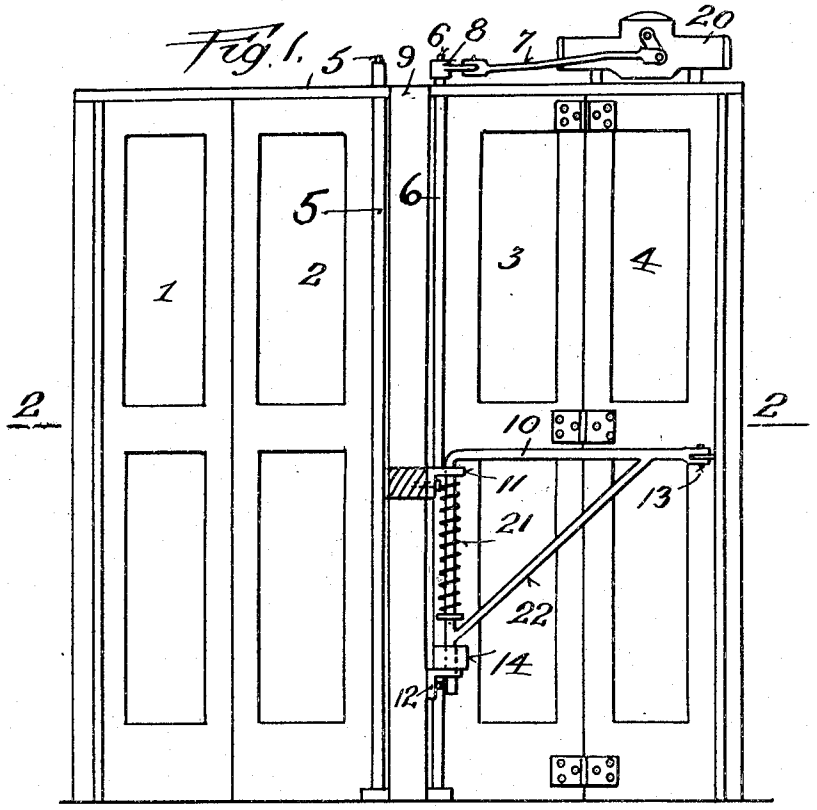
Sept. 29, 1931. H. ROWNTREE 1,825,128

AUTOMATICALLY OPERATED DOOR FOR PASSAGEWAYS

Filed Aug. 3, 1926 2 Sheets-Sheet 1



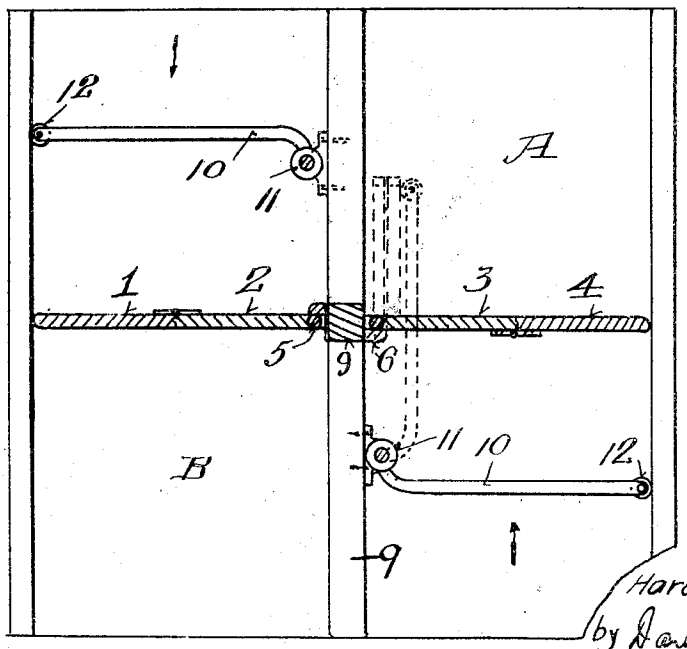


Fig 2

Inventor
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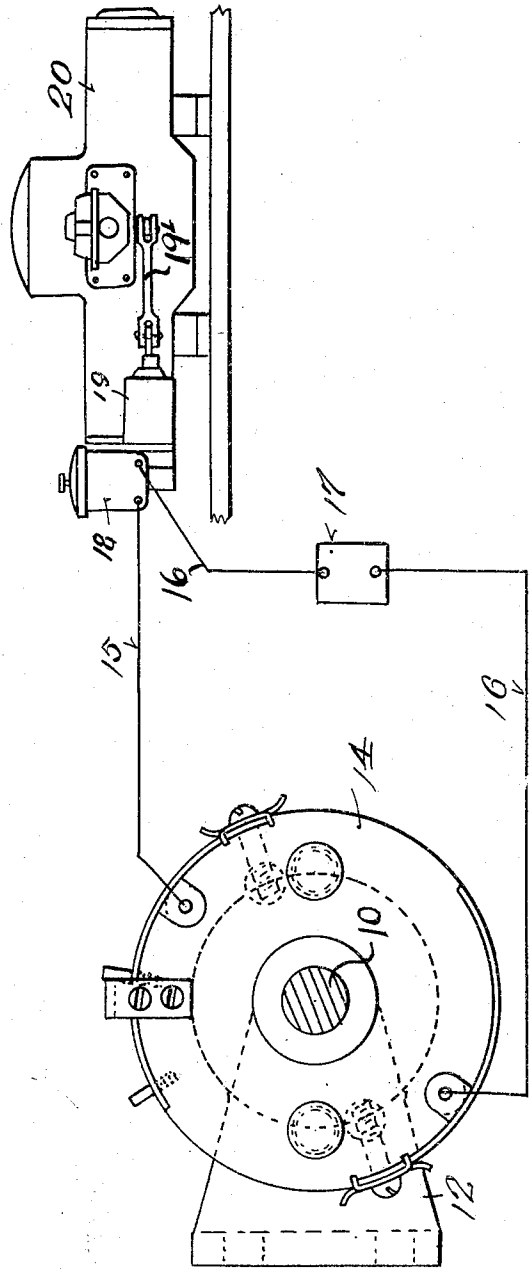


Fig. 2.

INVENTOR
Harold Rowntree
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Patented Sept. 29, 1931 1,825,128

UNITED STATES PATENT OFFICE

HAROLD ROWNTREE, OF SCARSDALE, NEW YORK, ASSIGNOR TO NATIONAL PNEUMATIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA

AUTOMATICALLY OPERATED DOOR FOR PASSAGEWAYS

Application filed August 3, 1926. Serial No. 126,835.

This invention relates in general to mechanism for automatically operating doors, gates and other barriers in passageways.

One of the objects of this invention is the operation of doors and the like disposed in passageways by means of power devices, which have heretofore been operated manually by the person going through the passageway.

Another object of this invention is the automatic operation of the doors without requiring the use of the hands of the person moving through the passageway. Another object of the invention is the provision of doors and the like in passageways adapted to be operated by power means actuated by devices operated by the passage of the person therethrough or by manual means.

Further objects of this invention are the attainment of greater rapidity in the movement of pedestrians through passageways, and a greater ease for them in passing therethrough.

A still further object of this invention is the provision of a new and novel structure of the type to be described hereinafter, which is simple and cheap to construct and efficient in operation and maintenance.

These and many other objects are obtained by means of my invention as will be indicated more fully hereinafter.

This invention resides substantially in the construction, combination, arrangement, relative location of parts, and circuits as will be more fully indicated in the specification.

Referring to the drawings in which the same reference numerals will be used throughout the several views to indicate the same or similar parts, Figure 1 is a side elevational view of the passageway having doors therein to which one form of my device has been applied.

Figure 2 is a horizontal cross-sectional view taken on the line 2—2 of Figure 1 of the same structure.

Figure 3 is a view more or less diagrammatic in form illustrating the circuit connections of the device shown in Figure 1.

Heretofore, it has been common practise to provide doors on passages of buildings, stores, stations and other similar places which are intended to be operated by hand for opening and closing of many different forms. It is the purpose of this invention to provide motor means, such as fluid pressure engines, electric motors and the like for causing the doors to open, and close upon the movement of the pedestrian through a passageway provided with my novel device. It is my intention when referring to doors to include as well as doors, gates and all other forms of barriers which are usually disposed in passageways or entrances to public buildings.

In the form of invention as shown in Figures 1, 2 and 3, the movement of the pedestrian through the passageway displaces a rotatably mounted barrier, which by its rotation closes the specially constructed switch, disclosed in my pending application, Serial No. 109,225, filed May 15, 1926, which completes the circuit to the power operating means, to cause the door to open. As the pedestrian passes through the doorway the rotatably mounted barrier is returned to its normal position, breaking the circuit to the power means which closes the door automatically.

In Figures 1 and 2, there are shown two passageways A and B, adapted to permit the movement of pedestrians in opposite directions as indicated by the arrows in Figure 2. The construction of the doorways and operating devices in each passageway is exactly the same, so that a complete description of one set only will be given. Disposed in these passageways are the doors composed of the parts, 1 and 2 and 3 and 4, which are hinged together to form the folding door of the well known type. These doors are pivotally mounted on the vertical shafts 5 and 6. On the upper end of the shafts are secured crank arms 8 connecting links 7 and door engines 20, of which only one is shown as stated above. The door engine 20 is of the well known fluid pressure type of motor and need not be described herein, as it forms no part of this invention. The vertical shafts are mounted near the door supporting structure 9, which has mounted therein a horizon-

tal arm 10 journalled in the support brackets 11 and 12. On the outer end of the arm 10, there is provided a roller to prevent the arm from injuring the doors, should it strike them. The arm 10 is supported by the cross brace 22. Secured just above the bracket 12 to the vertical portion of the arm 10 is a special form of switch shown more clearly in Figure 3, and completely described in my copending application referred to above. Encircling the vertical portion of the arm 10 is a coil spring 21, which is adapted to hold the arm when it is in normal position across the passageway.

In Figure 3, is shown the circuit arrangement for this circuit. The switch is shown at 14 secured just above the bracket 12 and encircling the vertical portion of the arm 10 as shown. The wires 15 and 16 connect the power source 17 to the electromagnetically operated valve 18, secured to the fluid pressure operated motor. The power source may be a battery or a generator or other suitable power source. The magnet valve 18 is also of the well known construction and need be described no further here, except to say that its operation permits the admission of fluid pressure to the valve puller 19, which in turn operates through the connecting link 19′ and valve on the power engine 20 which permits the admission of fluid pressure to the engine to cause its operation.

The operation of the structure in Figures 1, 2 and 3 is as follows:

As a person moves through the passage A in the direction of the arrows, (Figure 2) it moves against the arm 10, which is displaced towards the door causing the switch 14 to close the circuit to the electromagnetically operated magnet valve 18, which as described above initiates the operation of the door engine 20, which in turn causes the doors to open to the position shown in the dotted lines in Figure 2. As the person passes through the doorway and out of contact with the arm 10 the spring 21 returns it to its normal position breaking the circuit to the magnet valve 18, which permits a reverse operation of the valve on the motor 20, admitting fluid pressure to the other side of the engine to cause it to close the doors.

It is to be understood that in my invention illustrated in the drawings, I have only shown the complete operating parts as provided for the right hand passageway. But it is, of course, evident that exactly a similar apparatus may be provided for the adjacent passageway, and so arranged as to permit the passage of pedestrians therethrough in the direction opposite to their movement in the passage A.

I am, of course, aware that many modifications and changes in details of construction of my apparatus will readily suggest themselves to those skilled in the art without involving invention, and I do not, therefore, desire to be limited to the particular forms described by me, but only to the extent required by the scope of my claims, in which I define my invention.

Having now described my invention, what I seek to secure by United States Letters Patent is:

1. In an automatic door operating system, the combination with a passageway, having doors therein and motor means for operating said doors, of a barrier pivotally supported in said passageway and in advance of the doors, and a switch on said barrier connected to said power means whereby the motor means is caused to open said doors when the barrier is displaced by the movement of a person through said passageway.

2. In an automatic door operating system, the combination with a passageway having doors, and a switch on said barrier connected said doors, of a barrier pivoted in said passageway, a spring on said barrier for holding and returning said barrier to normal position across said passageway, and a switch on said barrier to cause said motor to open said doors when the barrier is displaced by the movement of a person through said passageway, and to permit said means to close said doors when the barrier is returned to normal position, said barrier being arranged in the passageway so that it must be displaced before the doors are reached.

3. In an automatic door operating system, the combination with a passageway having doors therein and electrically controlled pneumatic motor means for operating said doors, of a barrier pivoted in said passageway, a spring on said barrier for holding and returning said barrier to normal position across said passageway, and a switch on said barrier to cause said motor to open said doors, when the barrier is displaced by the movement of a person through said passageway and to permit said motor means to close said doors when the barrier is returned to normal position, said barrier being arranged in the passageway so that it must be displaced before the doors are reached.

In testimony whereof I have hereunto set my hand on this 27th day of July A. D., 1926.

HAROLD ROWNTREE.