Oct. 23, 1923. 1,471,455

F. C. ERNST

ELECTRIC DOOR OPENER

Filed Aug. 15, 1922

Fig. 1.

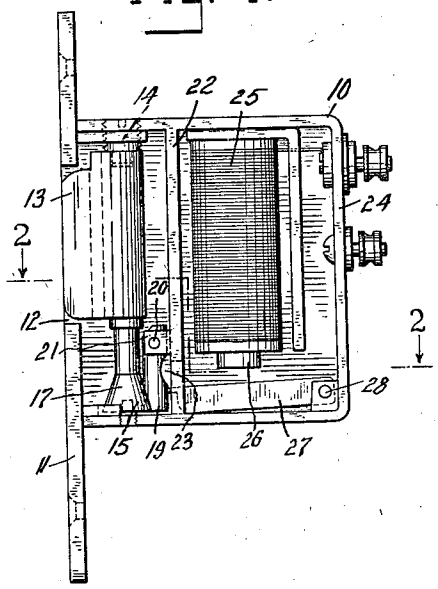
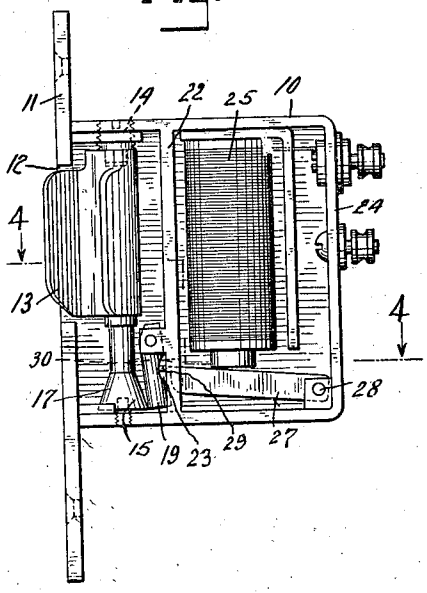


Fig. 3.



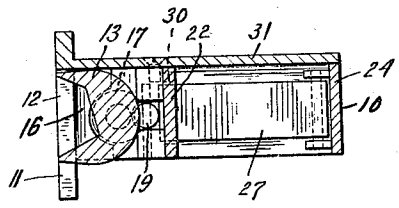


Fig. 2.

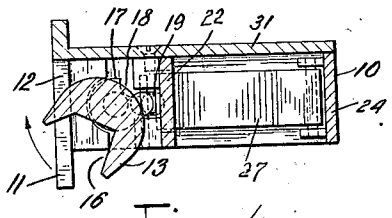


Fig. 4.

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Patented Oct. 23, 1923. 1,471,455

UNITED STATES PATENT OFFICE.

FREDERICK C. ERNST, OF NEW YORK, N. Y.

ELECTRIC DOOR OPENER.

Application filed August 15, 1922. Serial No. 582,095.

To all whom it may concern:

Be it known that I, FREDERICK C. ERNST, a citizen of the United States, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric Door Openers, of which the following is a specification.

The present invention relates to improvements in electric door-openers or strikers, including a movable part which is adapted to be actuated, to release the latch of the door, by energizing an electro-magnet, the armature of which co-operates with the said movable part.

The main object of the invention is to provide a device of this type which is simple in construction, and which does away with the use of springs for returning the movable element of the striker to its locking position.

Another object of the invention is to so construct the door opener that it can be conveniently coverted to fit doors opening either to the right or to the left.

A further object of the invention is to provide a device of the type described which is capable of manufacture on a commercial scale, or in other words one which is not so difficult to make as to be beyond the reasonable cost of such a contrivance.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter described, pointed out in the appended claim and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claim, without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a door opener constructed in accordance with the present invention; Fig. 2 is a section taken on line 2—2 of Fig 1; Fig. 3 is an elevation similar to the one shown in Fig. 1, the elements being shown in other positions; and Fig. 4 is a section taken on line 4—4 of Fig. 3.

In the drawings, the numeral 10 indicates a casing adapted to be inserted into a mortise in the door frame, it being provided with a face plate 11 which is substantially flush with the door frame. In the face plate is provided a transverse slot 12, into which projects the pivoted member 13 of the striker, said member turning on vertical pivots 14 and 15 in the top and bottom, respectively, of the casing 10. The pivoted member 13 is provided with a longitudinal recess 16, into which fits the latch of the lock of a door. Adjacent its lower end the pivot pin 15, to which the member 13 is fixedly attached, is provided with an enlargement 17, having a recess 18 in its inner face. In this recess is adapted to be seated a substantially vertically extending dog 19, which is adapted to swing on a horizontal pivot pin 20, extending through the said dog and through lugs 21 on a vertical partition 22 of the casing. The dog is provided adjacent its pivoted end with a notch 23, as clearly shown in Figs. 1 and 3 of the drawings.

Between the partition and the rear plate 24 of the casing is disposed an electromagnet 25, inserted into an electric circuit, containing an electric battery and switches, not shown. This electromagnet extends vertically, the lower free end of its core 26 cooperating with a substantially horizontally extending armature 27, which is pivoted at 28 to the casing, its front pointed end 29 projecting through an opening 30 in the partition 22 and abutting against the rear face of the dog 19, when the electric circuit is open (Fig. 1).

The casing 10 is provided with a plate 31 which is adapted to be secured to either side of the casing, it limiting the movement of the pivoted member 13 toward locking position.

The operation of this device is as follows: When the elements are in the positions shown in Figs. 1 and 2 of the drawings, in which the electromagnet is deenergized, the dog 19 is seated in the recess 18 in the extension 17 of the movable element 13 of the striker, the pointed end of the armature 27 being disposed below the notch of the said dog and preventing thereby a disengagement of the latter from the said enlarged portion 17. The member 13 is thus prevented from turning on its pivots, thereby securely locking the door. When the elec-

tromagnet is energized, the armature 27 will be drawn upwards, its pointed end registering thereby with the notch 23. When then the door is opened, the latch bolt moves the pivoted member 13 from the position shown in Fig. 2 to the position shown in Fig. 4 of the drawings, the dog 19 being unseated from the recess in the enlargement 17. The elements occupy then the positions shown in Figs. 3 and 4 of the drawings. When the door is being closed, the latch strikes against the pivoted member 13 moving the same into the position shown in Fig. 2 of the drawings, the dog 19 moving automatically to working position, that is to say into the recess in the enlargement 17 and the armature 27 dropping from the position shown in Fig. 3 of the drawings into the position shown in Fig. 1 of the drawings, thereby holding the said dog in engagement with the enlarged portion 17 of the pivoted member 13. The dog moves into engaging position by gravity.

From the foregoing it will be seen that there are no springs employed in the device, as usual in constructions of this type. The contrivance is thus less liable to get out of order. It is to be noted from Figs. 2 and 4 of the drawings that the cover plate 31 forms a stop, limiting the movement of the pivoted member 13 in the direction of the arrow shown in Fig. 4 of the drawings, that is to say toward closing position. If the device is to be made use of in connection with doors which move in the opposite direction, the said cover plate is detached from the casing, and secured to the opposite face thereof, this being the only change necessary to convert the door opener for use with swinging doors moving either to the left or to the right.

What I claim is:

An electric door opener, comprising a pivoted member having a recess, a dog normally seated in said recess to prevent movement of said pivoted member, said dog having a notch, an armature normally abutting against said dog to prevent releasing of said pivoted member, an electromagnet co-operating with said armature, said armature being brought into registry with said notch when attracted by said electromagnet, thereby permitting disengagement of said dog from said pivoted member.

Signed at New York, in the county of New York and State of New York, this 28th day of July, A. D., 1922.

FREDERICK C. ERNST.