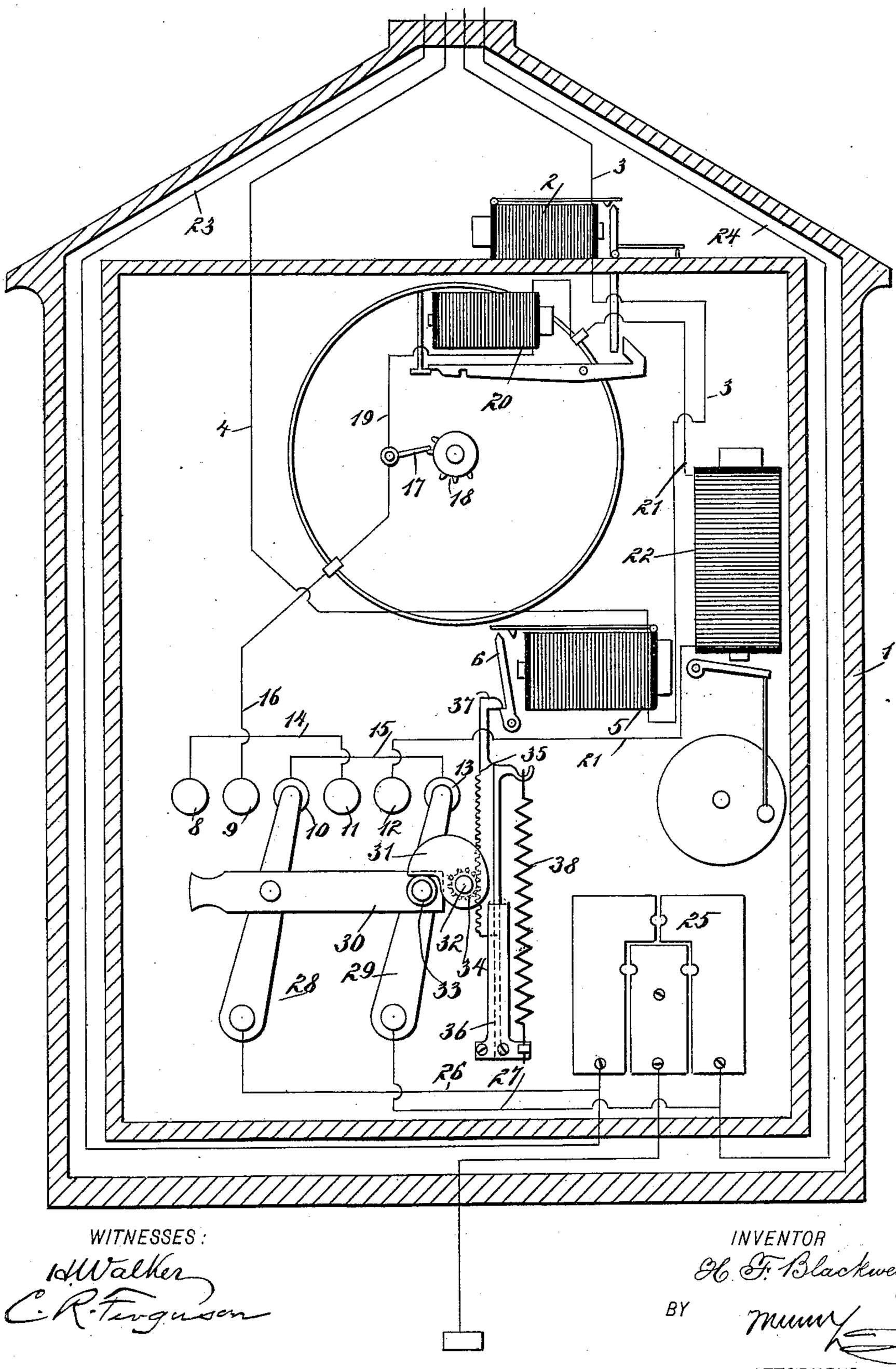
No. 618,773. Patented Jan. 31, 1899.

H. F. BLACKWELL, JR.

AUTOMATIC CIRCUIT CLOSER.

(Application filed Jan. 8, 1898.)

(No Model.)



WITNESSES:

H. L. Walker

C. R. Ferguson

INVENTOR

H. F. Blackwell Jr.

BY Munn & Co

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY F. BLACKWELL, JR., OF NEW YORK, N. Y.

AUTOMATIC CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 618,773, dated January 31, 1899.

Application filed January 8, 1898. Serial No. 666,041. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. BLACKWELL, Jr., of New York, (Brooklyn,) in the county of Kings and State of New York, have invented a new and Improved Automatic Circuit-Closer, of which the following is a full, clear, and exact description.

This invention relates to a means for switching the Gamewell standard cut-out fire-alarm signal-boxes into circuit; and the object is to provide a simple means for operating the usual switch.

I will describe a circuit-closer embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure shows a call-box in vertical section with my improvement therein.

Referring to the drawing, 1 designates a call-box, in which is the auxiliary magnet 2, arranged in the auxiliary circuit comprising the wires 3 4. This auxiliary magnet 2 is a Gamewell device, and its office is to start the signaling-train in the signal-box. Also arranged in the auxiliary circuit is a switch-controlling electromagnet 5, adapted, when energized, to attract an armature-lever 6, which is a locking device for a switch throwing mechanism, to be hereinafter described.

Mounted in the box 1 are contact-points 8, 9, 10, 11, 12, and 13. The contact-points 8 and 11 are connected by a short-circuiting wire 14, and the contact-points 10 and 13 are also connected with a short-circuiting wire 15. The contact-points 9 and 12 are arranged in the working or call circuit of the box. As here shown, a wire 16 leads from the contact-point 9 to a brush 17, which is in connection with the signal-wheel 18, operated in the usual manner, and from the other brush engaging with this signal-wheel (not shown, however) a wire 19 leads to an electromagnet 20, and from this electromagnet 20 a wire 21 extends through the bell-magnet 22 and thence to the contact-point 12. The main or alarm wires 23 and 24 connect with a lightning-arrester 25 in the box, and from these main wires shunt-wires 26 and 27 extend, respectively, to switch-arms 28 and 29. The switch-arms are connected together so as to swing in unison by means of a bar 30 of insulating material. These switches are designed to be moved automatically to place the alarm-box movement in the fire-alarm circuit. For this purpose I employ a cam 31, mounted on a stud 32 and adapted to engage with a roller 33 on the bar 30. Connected to the cam 31 is a pinion 34, meshing with a rack 35, movable in a guideway 36, arranged in the box. The rack 35 has its upper end formed into a hook 37, normally engaging with a projection at the lower portion of the armature-lever 6, and a spring 38 is connected at one end to a finger projected from the rack and at the other end to the guide 36, as clearly indicated in the drawing. The cam and rack I term a "switch-throwing mechanism."

The switch-arms 28 and 29 are normally in engagement with the contact-points 10 and 13. Therefore should a current be sent over the main wires with which the switch-levers are connected the current will be short-circuited through the wire 15, and therefore the alarm mechanism of the box will not be operated. Should an alarm be sent in from an auxiliary box, however, the current will be through the auxiliary wires, electromagnet 2, and the electromagnet 5. This electromagnet 5 being energized will draw the armature 6 out of engagement with the hook 37 of the rack 35, thus allowing the spring 38 to draw the rack downward. As the rack moves downward it will rotate the cam 31, and the cam edge thereof bearing upon the roller 33 will force the switch-arm over into contact with the points 9 and 12, and thus the circuit will be closed through the bell-magnet, causing the alarm to sound. After the alarm the parts must be returned to their normal positions manually.

Should it be desired to test the wires, the switch-arms are to be moved into connection with the contact-points 8 and 11. Therefore the short-circuit wire 14 will form a portion of the main circuit, and the switch in this event cannot be interfered with by the closing of the auxiliary circuit.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fire-alarm, a main circuit, an alarm-circuit, a switch, which in one position connects the main circuit with the alarm-circuit

and in the other position normally closes the main circuit, a switch-throwing mechanism having a movable part engaging the switch, a device for normally engaging and locking the switch-throwing device, electrically-controlled mechanism for moving said locking device to release the switch-throwing mechanism, and an auxiliary circuit for operating said electrically-controlled releasing mechanism, substantially as specified.

2. In an alarm-box, a main circuit, an auxiliary circuit, an alarm-circuit, a switch normally closing the main circuit, a cam for moving the switch to close the alarm-circuit, a rack for rotating said cam, and an electromagnet in the auxiliary circuit for controlling the rack, substantially as specified.

3. In a fire-alarm, a main circuit, an auxiliary circuit, an alarm-circuit, two swinging switch-arms having connection with the main circuit, a cam operating to move the switch-arms into position to close an alarm-circuit, a rack engaging with a pinion on said cam, means for moving said rack downward, whereby it may rotate the cam, a switch-controlling magnet in the auxiliary circuit, and an armature-lever with which the upper portion of the rack normally engages, substantially as specified.

HENRY F. BLACKWELL, JR.

Witnesses:
EVERARD BOLTON MARSHALL,
C. R. FERGUSON.