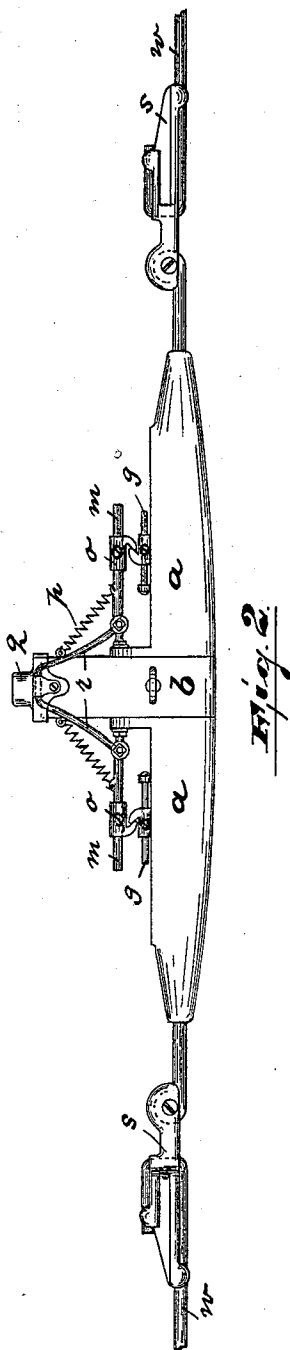
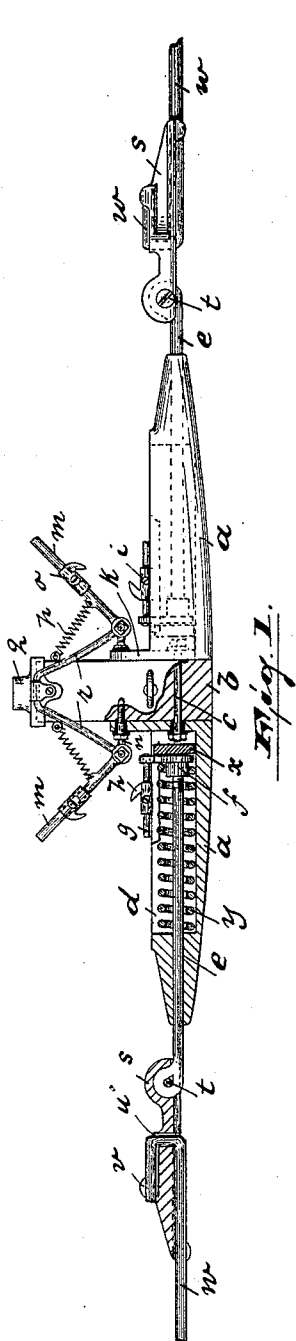


(No Model.)

W. A. CULLEN.
AUTOMATIC DISCONNECTOR.

No. 497,310.

Patented May 16, 1893.



WITNESSES:

Wm. D. Zell.
D. M. Robertson.

INVENTOR:

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BY

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UNITED STATES PATENT OFFICE.

WILLIAM A. CULLEN, OF PATERSON, NEW JERSEY, ASSIGNOR TO THE
JOHNSTON SAFE AUTOMATIC ELECTRIC COMPANY, OF RICHMOND,
VIRGINIA.

AUTOMATIC DISCONNECTOR.

SPECIFICATION forming part of Letters Patent No. 497,310, dated May 16, 1893.

Application filed January 28, 1893. Serial No. 460,049. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. CULLEN, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Automatic Disconnectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in automatic disconnectors for electric conductors, such as circuits for electric lighting and for electric railways.

The object of this invention is to provide simple and reliable means whereby the passage of the current in an electric circuit is suspended in case of breakage of the conducting wires, or of short circuiting through crossing wires, carrying a current of a higher voltage or otherwise.

The invention consists in the automatical disconnector, in the arrangement of a tension fuse capable of carrying a certain voltage, and in the arrangement and combination of various parts, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the two views: Figure 1. is a side elevation of my improved disconnector, (certain portions being shown in section,) with the switches open, and Fig. 2. is a view similar to Fig. 1. the switches being closed.

In said drawings *aa* represent two approximately cigar or semi-cylindrical shaped metallic sections secured to and insulated from each other by the bolt *c* and the insulating block *b* respectively. Each of said sections is provided with an elongated groove *d* in which is arranged a sliding block *f*, carrying on its upwardly extending projection a horizontal arm or rod *g*. To said rod is adjustably secured by a screw *i* or in any desired

manner a hook carrying sleeve *h*, adapted to be engaged by the hook carrying sleeve *o*, the latter being also adjustably secured to an arm or rod *m*, pivoted at its lower end to a projecting lug *n* on the upwardly extending portion *k* of the metallic section *a*. Said arm or rod *m* is controlled by a spiral spring *p*, secured at one end to the arm, and at the other end to the insulating block *b*. The sliding block *f* is insulated from the connecting bolt *c* by means of an insulating block *x*, as clearly shown in Fig. 1 of the drawings.

To the inner projecting portion of the sliding block *f* is secured a metallic rod *e*, extending through the conical end of section *a*, and provided at its outer and free end with a pin *t*, serving as fulcrum for the connecting block *s*. Said block is provided at its lower end with a groove in which rests the line wire *w*. The free end of the latter is carried through opening *u* into the groove *v* of the block *s*, in and to which it is secured by solder or in any desired manner.

Within the groove *d* and surrounding the rod *e* is arranged a spiral spring *y*, adapted to control the sliding block *f*, as will be manifest.

To the upper end of insulating block *b* is secured a metallic cap or head *q*, provided with a clamping device, through which passes a terminal fuse *r*, the free ends of which are secured and have metallic connection with the fulcrumed arms or rods *m*. When the hook carrying sleeves *h* and *o* on both sides of the insulating block *b* are in contact or engagement, the circuit through the line wires *w* is closed, (the line wires exerting a certain strain upon the sliding blocks *f*, thus compressing the spiral springs *y*.) Should one of the line wires *w* break, the respective sliding block will by the action of its spiral spring return to the position shown in Fig. 1, whereby the hook carrying sleeves *h* and *o* will become disengaged, and the arm *m* (carrying the sleeve *o*) will be thrown upward by action of the spiral spring *p*. The current is thus broken, and the depending portions of the line wire are practically free from electricity and incapable of injuring any one. After the line wire is again repaired, the arm *m* has to be forced downward and the hook carrying sleeve *o* brought into engagement with the

hook carrying sleeve *h*, whereby the circuit is again closed. Should it happen that the line wires *w* come in contact with a wire carrying a current of higher potential or voltage, the terminal fuse *r* will instantly burn out and thus prevent damage to the dynamos or armatures in the station.

I do not intend to limit myself to the construction shown and described, as alterations
10 can be made without changing the scope of my invention.

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

15 1. In an automatic disconnecter the combination of a pair of grooved sections insulated from each other, rods adapted to slide within the grooves of said sections and connected at their outer ends with the line wire, the inner
20 ends of said rods being provided with a sleeve carrying a hook, with the pivoted arms arranged above the grooved sections and provided with sleeves carrying hooks adapted to catch and engage the hooked sleeves of the
25 rods, and with a terminal fuse connecting said pivoted arms, substantially as described.

2. In an automatic disconnecter, the combination of a pair of grooved sections insulated from each other, rods adapted to slide within
30 the grooves of said sections, a connecting block pivoted to the outer ends of said rods and adapted to receive the line wire, the inner ends of said rods being each provided with a sleeve carrying a hook, with the piv-
35 oted arms arranged above said grooved sections and each provided with an adjustable sleeve carrying a hook adapted to catch and engage the hooks of the rods, and with a terminal fuse connecting said pivoted arms, sub-
40 stantially as described.

3. In an automatic disconnecter, the combi-

nation of the sliding rods supporting the line wires and provided at their inner ends with adjustable sleeves carrying hooks, with the
45 pivoted arms arranged above the line supporting rods and carrying the adjustable hook sleeves, adapted to catch and engage the hook sleeves of the line supporting rods, and with the terminal fuse connecting said pivoted
50 arms, substantially as described.

4. The combination, in an automatic disconnecter, of the spring controlled rods of the wire support, with the recessed blocks pivotally secured to the outer ends of said
55 rods and adapted to receive the ends of the line wire, substantially as described.

5. In an automatic disconnecter for overhead wires, a pair of metallic sections secured to and insulated from each other by an insulating block, each of said sections being pro-
60 vided with an elongated groove, a metallic block arranged in each of said grooves and connected through a rod with the line wire, a spiral spring controlling said block, a hori-
65 zontal arm secured to said sliding block, a hook carrying sleeve adjustably secured on said arm, a pivoted arm secured to the upwardly extending portion of the grooved section and provided with a hook carrying sleeve,
70 arranged adjustably on said arm, a spiral spring controlling said pivoted arm and a fuse connection between the pivoted arms on both sides of the insulated block, all said
75 parts, substantially as and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of January, 1893.

WILLIAM A. CULLEN.

Witnesses:

ALFRED GARTNER,
JOHN A. BAUMAN.