R. BROWN.

AUTOMATIC CUT-OFF FOR TROLLEY LINES.

APPLICATION FILED SEPT. 16, 1908.

930,150. Patented Aug. 3, 1909.

Fig. 1.

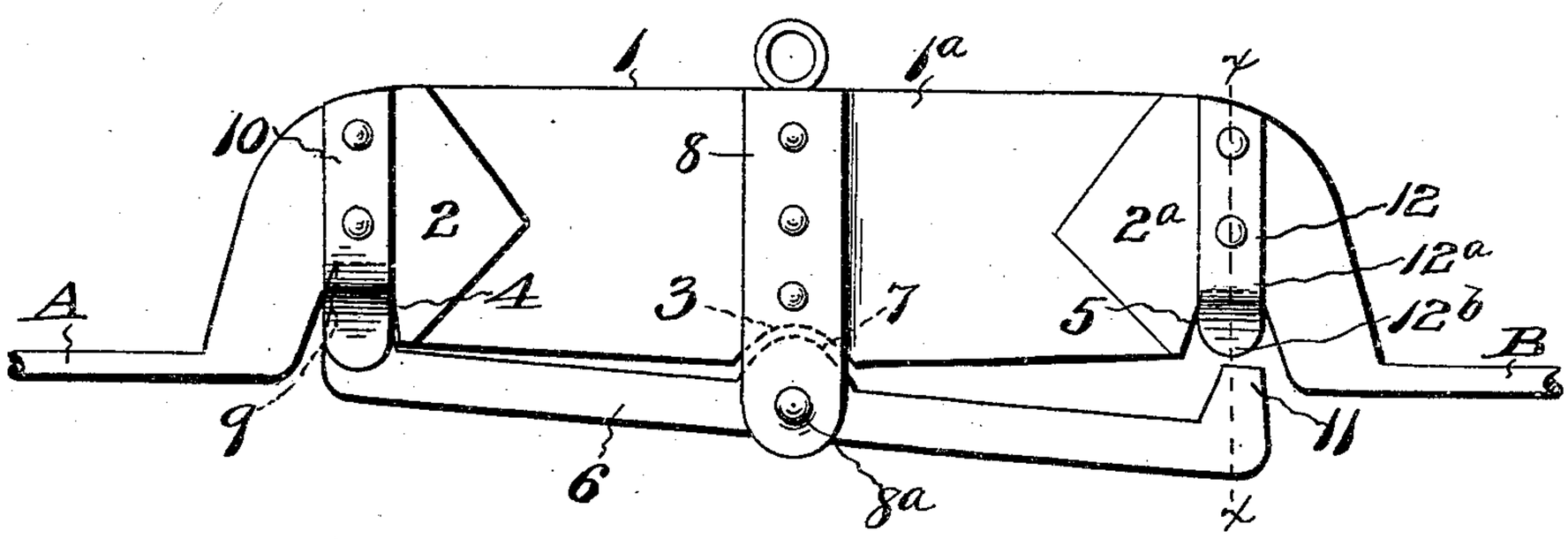


Fig. 2.

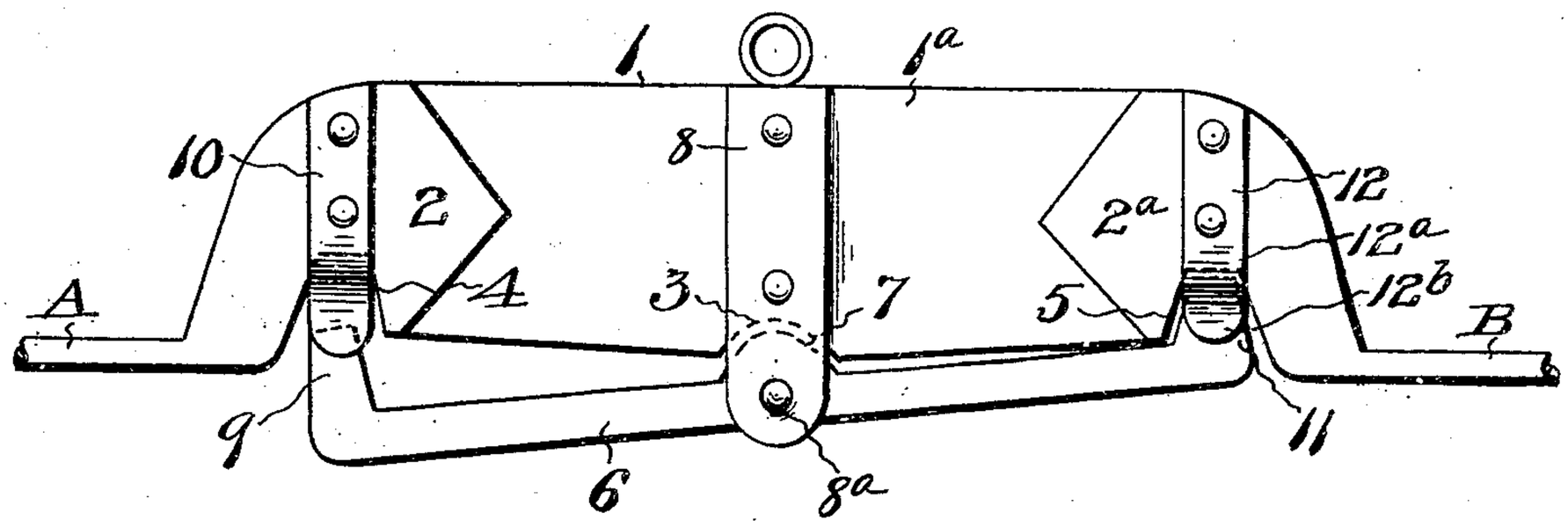
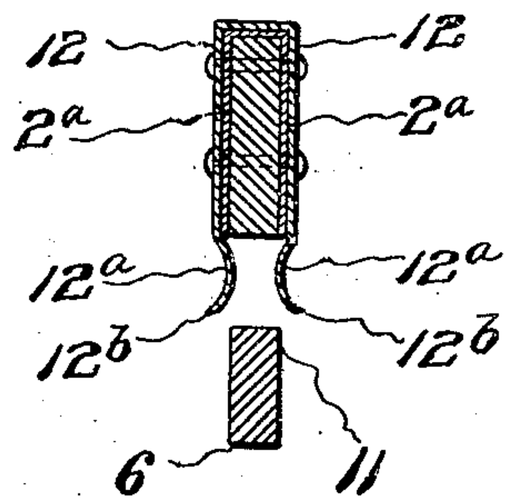


Fig. 3.



WITNESSES

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AUTOMATIC CUT-OFF FOR TROLLEY-LINES.

No. 930,150. Specification of Letters Patent. Patented Aug. 3, 1909.

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To all whom it may concern:

Be it known that I, ROBERT BROWN, a citizen of the United States, residing at Windber, in the county of Somerset and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Cut-Outs for Trolley-Lines, of which the following is a specification.

My invention relates to cut outs or circuit breakers for trolley lines and has for its objects the provision of a device simple and inexpensive in construction that is operated by the trolley wheel to make and break the circuit in a part of the line so as to render the cut out section harmless.

My invention is especially adapted to electric lines used in mining where there is danger of persons getting in contact with the power wire and consists of a plate secured in each branch line running in to a heading having the middle portion thereof of non-conducting material while its ends are made of a good conductor and have spring contact blades secured thereto. A lever arm is pivotally secured to the middle portion and is always in contact with the spring blades in circuit with the main line end of the plate while when there is no car in the heading the lever is positioned so that its other end is free. When a car enters a heading the trolley wheel in passing over the lever presses it into engagement with the spring blades in circuit with the branch line into the heading, and the power remains on the branch line as long as the car is in the heading. When the car leaves the heading the trolley wheel rocks the lever arm in the opposite direction so that the end is free of the contact blades in circuit with the branch line and said line is dead until another car enters the heading.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a side view in elevation of my improved circuit breaker showing the position when the branch line is cut out, Fig. 2, a similar view showing the position when the branch line is in circuit, and Fig. 3, a cross section on the line *x*—*x* of Fig. 2.

In the drawings similar reference characters indicate corresponding parts in all the views.

A indicates the wire in circuit with the main line or power wire (not shown) and B the branch line wire leading into a heading in which it is desired to cut out the current except where there is a car therein.

My improved circuit breaker consists of a plate 1 of non-conducting material such as wood, hard rubber, glass, etc., having plates 2 and 2[a] of metal secured to its two ends and, in circuit with the wires A and B respectively, leaving a space 1[a] intermediate of the ends of the plate of the material of the plate so that the wire B is normally not in circuit with wire A. The lower edge of plate 1 is formed with three notches 3, 4 and 5, the notch 3 being in the insulated portion 1[a], the notch 4 in the portion covered by plate 2 which is also notched to conform to notch 4, and the notch 5 in the portion covered by plate 2[a] which is also notched to conform to notch 5.

6 indicates a lever having a projection 7 extending into notch 3 and pivotally secured to plate 1 by means of a strap 8 secured to the portion 1[a] and pivotally secured to projection 7 by means of pin or bolt 8[a].

9 indicates a lug or projection on one end of lever 6 that extends into notch 4 and is always in engagement with contact blades 10 secured to plates 2, and 11 a shorter lug or projection on the other end of the lever which is normally out of contact with spring blades 12 secured to plate 2[a]. The free ends of blades 12 are bent inwardly as shown at 12[a], and then flared outwardly, as shown at 12[b], to guide the lug 11 between the blades 12 and hold them in said position until released as hereinafter described.

In operation my improved circuit breaker is normally in the position shown in Fig. 1 with the lug 11 not in contact with blades 12. When in this position the wire B is dead. When a car passes plate 1 so that the trolley engages lever 6 and the lug 11 is pushed into engagement with blades 12, the device will be in the position shown in Fig. 2. In this operation of the lever 6 the outwardly flared ends 12[b] guide the lug 11 between the blades 12 and the inwardly bent portions 12[a] clamp the lug in that position, while the car is on wire B, which is then in circuit with wire A and the current flows from wire A through plate 2, blades 10, lever 6, blades 12, plate 2[a] and into wire B. When the car returns the trolley in passing over lever 6 rocks it in the opposite direction so that the lug 11 does not engage blades 12 and the device is again in the position shown in Fig. 1 and the wire B is out of circuit with wire A.

Having thus described my invention what I claim is—

1. In a circuit breaker for electric conductors, conductor wires, a plate of non-conducting material, the ends of said plate secured to said conductor wires, a lever pivotally secured intermediate of its ends to the plate of non-conducting material, one end of said lever always in contact with the conductor wire at the end of the plate and adapted to swing into and out of contact with the wire at the other end of the plate.

2. In a circuit breaker for electric conductors, conductor wires, a plate of non-conducting material, the ends of the plate covered with metal secured to said conductor wires, a lever fulcrumed intermediate of its ends on said plate, one end of said lever in continuous contact with the metal at one end of the plate and adapted to swing into and out of engagement with the metal at the other end of the plate.

3. In a circuit breaker for electric conductors, conductor wires, a plate of non-conducting material, the ends of the plate covered with metal secured to said conductor wires, a lever fulcrumed intermediate of its ends on said plate, contact blades secured to the metal at the two ends of the plate, one end of the lever in continuous contact with the blades at one end of the plate and adapted to swing into and out of engagement with the blades at the other end.

4. A circuit breaker for electric conductors comprising a plate made of a non-conductor of electricity, plates of metal secured to the ends of the first mentioned plate, a wire in circuit with each metal plate, said plates formed with notches, one notch in the non-conductor middle portion of the first mentioned plate and one each in the ends having the metal plates secured thereto, contact blades secured to said metal plates and extending into the notches aforesaid, a lever having a lug seated in the notch in the non-conductor portion of the plate and pivotally secured therein, and a lug on each end of the lever, one lug being always in engagement with the blades in one notch, and the lug at the other end adapted to swing into and out of engagement with the blades in the other notch.

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

ROBERT BROWN.

Witnesses:

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JAMES L. CRAWFORD.