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J. F. RUSSELL ET AL

1,694,431

DOOR OPERATING DEVICE

Filed June 2, 1928

Fig. 1.

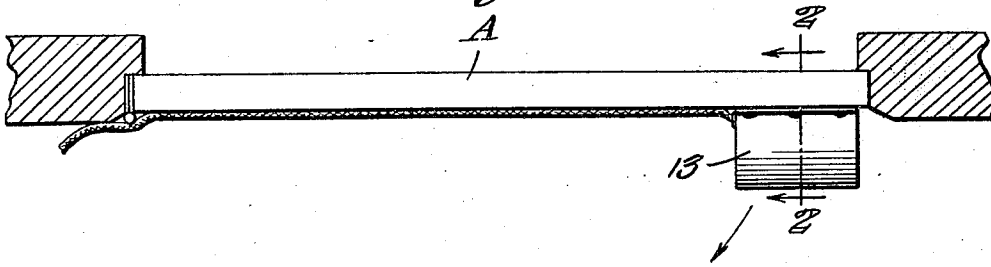


Fig. 2.

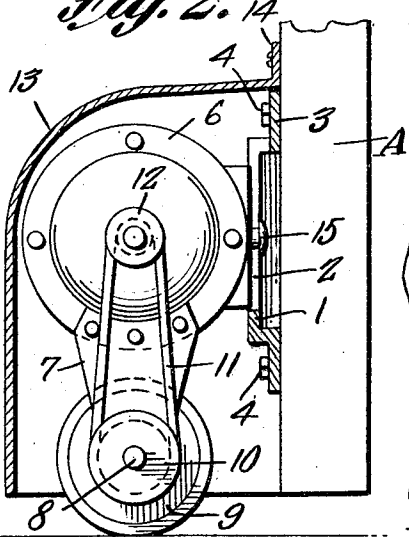


Fig. 3.

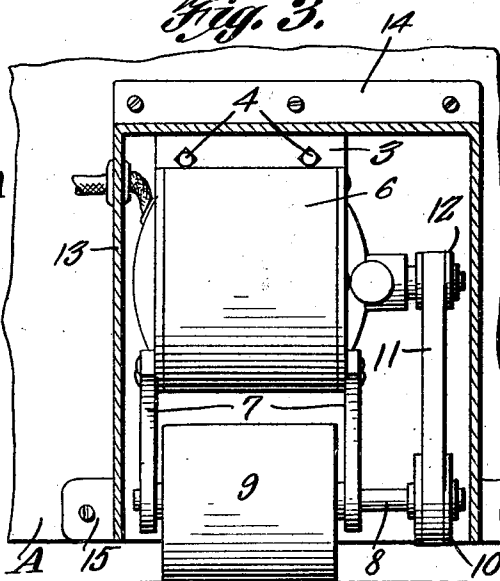
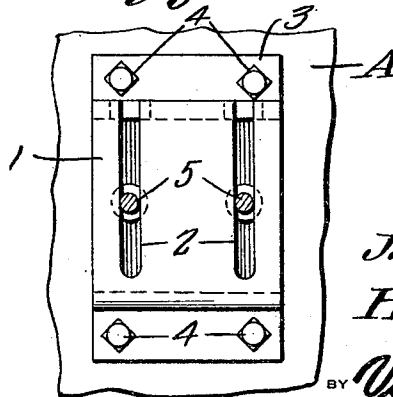


Fig. 4.



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WITNESS:

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UNITED STATES PATENT OFFICE.

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DOOR-OPERATING DEVICE.

Application filed June 2, 1928. Serial No. 282,362.

This invention relates to door operating devices and the general object thereof is to provide a motor operated door opening and closing device whereby the movement of the door can be controlled from a place remote therefrom for the convenience of persons desiring to pass through the doorway.

A further object of the invention is to provide a door operating device of the character set forth, that is capable of being detachably associated with a door, is mounted for traction with a floor, and in a manner to overcome uneven places in the floor, is simple in construction, inexpensive to manufacture and efficient in operation and service.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing our invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a top plan view illustrating the application of the device forming the subject matter of the present invention.

Figure 2 is a sectional view taken approximately on line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a sectional view taken through the casing at right angles to Figure 2.

Figure 4 is a front view of the attaching plate.

Referring to the drawings in detail, the letter A indicates a door of the usual horizontal swinging type hingedly secured at one side edge as shown.

The device of the present invention includes a plate 1 which is formed with an outwardly extending portion provided with spaced parallel slots 2. The plate has attaching ears 3 formed with apertures for receiving bolts 4 for securing the plate to the door adjacent the lower end of its inner side at the free edge thereof.

Detachably associated with the plate 1 through the instrumentality of headed pins 5 mounted for slidable movement in the slots, as suggested in Figure 4 of the drawings, is a motor 6 having depending from the opposite sides of the casing thereof spaced parallel bracket arms 7 formed with bearing openings in their lower ends.

Mounted for rotation in the bearing openings is the shaft 8 of a roller 9. The shaft 8 extends a considerable distance beyond one of the bracket arms and has secured to this end a pulley 10 adapted to receive a belt 11 which is trained about a pulley 12 secured to the armature shaft of the motor as best shown in Figure 3 of the drawings.

The roller 9 may be formed from resilient material such as rubber or composition thereof, or may have an elastic band detachably secured thereto, but in any event the roller is adapted to be disposed in contacting engagement with the floor and set up sufficient friction for the purpose of opening and closing the door when the motor is put into operation for that purpose.

By mounting the device in slots as shown, it will be apparent that it is capable of movement in a vertical plane during its travel across the floor, with the result the weight of the device will hold the roller in engagement with the floor and regardless of any uneven surfaces that may be present, such surfaces will not interfere with the efficient operation of the device.

A casing 13 is provided for the device and includes an upper attaching flange 14 and apertured ears 15 extending from the side edges thereof. The ears 15 and flange 14 are formed with openings to accommodate screws or the like for securing the casing about the device as clearly shown in Figures 2 and 3 of the drawings.

It is thought from the foregoing description that the advantages and novel features of our invention will be readily apparent.

We desire it to be understood that we may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What we claim is:

1. A door opening and closing device comprising a slotted attaching plate adapted to be secured to a door adjacent its lower free edge, an electric motor, means carried by said motor and arranged for movement in the slots of the plate, and a friction roller carried by said motor and operated thereby for the purpose specified.

2. A door opening and closing device comprising an attaching plate formed with spaced parallel vertically disposed slots and adapted to be secured to a door, an electric motor, headed studs extending from the casing of

said motor and mounted for slidable movement in said slots, a friction roller carried by said motor and operated thereby and a casing secured to said door and overlying said motor
5 and friction roller.

3. A door opening and closing device comprising an attaching plate formed with spaced parallel vertically disposed slots and being adapted to be secured to a door adjacent its
10 lower free edge, an electric motor, headed studs extending from the casing of said electric motor and mounted for slidable movement in said slots, bracket arms depending from said casing, a roller mounted for rotation between said arms, means for driving
15 said roller from said motor, and a casing enclosing said motor, roller and means.

4. A door opening and closing device comprising an attaching plate formed with slots

and being adapted to be secured adjacent
20 the lower free edge of a door, a motor, studs extending from said motor and mounted for slidable movement in said slots, bracket arms secured to the casing of the motor and depending therefrom, a shaft mounted in bearing
25 openings in the lower ends of said bracket arms, a pulley secured to one end of said shaft, a pulley for the armature shaft of the motor, a roller secured to said shaft between the bracket arms, a belt trained about said
30 pulleys for rotating said roller, friction means included in said roller and a casing for the device and being secured to said door.

In testimony whereof we affix our signatures.

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