

(No Model.)

J. E. TRYON.
AUTOMATIC SWITCH MECHANISM.

No. 587,625.

Patented Aug. 3, 1897.

Fig. 1

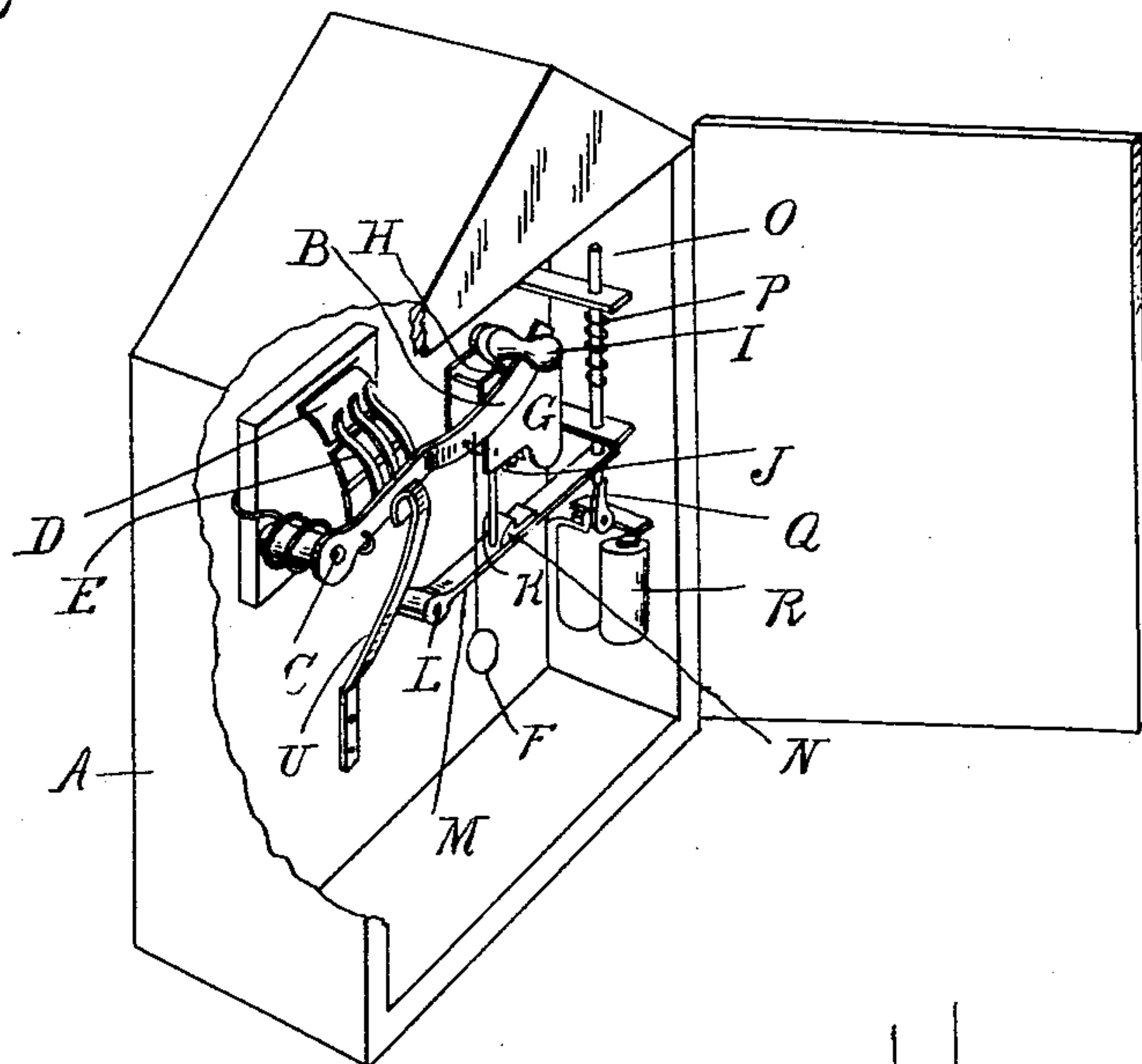
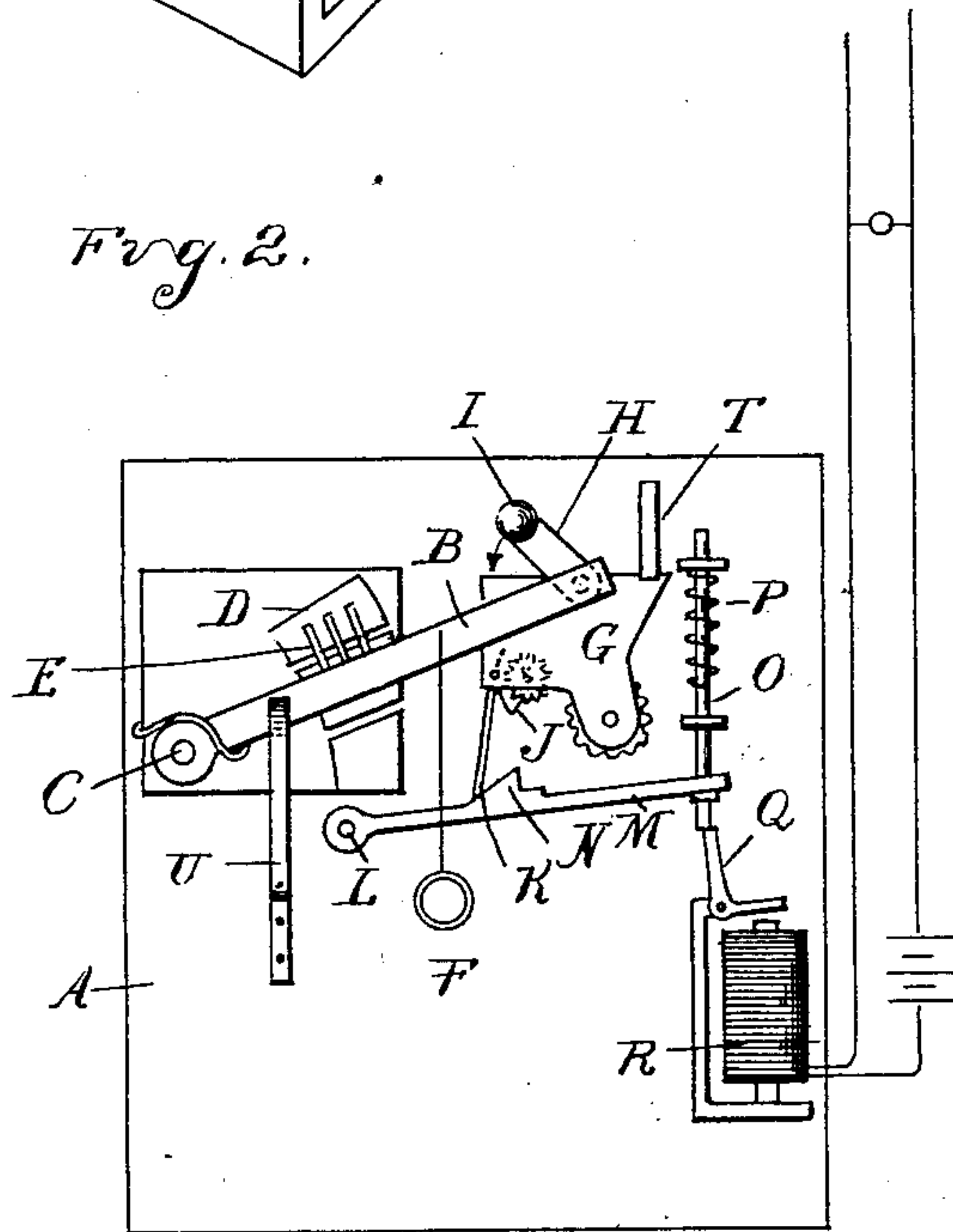


Fig. 2.



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JAMES E. TRYON, OF DETROIT, MICHIGAN.

AUTOMATIC SWITCH MECHANISM.

SPECIFICATION forming part of Letters Patent No. 587,625, dated August 3, 1897.

Application filed February 23, 1897. Serial No. 624,569. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. TRYON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Automatic Switch Mechanism, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates more specifically to an attachment for electric fire-alarm systems, and is primarily designed to apply to private alarm-boxes of the character in which the pulling down of a switch-lever sends in the
15 alarm.

My invention consists in providing in proximity to the switch-lever a rock-arm actuated by motive power through the medium of a clockwork, and which arm is normally arrested in operative position by having its escapement held in check by the armature of an electromagnet, whereby if said magnet is connected into an electric circuit which includes thermostatic devices the breaking out
20 of a fire in the building through which said electric circuit and thermostatic devices are disposed will change the normal condition of the circuit and electromagnet and set off the alarm, all in a manner more specifically hereinafter described, and shown in the drawings, in which—

Figure 1 is a perspective view of the ordinary alarm-switch or auxiliary box to which my invention is applied; and Fig. 2 is an elevation thereof, the parts being all shown in their normal condition.

A is the inclosing box.

B is the switch-lever, pivotally secured at C, and D are the fixed contact-plates.

40 E is the movable contact or brush carried by the switch-lever, and F is the usual hook or pull attached to the switch-lever, all arranged and constructed to operate in the usual manner and forming no part of my invention.

45 My attachment comprises a clock mechanism G, provided with a rock-arm H, to the end of which is attached a handle I. This clock mechanism is controlled by an escapement J, to which is attached the downwardly-projecting arm K. Below this mechanism is pivotally secured at L the tripping-lever M, which has a projection N, adapted to check

and hold the arm K of the escapement in position. The free end of the tripping-lever M engages upon a vertical tension-rod O, held 55 in vertical guide-bearings and having sleeved upon it a spring P between said guide-bearings. Beneath the rod O and adapted to support the same is arranged the armature Q of an electromagnet R, which latter is in contact with the battery and thermostat guarding the building in which the alarm is located.

The parts being arranged as shown and described, they are intended to operate as follows: In the normal position the parts are in 65 the condition shown in Fig. 2—that is, the armature Q upholds the tension-rod O and holds the spring P under compression. At the same time the tension-rod upholds upon a shoulder formed thereon the tripping-lever 70 M, and the latter holds the escapement in check. The clockwork is thereby prevented from starting, and the rock-arm, with its handle I, is upheld above the switch-lever, as shown in Fig. 2, the switch-lever being now 75 in its normal position, being upheld therein by the spring S.

As soon as the electromagnet becomes energized upon the closing of the circuit by the action of the thermostat, owing to the heat 80 of an incipient fire, the electromagnet becomes energized and acting upon the armature moves it from underneath the tension-rod O. The latter becoming free releases the trip-lever M and allows the escapement of 85 the clock to work freely, and the rock-arm will begin to move in the direction of the arrow and push the switch-lever over the contacts in the same manner as is done by pulling upon the hook F in the usual manner for 90 sending off the alarm. The rock-arm after depressing the switch-lever releases it again and is then arrested by a stop T.

Before being released from engagement with the rock-arm the switch-lever has become engaged with the spring-hook U, and 95 thereby is prevented from flying back again into its original position. Thus the normal position of the parts may be reversed again by turning the rock-arm back into its normal position, setting the tripping device, and then disengaging the switch-lever and allowing it to return.

My device, it will be seen, does not interfere

in any way with the usual manual operation of the alarm. The switch-lever is always free from engagement with the rock-arm, except during the interval of its operation, and can
5 be independently operated at any time.

At the same time my device is so simple that anybody of ordinary skill will understand how to operate it.

While I have shown the device as arranged
10 to operate on an open circuit by the closing of the thermostat, I apply it equally with a closed circuit in connection with fusible devices whereby the circuit is opened, in which case the armature would have to be provided
15 with a suitable spring or other device and operated by being retracted upon the magnet losing its energy, and as such a modification is well known I do not consider it necessary to make any further explanation.

20 What I claim as my invention is—

1. The combination with a switch-lever and means for operating it manually, of a power-driven crank arranged to rotate in the path of the switch-lever for operating the same, an
25 escapement controlling said power-driven crank, stop for said escapement, and an electrically-controlled tripping device for said stop, substantially as described.

2. The combination with the actuating

switch-lever, of an alarm-box provided with
30 a retracted spring, of the clock mechanism G provided with the winding-crank and arranged to revolve in the path of said switch-lever, the escapement provided with the arm K, the trip-lever M provided with the detent
35 N, the rod O carrying said switch-lever and provided with a spring P, the electromagnet R provided with the tilting armature Q and the spring U, the parts being arranged and combined to operate as shown and described. 40

3. The combination with a switch-lever and its contacts, and means for manually operating said switch-lever, of a clock mechanism provided with a winding-crank arranged to be rotated by the clock mechanism against
45 the switch-lever to operate the same, an escapement controlling the clock mechanism, an electrically-controlled trip device for said escapement, and a stop to prevent the return movement of the switch-lever, substantially 50 as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. TRYON.

Witnesses:

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