A. GOUBEAUT.

TURNING DOOR.

APPLICATION FILED JAN. 5, 1909.

959,514.

Patented May 31, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

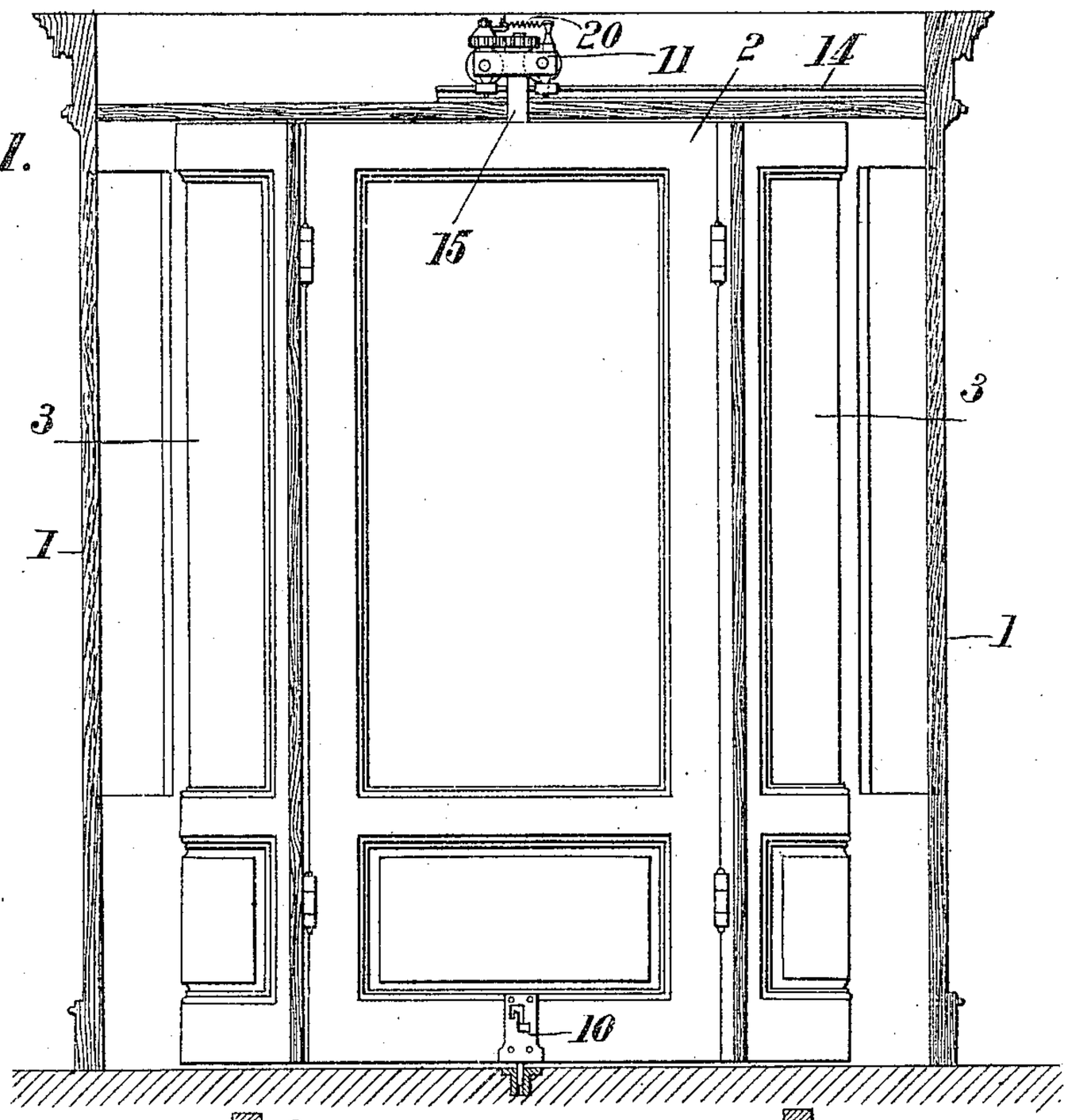

Fig. 2.

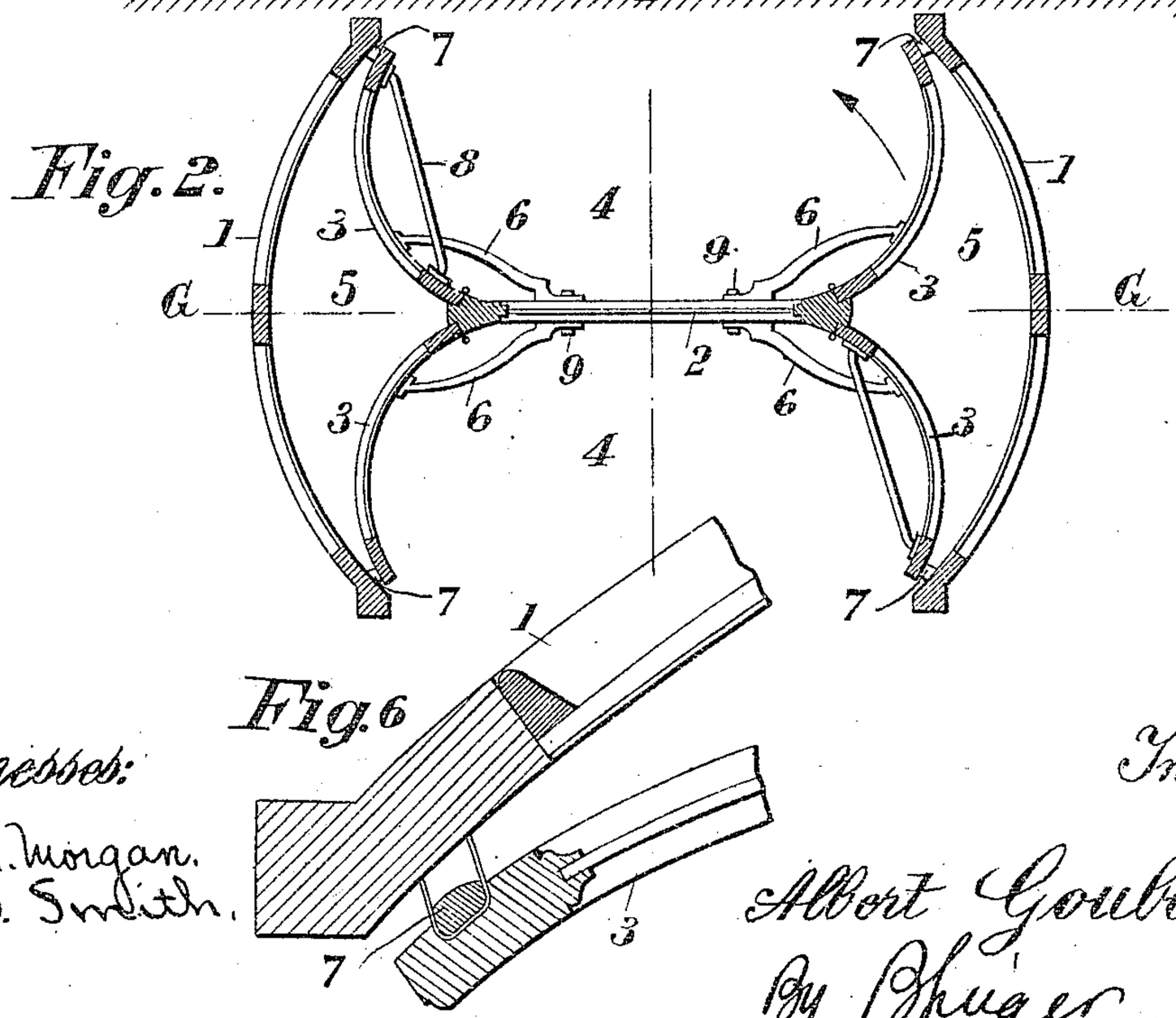

Fig. 6

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3 SHEETS—SHEET 2.

Fig. 3.

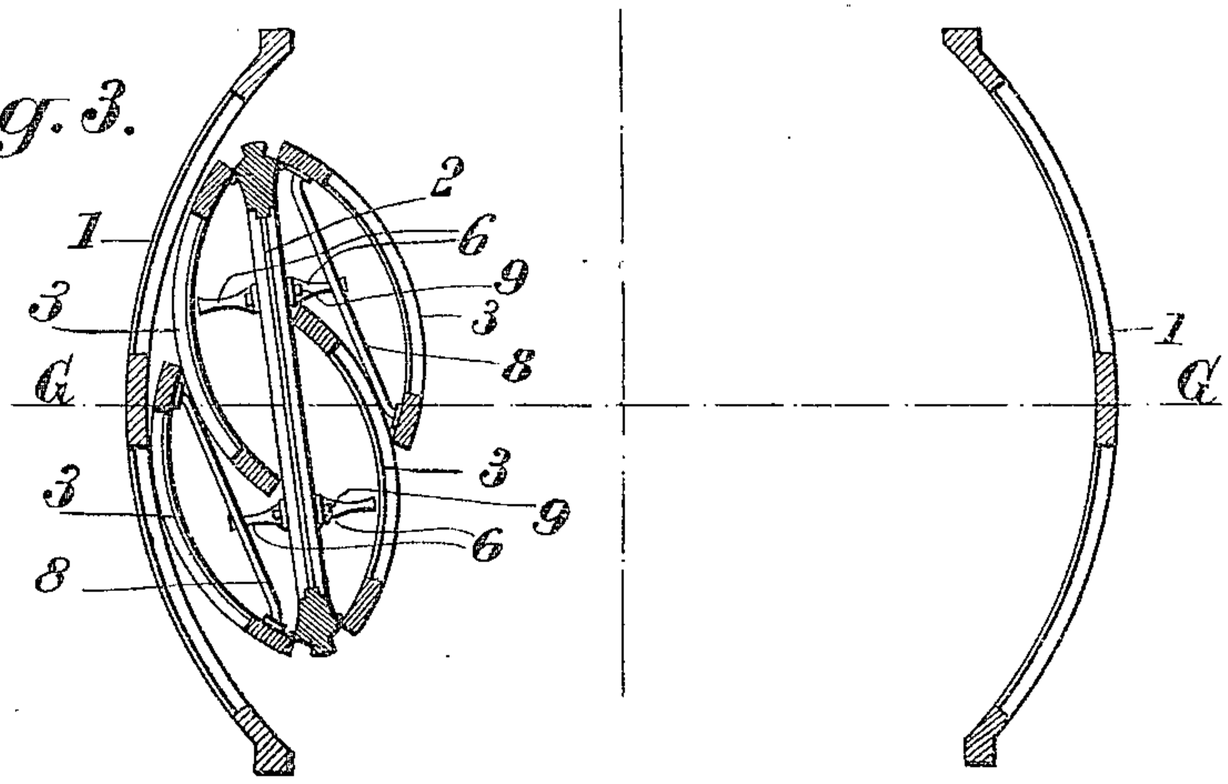


Fig. 4.

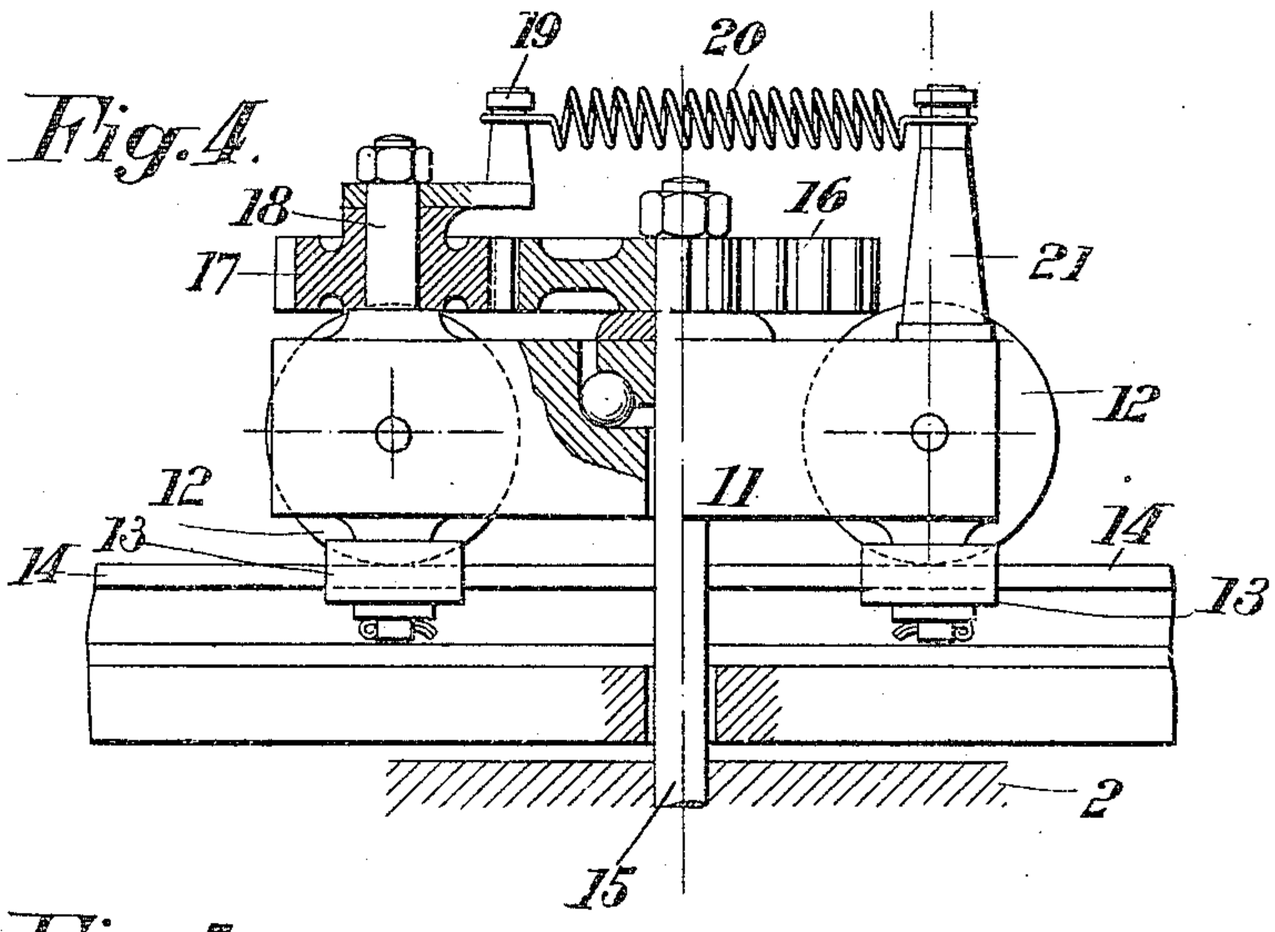
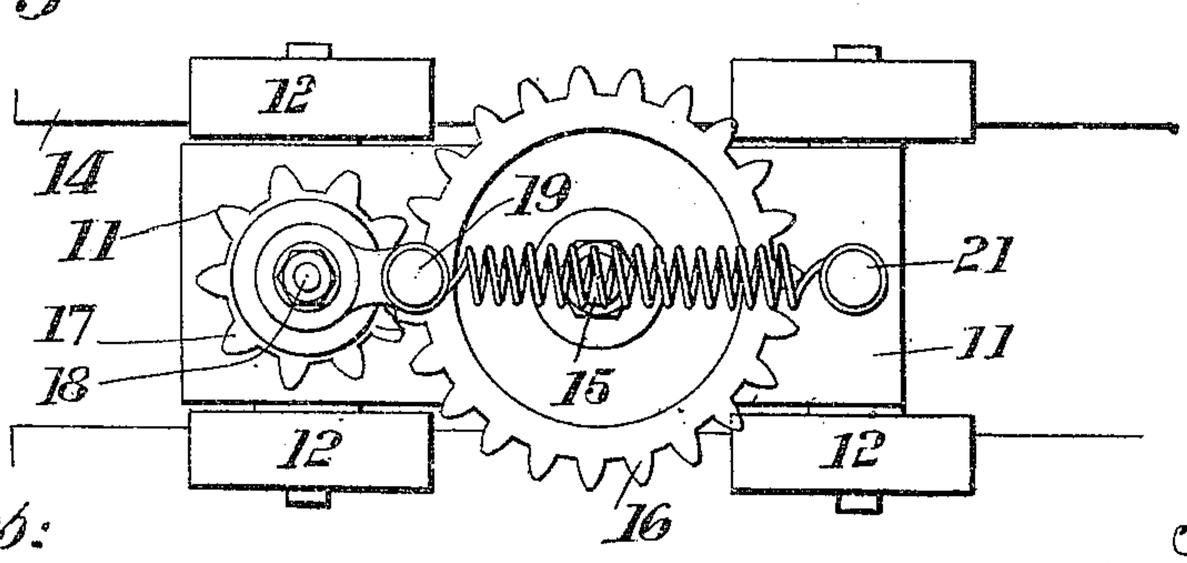


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 7.

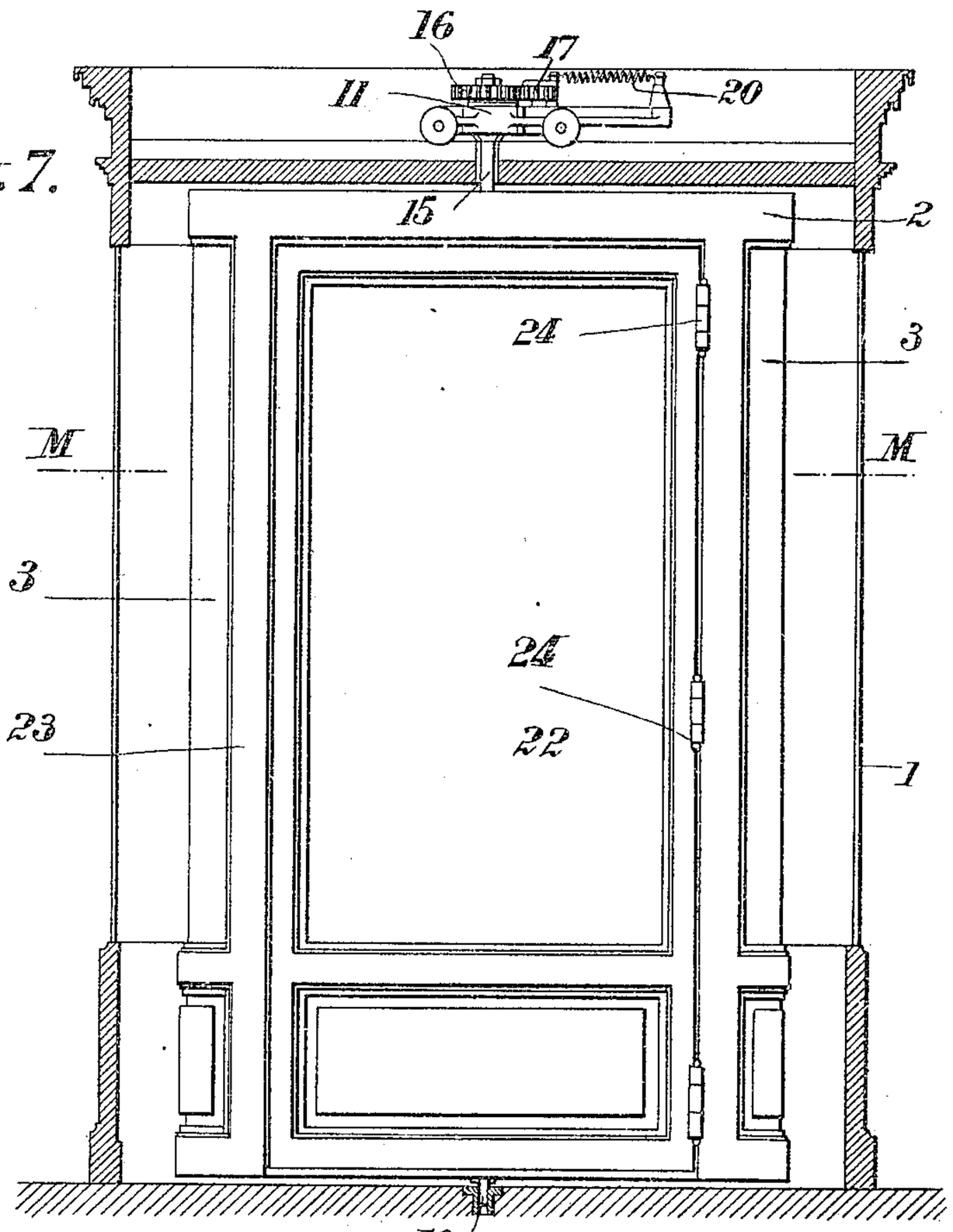
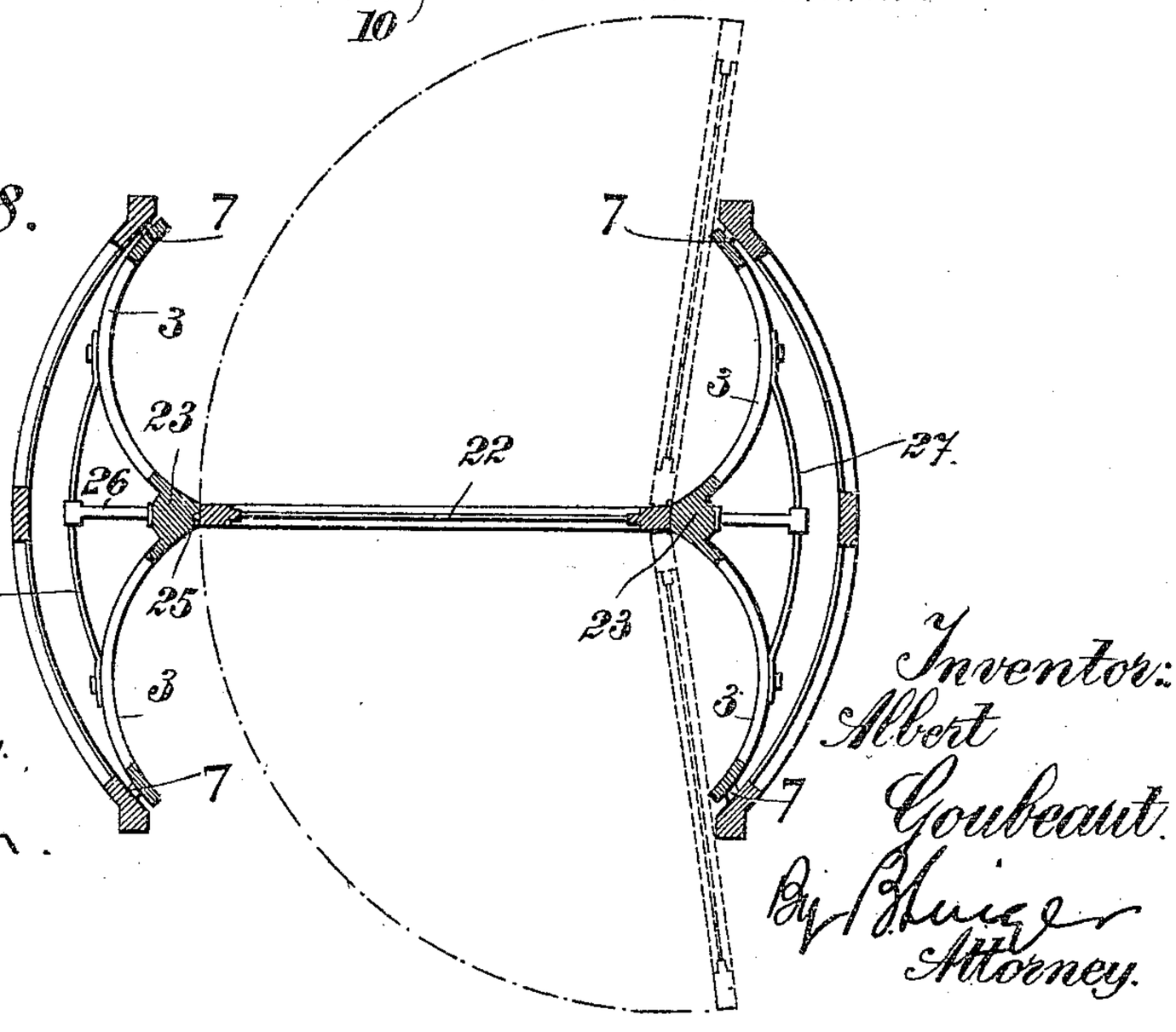


Fig. 8.



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UNITED STATES PATENT OFFICE.

ALBERT GOUBEAUT, OF MELUN, FRANCE.

TURNING DOOR.

959,514. Specification of Letters Patent. Patented May 31, 1910.

Application filed January 5, 1909. Serial No. 470, 852.

To all whom it may concern:

Be it known that I, ALBERT GOUBEAUT, a citizen of the French Republic, and resident of Melun, Seine et Marne, France, have invented certain new and useful Improvements in and Relating to Turning Doors, of which the following is a specification.

Now, the present invention has for its object to provide a turning door, in which in opposition to the preceding ones, the half of the drum is available or at least, the entire part which the walker may occupy, another object of this invention being to provide a door of the kind described wherein, when the door occupies its position of rest, the movable parts of it are all in contact with the stationary walls.

Another object of this invention is to provide a door of the class described, which always automatically returns into closing position. Besides, certain special arrangements described below may be applied to this turning door, these arrangements serving as a help against fire and panics having any cause whatever, these arrangements allowing of the sidewise ranging device hereinafter referred to being dispensed with.

In the accompanying drawings: Figure 1 is a front elevation view showing the ensemble of a first form of embodiment of my invention. Fig. 2 is a horizontal section of the door in its working state. Fig. 3 shows another horizontal section showing the drum disengaged, with a view of leaving the passage free. Figs. 4 and 5 are respectively elevation and top plan views giving the details of construction of the main pivot. Fig. 6 is a partial horizontal section drawn at a somewhat enlarged scale and giving the detail of the packing device. Fig. 7 is a vertical section of the drum and of the ceiling, the middle part of this figure showing an elevation view of a somewhat modified form of door and door wings, the ceiling containing the suspending carriage. Fig. 8 is a horizontal section on line M—M of Fig. 7.

In the device shown by Figs. 1 to 6, the drum 1 (Fig. 2) is similar to that employed until now, but the closing apparatus is composed of: a main door 2 suspended at its middle part from the ceiling of the drum by means of a special pivot (Figs. 4 and 5). Secured or hingedly connected with the two sides of this door are four leaves 3 having the shape of an X and which when held stationary, divide the drum 1 into four compartments: two large ones 4 and two small ones 5 (Fig. 2). The two large compartments 4 serve as entrance and exit compartments, while the two small ones occupy the space which cannot be utilized by a walker passing through such a turning door.

When the door works as a hermetically closing door, the four leaves 3 are held stationary on the door 2 by means of movable tilting arms 6. The free end of each of the leaves 3 is provided with a packing strip 7 (Fig. 6) made of felt, india-rubber, or any other supple material, this strip being adapted to come into contact with the fixed parts 1 of the drum. The door 2 is caused to move by exerting a pressure on the handles 8, and carries on with it all the leaves 3 two of which are always in contact with the stationary sides 1.

Whatever be the position in which the group of doors is abandoned, the door is always brought back into the position in which it is parallel to the planes G—G of the cylinder so as to leave always an entrance and an exit compartment 4 on each side of the door and to bring always the four ends of the leaves 3 in contact with the stationary walls 1.

With a view of freeing the drum and rendering the passage entirely free, the arms 6 are removed from their locking position and rotated on their pivot 9 secured to the door 2; the leaves 3 thus become movable and may be folded back on the said door; the guiding pivot 10 (Fig. 1) is disengaged in the usual manner from its step bearing and the group of doors is pushed toward one of the fixed parts 1 in the hollow of which the whole is arranged as shown by Fig. 3. The reverse operation brings the door into its working position. This device may be dispensed with when the central part or leaf of the turning door is rendered movable as will be described later on.

The special pivot (Figs. 4 and 5) is composed of a framing 11 supported by rollers 12 on rails. The rollers 13 serve as a guide on the sides of the rails. Thus constructed the said pivot is adapted to move in either direction parallely to the axis G—G of the drum for ranging the movable door parts on the side of the latter.

The rod 15 which is secured in a rigid

manner in the center of the door 2 passes between the two rails and through the framing of the carriage; it is suspended from this carriage by means of an ordinary ball bearing on which it rotates in a vertical position. This rod is equally provided at its end with a toothed wheel 16 keyed on it by any suitable means; this toothed wheel meshing with a second toothed wheel 17 which is held loose on the end of the carriage by means of a vertical shaft 18. This wheel is provided with a stationary crank and its crank pin 19 is drawn toward the center of the carriage by a spring 20 secured at the opposite end of the carriage to a standard 21. Now, when the door turns, it carries with it in its rotary motion the toothed wheel 16 which causes the crank to move through the intermediary of its toothed wheel 17; the latter carries this crank and its crank pin with it toward the side which is opposite to the center of the drum while tensioning by this working the spring 20. If the door is left to itself in this position, the spring 20 brings the crank back and holds it in the position directed toward the center thus bringing the door exactly into its opposite position, that is to say the door 2 always in the planes G—G of the drum as the toothed wheels are geared with the ratio of 1 to 2.

In the form of embodiment shown by Figs. 7 and 8 the turning door proper is still formed as above by a main door 2 with which four leaves 3 are connected, hingedly or not, with a view of forming a group rotating on its shaft between the two parts 1.

In order to realize the safety device against the fire and panics and avoiding the ranging of the door parts on the side for leaving the passage free, a part of the door 2 has been rendered movable and adapted to open in both directions so as to form a way out door 22 which does not require the use of the rotary door in the ordinary function thereof and without any special manipulation being necessary other than the usual pushing action exerted against a door without rebatement nor lock and adapted to open in the direction of the way out.

As shown by Figs. 7 and 8 the door 22 is hingedly mounted in its framing 2; it is secured on one of the posts 23 by means of double acting hinges 24 allowing of the door 22 being moved in both directions; the door 22 is held in the plane of the parallel posts 23 by an ordinary toggle yielding latch 25 adapted to move in both directions. Owing to this arrangement the door 22 is adapted to be moved easily from its position of rest and to oscillate in both directions under the least pushing action and to be thus opened in the direction of the way out leaving free a passage which is equal to the inner width of the drum as the entire door 2 is always brought back into the plane G—G by means of the suspending pivot (Figs. 4 and 5) which has been described.

It is well understood that the door 22 may have different sizes, according to whether the leaves 3 are more or less curved or straight, for closing an aperture which is equal either to the inner width of the drum, or to the opening in front of which the drum is mounted. The door may have still more leaves and it has not been judged necessary to illustrate these mere changes of form in the drawings.

In order to allow of the hinged motion of the door 22, the supporting arms 6 of the device shown by Figs. 1 to 6 are replaced in the form of embodiment shown by Figs. 7 and 8 by a truss composed of a support 26 secured on the framework 23 and of an arc 27 connecting the leaves 3 with the said framework in order to hold them rigidly connected together.

Having now fully described my said invention, what I claim and desire to secure by Letters Patent, is:—

1. In a device for automatically returning a revolving door into closing position the combination, with a suspending pivot for the door, a truck supporting said pivot, wheels for said truck, a gear wheel mounted on said pivot, a second gear wheel mounted on said truck and in engagement with said first named gear wheel and means for returning said last named gear wheel into starting position with respect to said first named gear wheel, rotating thereby said first named gear and said door.

2. In a device for automatically returning a revolving door into closing position the combination with a suspending pivot for the door, a truck supporting said pivot, wheels for said truck, a gear wheel, axially mounted on said pivot, a second gear wheel in mesh with said first gear wheel and mounted on said truck, a crank pin on said second gear wheel, a projecting pin attached to said truck and in alinement with said crank pin and the axis of said pivot, a spring connecting said pins, and adapted to return said second gear in starting position with respect to said first named gear, rotating thereby the first named gear and said door.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

ALBERT GOUBEAUT.

Witnesses:

ADOLPHE STURM,

H. C. COXE.