A sliding door, combined with an angular pivoted arm whose upper extremity is loosely secured to the rear edge of the door and whose lower end is provided with a



weight, the angular rocking bar 21, the tread-  
plate 22 secured thereto, the base-plate 23,  
the vertical bar 20, the lever 18 fulcrumed as  
shown, the guide-piece 19<sup>a</sup>, the bar 16 and  
5 connecting-link 17 all for the purposes stated  
and substantially as shown and described.

In witness whereof I have signed my name,

at Davenport, Iowa, this 12th day of July,  
1900.

JOHN H. WHITAKER.

In presence of—

T. A. MURPHY,  
A. G. SAMPSON.