Nov. 19, 1929. C. HAFFNER 1,736,761

ELECTRICAL DOOR LOCK.

Filed Feb. 18, 1929

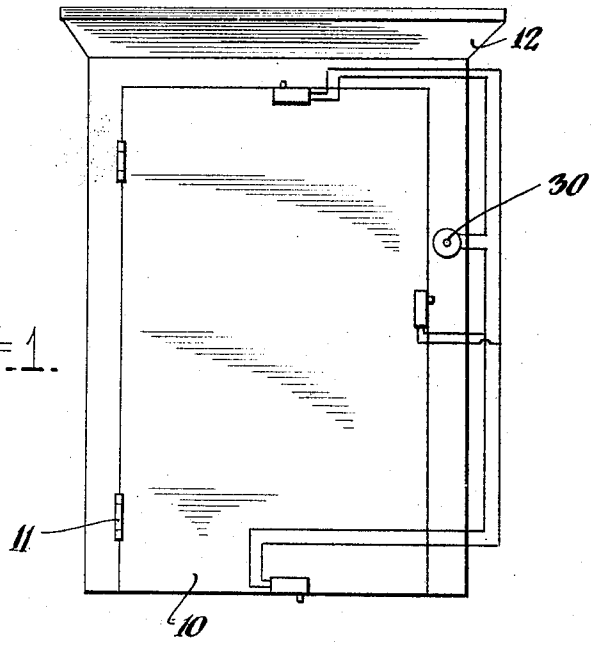
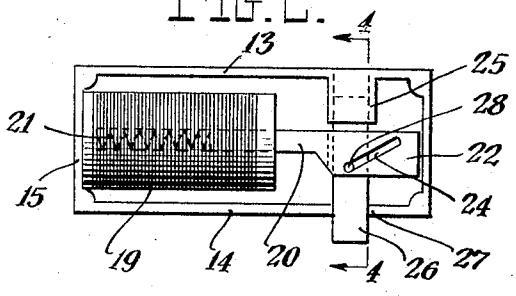


FIG. 1.

FIG. 2.



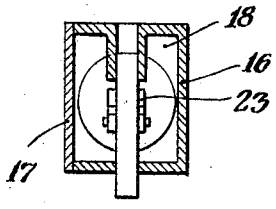


FIG. 4.

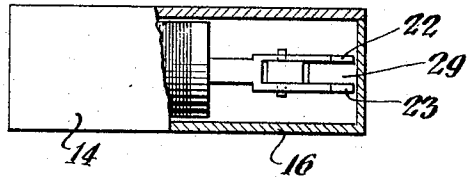


FIG. 3.

Inventor
C. Haffner

By his Attorney F. Lederman

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UNITED STATES PATENT OFFICE

CHARLES HAFFNER, OF ALLENTOWN, PENNSYLVANIA

ELECTRICAL DOOR LOCK

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The main object of this invention is to provide a door with a plurality of locks which are simultaneously operated by means of a push button when it is desired to open the door.

The above and other objects will become apparent in the description below, in which characters of reference refer to like-named parts in the drawing.

Referring briefly to the drawing, Figure 1 is a front elevational view of the door, showing the application of the locks to the same.

Figure 2 is a front elevational view of one of the lock mechanisms with the cover removed.

Figure 3 is a bottom plan view of Figure 2, showing a part thereof in section to illustrate the mechanism.

Figure 4 is a cross sectional view taken on line 4—4 of Figure 2.

Referring in detail to the drawing, the numeral 10 indicates the usual type of door which is mounted on hinges 11 within a door frame 12. At various predetermined positions on the door, locks are mounted which project the bolts of the locks into recesses in the frame of the door.

The locks comprise a rectangular box-like casing having side walls 13 and 14, end walls 15, a bottom 16, and a cover member 17 which latter member is secured in place on the casing by screws or any other desirable means. The casing houses a chamber 18 in which the lock mechanism is located. This lock mechanism in each case comprises a solenoid 19 which is electrically operated and is secured rigidly to one of the end walls 15 in any desirable manner. This solenoid has a plunger 20 therein which is projected outwardly by a spring 21 located in the bore of the solenoid. The end of the plunger 20 is provided with a pair of spaced-apart tongues 22 and 23. These tongues are provided with superimposed inclined slots 24.

A cylinder 25 is formed in the housing and suspends from the side wall 13 of the lock. This cylinder 25 has a bore therein in which slidably is fitted the upper end of a locking bolt 26. This locking bolt is adapted to be projected through an opening 27 located in the side wall 14 of the lock. Pins 28 project from the bolt 26 and are adapted to register in the inclined slots 24. Said bolt 26 is positioned in the space 29 between the tongues 22 and 23 and is adapted to be lifted and lowered by the extension or retraction of the plunger 20.

The casings with their enclosed mechanisms are adapted to be mounted on a door 10 located within a frame 12 and bolts 26 are adapted to be retracted from the locking to the released position by the application of a finger upon a push button 30. The solenoids of the locks are all wired in parallel to be simultaneously operable. As the current passes through the solenoid the plunger 20 is retracted, carrying the tongues 22 and 23 with it. This will cause the area of the tongues 22 and 23 in which the inclined slots 24 are located to pass the locking bolt 26 and, as the pins 28 rigid with the locking bolt register in these slots 24, the pins are caused to ride upwardly in the inclined slots 24 and lift the locking bolt from the securing to the releasing position, retracting the upper end of the bolt into the bore of member 25. The movement in all the locks is accomplished simultaneously as before stated by closing the contact through means of the push button 30.

It is to be noted that certain changes in form and construction may be made without departing from the spirit and scope of the invention.

I claim:

1. In a device of the class described, a lock comprising a casing, a solenoid in said casing, a locking bolt, a plunger slidable in said solenoid, spaced-apart tongues on said plunger, said locking bolt being movable at right-angles to said plunger, and means on said tongues engaging said locking bolt for lifting the latter when said plunger is retracted into said solenoid.

2. In a device of the class described, a lock comprising a casing, a solenoid in said casing, a locking bolt, a plunger slidable in said solenoid, spaced-apart tongues on said plunger, said locking bolt being movable at right-angles to said plunger, inclined slots

in said tongues, and means projecting from said locking bolt engaged in said slots for retracting said locking bolt.

3. In a device of the class described, a lock comprising a casing, a solenoid in said casing, a locking bolt, a plunger slidable in said solenoid, spaced-apart tongues on said plunger, said locking bolt being movable at right-angles to said plunger, inclined slots in said tongues, and pins on said locking bolt registering in said slots, said pins being adapted to be lifted from one end of said inclined slots to the higher end upon retracting of said plunger.

In testimony whereof I affix my signature.

CHARLES HAFFNER.