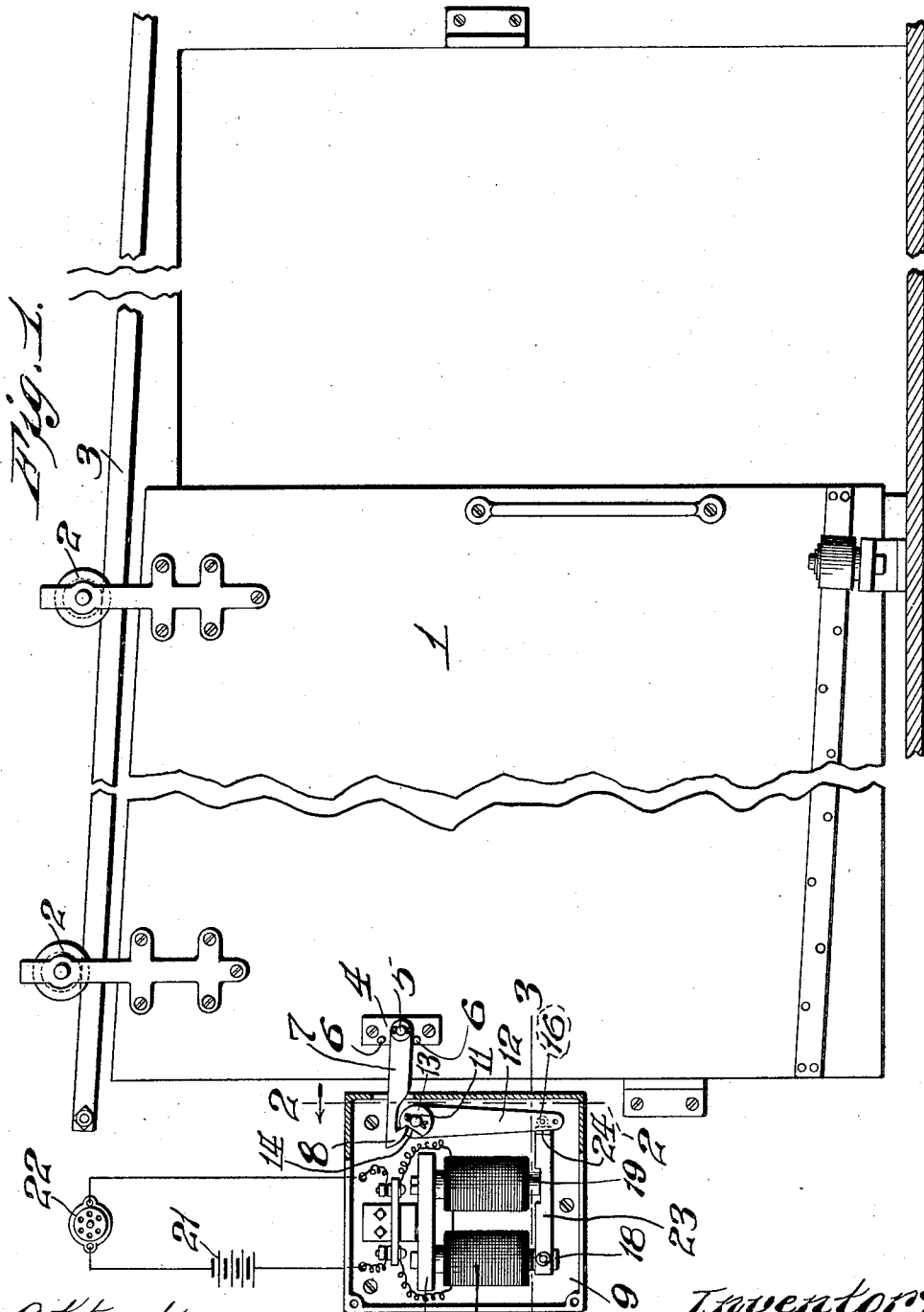


T. H. WURMB & R. BAUMANN.
 AUTOMATIC ELECTRIC RELEASE FOR FIRE DOORS.
 APPLICATION FILED AUG. 29, 1910.

1,057,608.

Patented Apr. 1, 1913.

2 SHEETS—SHEET 1.



Attest:
 A. G. Hittner.
 E. L. Wallace.

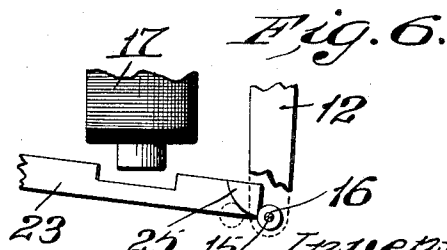
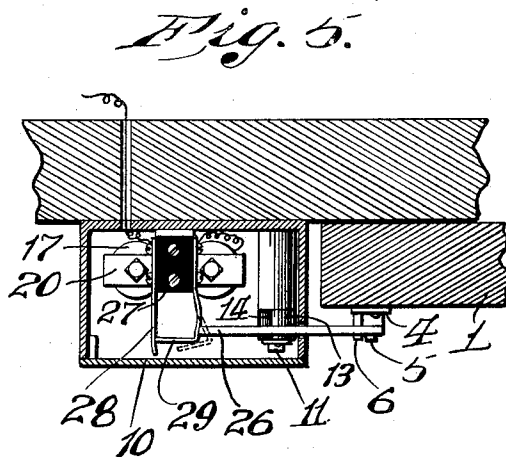
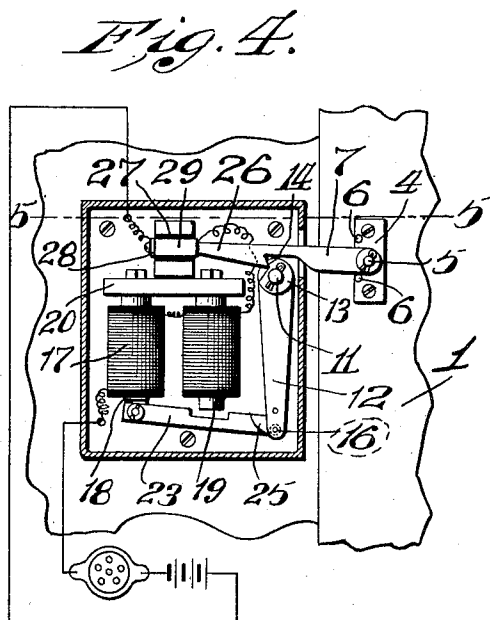
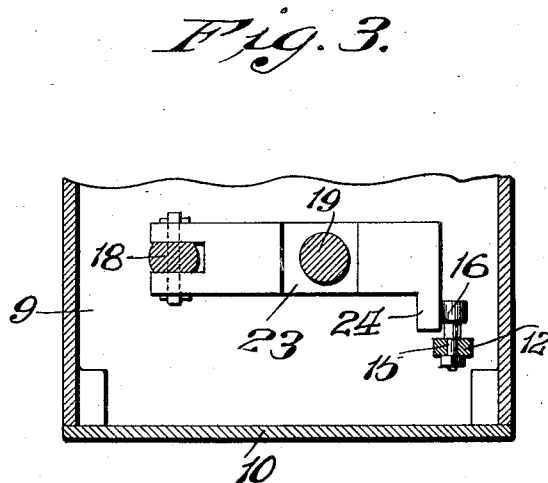
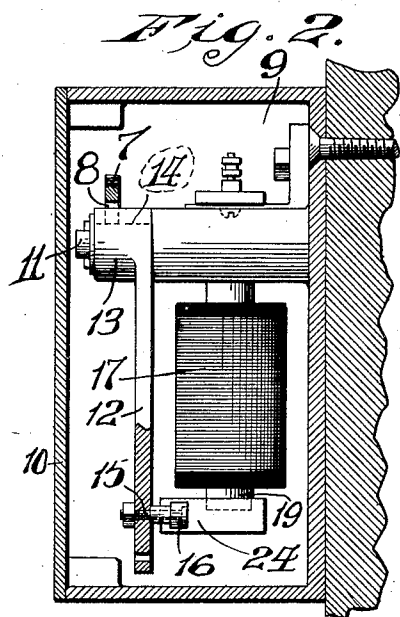
Inventors:
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 By Higdon Longan attys.

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2 SHEETS—SHEET 2.



Attest:
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UNITED STATES PATENT OFFICE.

THEODORE H. WURMB AND ROBERT BAUMANN, OF ST. LOUIS, MISSOURI, ASSIGNORS
TO NATIONAL CLOCK & ELECTRIC MANUFACTURING CO., OF ST. LOUIS, MISSOURI,
A CORPORATION OF MISSOURI.

AUTOMATIC ELECTRIC RELEASE FOR FIRE-DOORS.

1,057,608.

Specification of Letters Patent.

Patented Apr. 1, 1913.

Application filed August 29, 1910. Serial No. 579,454.

To all whom it may concern:

Be it known that we, THEODORE H. WURMB and ROBERT BAUMANN, citizens of the United States, and residents of St. Louis, Missouri, have invented certain new and useful Improvements in Automatic Electric Releases for Fire-Doors, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to improvements in automatic electric releases for fire doors, the object of our invention being to construct electrically controlled mechanism for normally holding a fire door in an open position, which mechanism is arranged to be automatically released, there being means, which is thermally operated, for either opening or closing a circuit controlling the electrical devices.

The mechanism as shown is applied to a single door only, but it is obvious that a number of doors may be operated simultaneously when such electrical devices are arranged in circuit.

For the above purposes our invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which—

Figure 1 is an elevation illustrating our invention as applied for use in holding a door normally open; Fig. 2 is an enlarged, detail, transverse, sectional elevation taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged, sectional plan taken on the line 3—3 of Fig. 1, a portion of the casing being broken away; Fig. 4 is an elevation, partly in section, of a modified form of our invention, the same being employed in connection with an open circuit; Fig. 5 is a sectional plan taken on the line 5—5 of Fig. 4; and Fig. 6 is an enlarged, fragmental, detail illustrating portions of the locking lever, the armature and electromagnet.

Referring by numerals to the accompanying drawings: 1 designates the door having rollers 2 for suspending the door from the inclined track way 3. While we have shown a door suspended from an inclined track way we do not wish to be understood as limiting ourselves to such a structure, as it

is obvious that other means may be devised and employed for moving the door. Carried by the door is a plate 4 which plate carries a stud 5, and arranged adjacent the stud is a pair of stop pins 6. Pivotally supported upon the stud 5 is a bar 7, the outer free end of which is provided with an integral hook 8, the bar being limited in its movement by the stop pins 6.

9 designates a casing arranged at a position adjacent the left hand margin of the door when in a full open position and 10 designates a cover for the casing which is secured thereto in any suitable manner. As shown, the right hand side wall of the casing proper is slotted to permit the hooked end of the bar 7 to enter the casing. Arranged adjacent said slot is a stud 11 upon which is pivotally mounted a locking bar 12 having an enlarged hub section 13, which hub section is recessed at 14 to engage and hold the hooked end 8 of the bar 7. Carried by the lower end of the locking bar 12 is a pin 15 carrying a roller 16, the bar having spaced-apart openings arranged to receive the pin, whereby the pin and roller may be held in different positions relative to the length of the bar. Arranged within the casing is a pair of electromagnets 17, the cores 18 and 19 of which are connected by a yoke 20 supported within the casing, the magnets being in circuit with a battery 21 and a thermally operated circuit breaker 22.

23 designates an armature one end of which is pivotally secured to the lowermost end of the core 18 and its opposite or free end is provided with a forward extension 24 arranged to engage with the roller 16 carried by the locking lever.

In the operation of the form of electric fire door release just described, it is to be understood that the circuit connecting the electromagnets, the battery and the thermo circuit breaker is normally closed, the armature engaging the locking member thereby holding the hooked bar, carried by the door, to hold the door in an open position. When the circuit breaker is acted upon thermally and the circuit broken the magnets are de-energized, thereby permitting the armature to fall by gravity away from the roller bearing pin carried by the locking lever. Then, by reason of the movement of the door, by gravity, in a direction to close, the hooked

end of the bar, carried by the door, will swing the locking bar to a position so that the hook 8 will release from the recess 14 of the locking bar, thus releasing the door so that it may move by gravity to a closed position.

Referring to Figs. 4, 5, and 6, the arrangement is such as to be employed in connection with a normally open circuit and means such as a battery and a thermally operated device such as 22 are employed. As shown, the electro-magnets are normally deenergized and the armature normally in a position away from the core 19, the locking lever having the pin 15 and roller 16 set nearer the end so as to be engaged by the end of the armature. The armature in this condition is provided with an extension 25 for the same purpose as the extension 24 but has its inner face curved as shown in Figs. 4 and 6 for purposes hereinafter made clear. The bar carried by the door is substantially the same as the bar employed in the closed circuit except that at its free end it is provided with an integral extension 26. This extension is arranged for the operation of a circuit breaker inclosed within the casing and located immediately above the yoke and comprises an insulated block 27, a conducting plate 28, forming a contact point, and a conducting spring contact point 29. The operation of this form of electric release is as follows: Assuming the parts to be in position as shown in Figs. 4 and 5 and that the conductors shown are connected with a battery and a normally open thermally operated circuit maker. Now, when the circuit maker is thermally acted upon, the electro-magnets are energized and the armature drawn upwardly thereby releasing the locking lever and permitting the bar to move by gravity to a closed position. The movement of the bar withdraws the extension 26 away from the spring contact member 29 thus breaking the circuit and permitting the armature to fall away from the magnet, it being understood that the armature moves a sufficient distance to free the locking lever. The amount of movement of the armature may be limited in any suitable way, but, as shown, is by the rearmost end of the armature engaging with the core of the magnet to which the armature is pivoted. By rea-

son of the curved forward face of the extension 25, the roller carried by the locking lever automatically raises the extension so as to permit the lever to move to a setting position and then be held in such position by the extension.

The same locking bar, pin and roller may be employed, whether used in connection with a closed circuit or an open circuit, and by simply changing the location of the pin and roller the same locking bar may be used in connection with either form of right angled projection carried by the armature.

We claim:

1. In a device of the class described, the combination with a hooked latch pivotally supported, of a pivoted locking lever for said hooked latch, a pivoted armature of an electro-magnet, a right angled projection carried by said locking lever arranged to be engaged at times by the said armature, and means whereby said right angled projection may be held in different set positions longitudinally relative to the locking lever, for the purposes stated.

2. In a device of the class described, the combination with a pivoted hook and a locking lever having a shoulder for engagement with said hook, of an armature of an electro-magnet, pivotally mounted adjacent one of its ends, a lateral projection at the free end of said armature, a lateral projection carried by the locking lever, and means for securing said projection to the locking lever at different points, for the purposes stated.

3. In a device of the class described, the combination with a latch pivotally carried and means for limiting the movements of said latch, of a locking lever pivotally supported and arranged to hold said latch, an electro-magnet, an armature actuated by said magnet and arranged for engagement with said locking lever, and a switch arranged to be actuated by said latch, for the purposes stated.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses.

THEODORE H. WURMB.
ROBERT BAUMANN.

Witnesses:

E. L. WALLACE,
N. G. BUTLER.