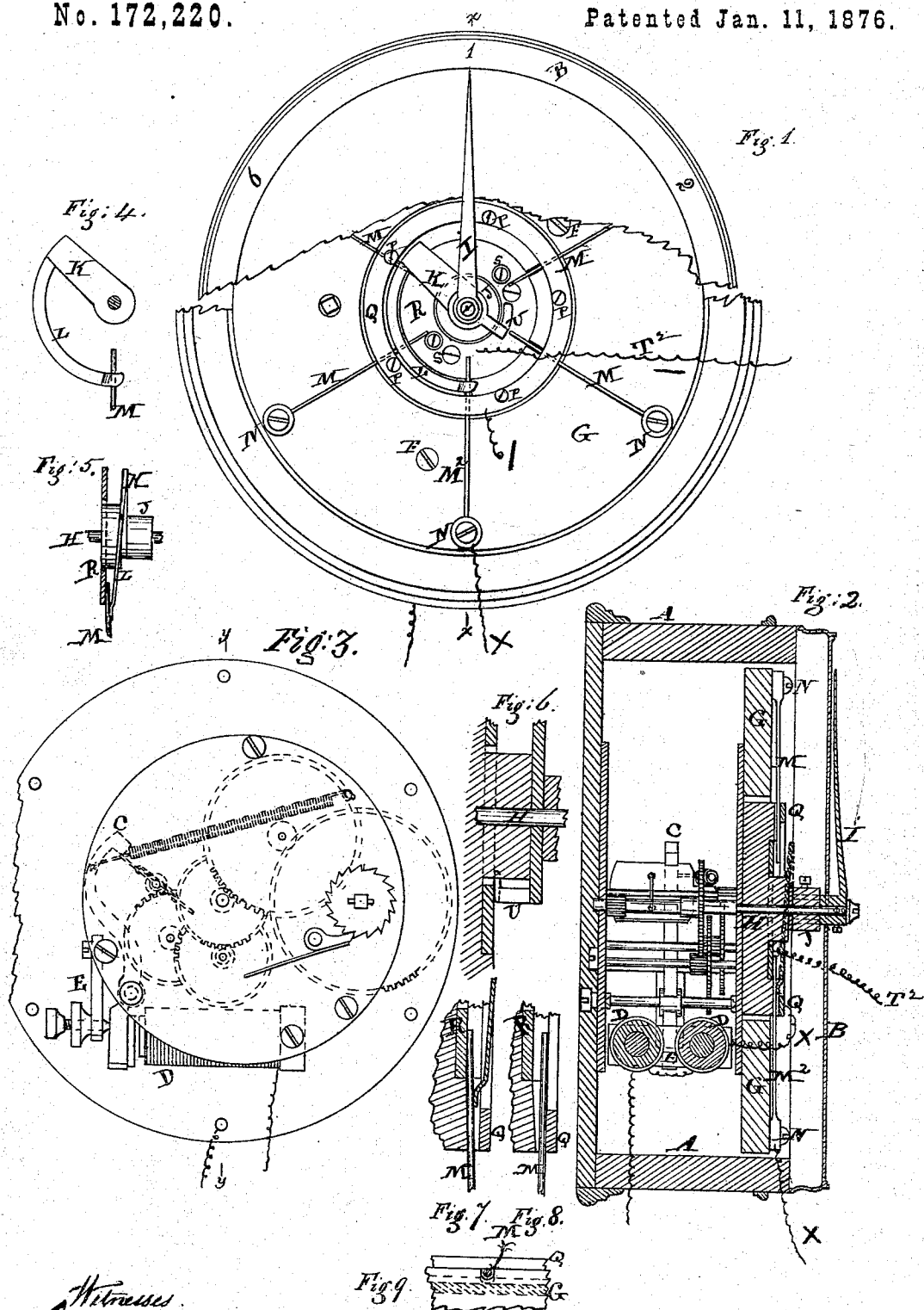


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CIRCUIT CLOSERS AND BREAKERS FOR ALARM-TELEGRAPH.

No. 172,220.

Patented Jan. 11, 1876.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN CIRCUIT CLOSERS AND BREAKERS FOR ALARM-TELEGRAPHS.

Specification forming part of Letters Patent No. **172,220**, dated January 11, 1876; application filed December 21, 1872.

### *To all whom it may concern:*

Be it known that I, WILLIAM B. WATKINS, of Jersey City, State of New Jersey, have invented a certain new and useful Improvement in Circuit Breakers and Closers for Fire and Burglar Alarm and other Telegraphic Purposes; and I do hereby declare the following to be a full description of the same.

This invention is an improvement on my invention of January 31, 1871, No. 111,412, for "improvements in fire-alarm telegraphs," wherein a circuit breaker and closer is shown, consisting of a "fixed plate, D, mounted upon one of the standards E, in which are the bearings of the shaft F of the revolving arm G. This plate D is secured to its standard by means of an insulator, *a*, the central opening in which, being larger than the revolving shaft F, allows the latter to pass through it without touching, as shown in Fig. 4. The fixed plate D is provided, on its circumference or side, with non-conductors, which may consist of insulating material; or spaces may be cut in the metallic plate, so as to allow the spring *c* of the arm G to pass over them without contact with said plate." My present invention is, therefore, to accomplish substantially the same results, but by an improved method; and consists, first, in combining with and arranging upon the face of an insulating-plate secured to the face of the magnetic motor-train of wheels, a series of spring switches or keys, radially from near the center of the plate to its outer circumference, where they are held by set-screws, so that, by the revolving of the circuit breaker and closer arm on the arbor of the motor-wheels, any one of the series of switches, corresponding in number with the number of the room or place where an alarm is given, will be switched out of the circuit and transferred through the non-stationary revolving circuit-breaker, to establish a new circuit through an alarm-instrument at the detective-station; second, in combining with the said spring switches or keys, as arranged upon the insulating disk or plate, a circuit-closer metallic plate, resting on the upper side of the switches, near their inner ends, and a second or transfer circuit-closer plate under the ends of the spring-switches, and slightly

separated therefrom, so as to prevent any circuit through it, except when the new circuit is required to give an alarm at the detective-station, by the revolving circuit-closer arm depressing the point of the spring-switch upon the transfer circuit-closer plate, and away from the circuit-closer plate on the upper side of it; and, third, in the combination of the revolving circuit breaker and closer, as insulated upon the arbor of a train of electro-magnetic motor-wheels, with a series of radially-arranged spring switches or keys, having their ends between an upper and lower circuit and transfer circuit-closer plates secured upon the face of an insulating-plate, whereby, by the rotation of the circuit breaker and closer, any room or place in magnetic connection with the instrument may be designated by a particular spring switch or key when attacked by fire or burglars, and the number indicated on a dial-plate, and, by the transfer of the circuit through the transfer circuit-closer plate, an alarm-bell rung at a detective-station.

But, to describe my invention more particularly, I will refer to the accompanying drawings, forming a part of this specification, the same letters of reference, wherever they occur, referring to like parts.

Figure 1 represents the face or front of the apparatus, showing in broken lines a part of the dial-plate and pointer to indicate the numbers thereon. Fig. 2 is a section of the apparatus through the line *x x*, Fig. 1. Fig. 3 is a view of the magnet and train of wheels for operating the apparatus. Fig. 4 is a detached view of the revolving circuit breaker and closer, having its point resting upon the end of a spring switch or key. Fig. 5 is a detached side view of the same. Fig. 6 is an enlarged sectional view of the same, having an auxiliary transfer circuit-closer attached thereto, and its connection with arbor and transfer circuit-closer plate. Fig. 7 is a detached sectional view of the spring switch or key depressed upon the transfer circuit-closer plate by the revolving circuit-closer. Fig. 8 is a detached sectional view of the spring switch or key in its normal state, and carrying the current through the upper circuit-closer plate. Fig. 9 is a detached end view of the spring switch or

key, showing the channel in which it is depressed in the face of the insulating disk or plate.

Letter A represents the case, and B the dial secured to the front thereof. Within the case is arranged a train of clock-work wheels, and spring to give motion to the apparatus when liberated from its detent-lever C by the closing of the electrical circuit through the magnet D and armature E, also arranged in the said case A. On the front side of the case is secured, by screws E, an insulating-plate or circular-shaped disk, G, through the center of which projects a revolving shaft, H. On its outer end is secured a pointer, I, for the purpose of indicating on the dial-plate B the number of any particular room or place in magnetic connection with the apparatus through its corresponding circuit closer or breaker key; also, on the same shaft, and close in contact with the hub of the insulating disk or plate, is secured an insulating-collar, J, to which is solidly attached an arm, K, having a curved follower, L, in continuation thereof, as one solid but elastic plate of metal. This arm K revolves with the shaft, and its object is to break and close an electrical circuit through any specified switch or key forming part of the apparatus, and in magnetic connection with a fire, burglar, or telegraphic station, and an alarm-bell in a detective-station. This is accomplished by means of a series of radially-arranged spring switches or keys, M, secured by their outer ends, near the circumference of the insulating-disk, by screws N, and extending inward in channels, in straight lines, to near the center of the disk, so as to be under the end of the follower L of the revolving circuit breaker and closer arm. Upon the upper surface of these spring switches or keys, near their inner ends, is secured, by screws P, to the face of the insulating-disk, a circular circuit-closer metallic plate, Q, so as to rest upon and in metallic contact with the spring switches or keys, and thus establish a normal circuit through the apparatus, through the + pole of the battery, through the spring switch or key M, and the plate Q in contact therewith, to the - pole thereof, as shown in Fig. 1. When thus arranged the apparatus is ready to be set in motion by the closing of the circuit at any distant point by a heat-detector or thermostat, to give notice of a fire, or, by the opening or closing of doors or windows, to give notice of attacks by burglars, or by closing the circuit for general telegraphic purposes.

When the circuit at the normal station has been closed, by whatever means, the electrical current, passing through the magnet D, closes the armature E and releases the detent-lever C from the train of clock-wheels, and thus sets the revolving circuit breaker and closer in motion. Now, if the normal station where the thermostat is placed is in electrical connection with the apparatus through the spring switch

or key M<sup>2</sup>, when the end of the follower L of the revolving arm K comes on it, as shown in Figs. 1 and 7, the end of the key is depressed away from contact with the normal circular circuit-closer plate Q, and down upon a transfer circuit-closer plate, R, secured by screws S to the face of the insulating disk or plate G, and thus, by breaking the circuit through the magnet D, stops the rotation of the arm K, which is registered by the pointer I on the dial-plate B as room No. 1, as shown in Fig. 1, as having been attacked by fire if set in motion by a heat-detector, or by burglars if set in motion by opening or closing doors or windows, or by a call if used for general telegraphic purposes. Instantly that the circuit is broken through the plate Q, and the apparatus stopped, the new circuit is established through the transfer circuit-closer plate R, and thence continued, through the - pole T<sup>2</sup> of the battery, to any suitable magnetic alarm-bell apparatus arranged in the circuit, and at a detective-station, to give an alarm of the attack on the normal station by either fire or burglars, or for call purposes, as the case may be.

To insure and avoid any possible interruption of the transfer-circuit from the point of the spring-key through the transfer-plate R, an auxiliary arm, U, is formed on the opposite side of the revolving arm K, having an elastic point resting on the face of the transfer-plate R. By this means the transfer-circuit, if interrupted through the point of the spring-key resting on the transfer-plate, will take its course through the follower L, arm K, to the auxiliary arm U, and thus to the transfer-plate R, and off by the - pole T<sup>2</sup> of the battery, to establish the circuit through an alarm-bell apparatus.

In the drawings but five spring switches or keys are shown, as being deemed sufficient to illustrate the principles upon which the apparatus works. In practical use, however, it is designed to use as many of these independent spring switches or keys as space will permit of adjustment on the face of the insulating-disk, even to the number of hundreds, where the apparatus is applied to hotels for either fire or burglar purposes, or to independent stores or buildings along the streets of towns or cities, to give alarms of fire or attacks by burglars at a single detective-station.

The method of forming electrical circuits with the various independent places through the apparatus being common and well known, it is not deemed necessary to give any particular description of such circuits, as they will be readily understood by persons conversant with the apparatus hereinbefore described.

Having now described my invention, I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States:

1. The revolving circuit breaker and closer

composed of an insulating-collar, J, arm K, and follower L, in combination with the revolving shaft H and insulating-plate G, substantially as described, and for the purposes set forth.

2. The circular normal and transfer circuit-closer plates Q and R, arranged one within the other and on different planes, in combination with the insulating-plate G, substantially as described.

3. The said circular normal and transfer circuit-closer plates, arranged as described, in combination with the radially-arranged spring switches or keys M and insulating plate G, substantially as described.

4. The combination of the revolving circuit closer and breaker, made as described, with the spring switches or keys M and circular normal and transfer circuit-plates Q and R, substantially as described.

5. The combination of the auxiliary circuit-closer arm U with the revolving circuit closer and breaker arm K, and follower L and transfer circuit-closer plate R, substantially as set forth.

6. The combination of the pointer I and dial-plate B with the revolving circuit closer and breaker K, L, and radially-arranged spring switches or keys M, substantially as described.

7. The said apparatus, as described, in combination with the magnet D, armature E, and train of clock-wheels, substantially as set forth, and for the purposes specified.

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Witnesses:

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