

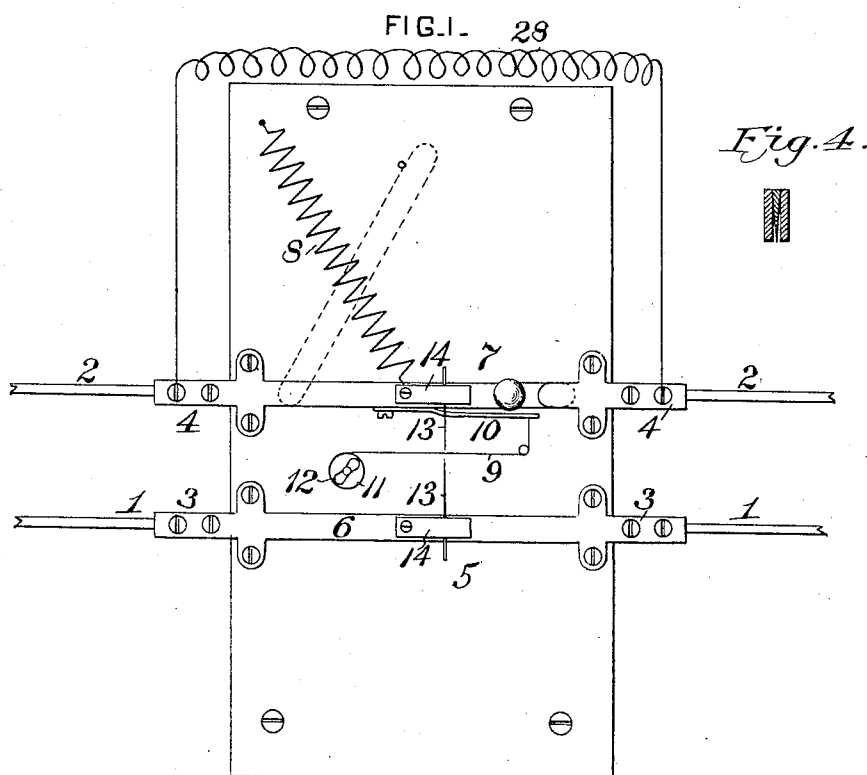
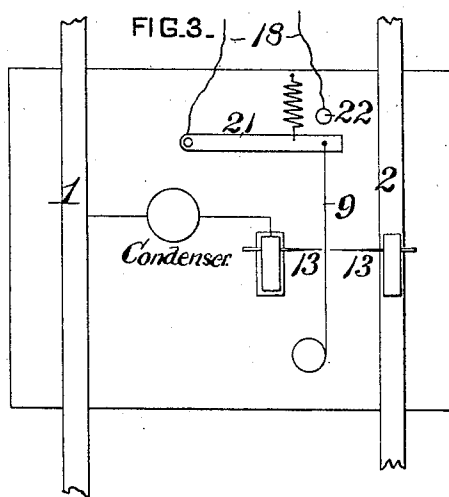
(No Model.)

2 Sheets—Sheet 1.

H. W. FISHER.
CUT-OUT.

No. 465,983.

Patented Dec. 29, 1891.



WITNESSES:

Samuel S. Wolcott
F. E. Gaither.

INVENTOR,

Henry W. Fisher,
by George H. Christy
Att'y.

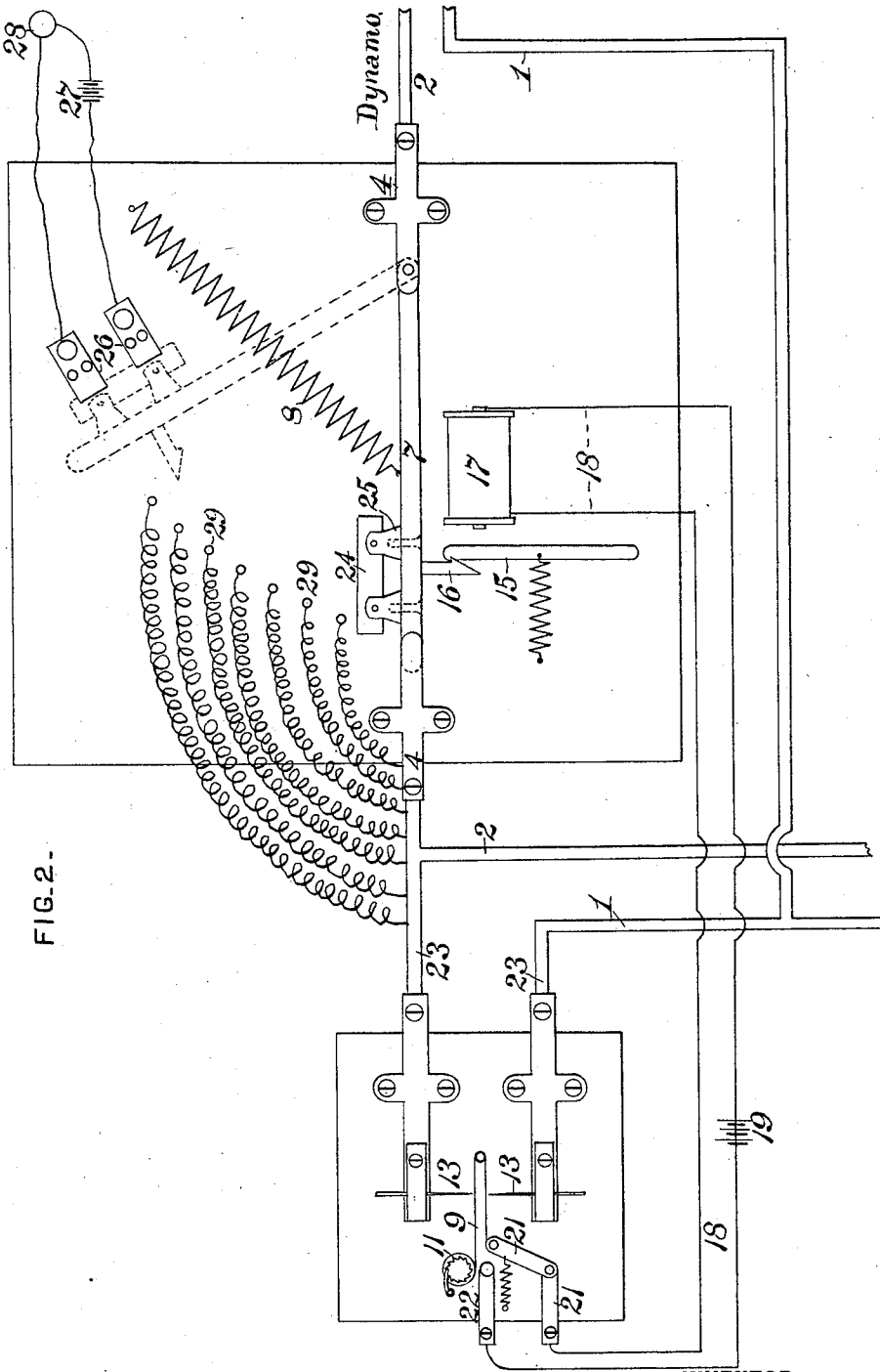
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WITNESSES:

Daniel S. Wolcott
H. E. Gaither.

INVENTOR,

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UNITED STATES PATENT OFFICE.

HENRY W. FISHER, OF PITTSBURG, PENNSYLVANIA.

CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 465,983, dated December 29, 1891.

Application filed March 2, 1891. Serial No. 383,331. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. FISHER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Cut-Outs, of which improvements the following is a specification.

The invention described herein relates to certain improvements in cut-outs for electric circuits, and has for its object a construction, whereby a portion of the conductor forming the circuit may be moved, breaking the continuity of the circuit without destroying or injuring any portion of the conductor.

In general terms the invention consists in the construction and combination substantially as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of my improved cut-out. Fig. 2 is a similar view of a modification wherein an auxiliary circuit is employed for breaking the circuit, and also showing a signal-circuit for giving notice of the break. Fig. 3 is a plan of a portion of the mechanism, illustrating the employment of a condenser for modifying the current passing to the cut-out mechanism; and Fig. 4 is a sectional detail through the contact bar and jaws.

In the practice of my invention the end of the conductors 1 and 2 of the main circuit are secured in sockets 3 and 4, which are screwed or otherwise fastened to a board 5 or other convenient support. The sockets 3, forming the terminals of one of the conductors, as 1, are connected by a metallic strip 6, either formed integral therewith or secured thereto in any suitable manner and forming a continuation of said conductors. To one of the sockets 4, forming the terminal of the conductor 2, is hinged or pivoted a metallic bar 7, which is made of such a length as to be capable in one of its positions of having electrical connection with the other socket 4.

As shown in Fig. 4, the free end of the bar 7 is made wedge-shaped and is adapted to fit between the spring-jaws on the socket 4, thereby insuring good electrical contact. In order to so shift the bar 7 as to break the continuity of the conductor 2, a spring 8 has one

end connected to the bar and the other to the board or other stationary point. The bar 7 is held as against being shifted by the spring 55 by means of a destructible filament 9, having one end attached to the bar, while the other end is secured to a stationary projection or part of the board. This filament may be formed of thread, silk, or other material capable of being broken or destroyed by an electric spark, and its end is preferably connected to the bar by means of a spring 10, while the other portion is wrapped on a spool 11, attached to the board and held as against rotation by a spring-clamp 12, as shown in Fig. 1, or a pawl, as shown in Fig. 2. The filament is arranged to pass between the points of needles 13, which are attached to the conductors by means of clamps 14, and are adjusted in such relation to each other that the resistance of the air intervening between their points will be sufficiently great to prevent the formation of a spark when the current along the conductors 1 and 2 is normal; but in case of a dangerous increase in the current a spark will be formed between the points and destroy the filament, thereby permitting the bar 7 to be shifted by its spring 8.

It is preferred to connect one of the needles to the bar 7, as shown in Fig. 1, or else arrange the movable bar between the needles and the electric generator, in order to prevent the continuous formation of sparks between the needles after the circuit has been broken.

It is not necessary that the filament be employed to hold the bar in operative position, as shown in Fig. 1. A pivoted latch 15, adapted to engage a hook 16 on the bar 7, may be employed for this purpose, as shown in Fig. 1. In order to pull the latch out of engagement with the hook, I employ an electro-magnet 17, the latch forming the armature therefor. The wires 18, forming the circuit for the magnet, are connected to the battery 19 or other source of electric energy and to terminal plates 21, adapted to be shifted into contact with the other terminal by the spring 22. The switch-plate is normally held away from the terminal by the filament 9, passing from the spool 11 around the guide and thence to the switch-plate, passing between the needles 13, which in this construction are adjustably at-

tached to branches 23 of the main conductors. In case of an abnormal increase of current when employing the construction shown in Fig. 2 the filament is burned by a spark between the needles, thereby permitting the spring 22 to pull the switch-plate 21 into contact with the terminal 20, closing the circuit of the electro-magnet 17, which thereupon pulls the latch 15 out of engagement with the bar 7. The bar 7 being free to move is drawn out of electrical contact with one of the sockets or terminals 4 of the conductor 2, thereby breaking the main circuit. In order that an attendant may be notified of such a break in the main circuit, a metal plate 24 is attached to the bar 7 by means of posts or studs 25, formed of insulating material, said plate being adapted to make electric contact, when the bar is drawn back by the spring 8, with the terminals 26 of a circuit, including there a battery 27 and bell 28 or other suitable indicator or alarm.

In cases where a complete break in the main circuit is undesirable the parts of the conductor on opposite sides are connected by a high-resistance circuit 28, as shown in Fig. 1; or in lieu thereof the movable bar may be caused to traverse a series of contact-points 29, each independently connected by a high-resistance circuit to the main conductor beyond the break caused by shifting the bar. The resistance is gradually increased until a complete break of the main circuit is effected, as shown in Fig. 2.

I claim herein as my invention—

1. In a cut-out mechanism, the combination of an automatically-movable bar adapted

when in normal position to form electrical connection between two terminals, needles adjustably connected to the conductors of the main circuit, and a filament for controlling the movement of the movable bar and passing between the adjacent points of the needles, substantially as set forth.

2. In a cut-out mechanism, the combination of an automatically-movable bar adapted when in normal position to form electrical connection between two terminals, needles adjustably connected to the conductors of the main circuit, a filament for controlling the movement of the movable bar and passing between the adjacent points of the needles, and a signal-circuit having its terminals so arranged as to be connected by the movable bar when shifted to break the main circuit, substantially as set forth.

3. In a cut-out mechanism, the combination of a spring-actuated bar pivoted to one of two adjacent terminals and constructed to have electrical connection with the other terminal when in normal position, needles adjustably connected one to the bar and the other to the opposite main conductor, and a filament having one end connected to the bar and its opposite portion to a stationary support, and passing between the points of the needles, substantially as set forth.

In testimony whereof I have hereunto set my hand.

HENRY W. FISHER.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.