

(No Model.)

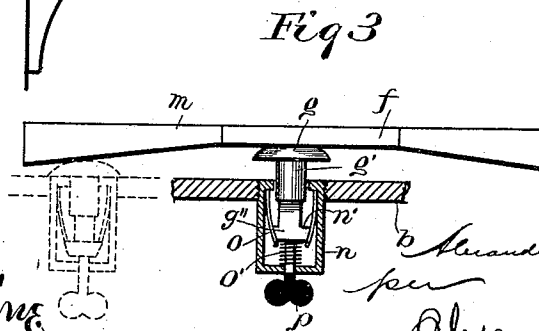
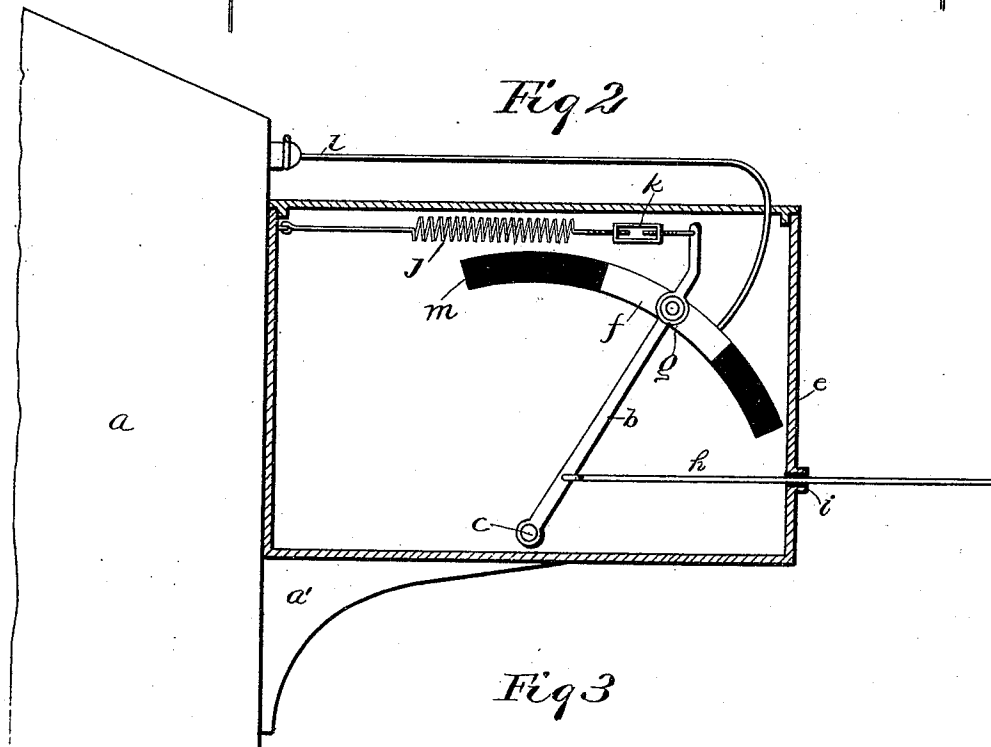
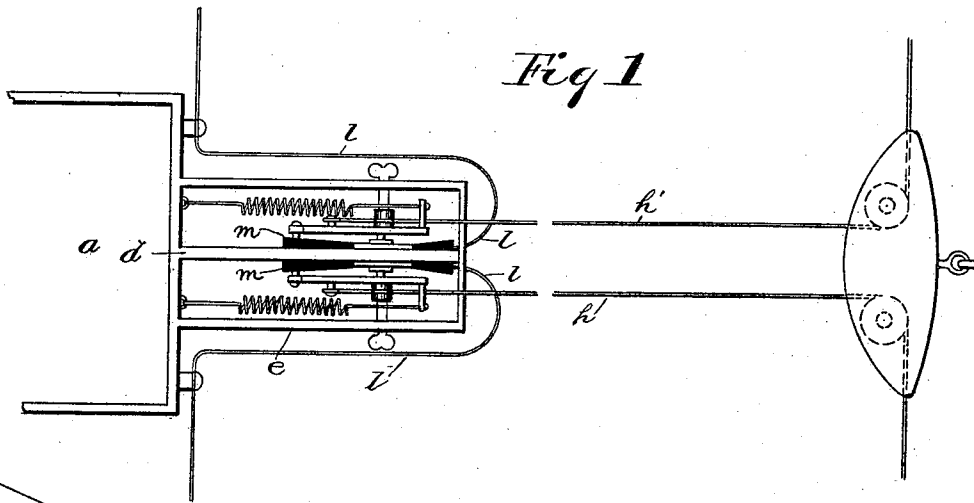
2 Sheets—Sheet 1.

A. L. JOHNSTON.

AUTOMATIC DISCONNECTOR FOR OVERHEAD CONDUCTORS.

No. 459,840.

Patented Sept. 22, 1891.



Witness
C. C. Burdine
Chicago

Inventor
Alexander Langstaff Johnston
per
Alexander H. Semmes
his Attorney

(No Model.)

2 Sheets—Sheet 2.

A. L. JOHNSTON.

AUTOMATIC DISCONNECTOR FOR OVERHEAD CONDUCTORS.

No. 459,840.

Patented Sept. 22, 1891.

Fig 4

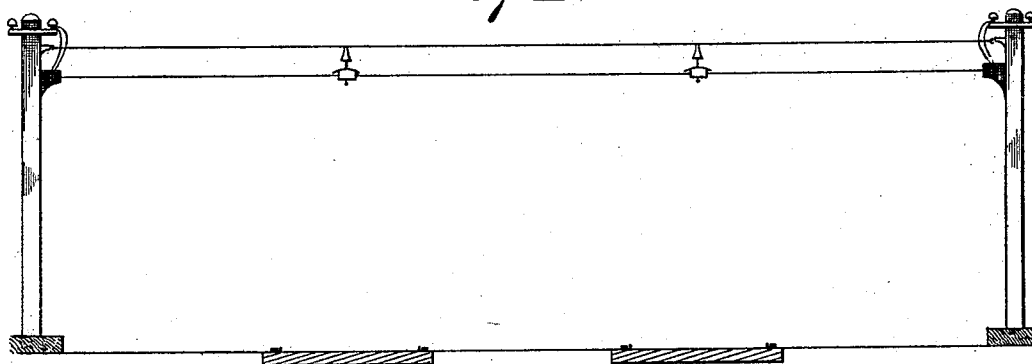
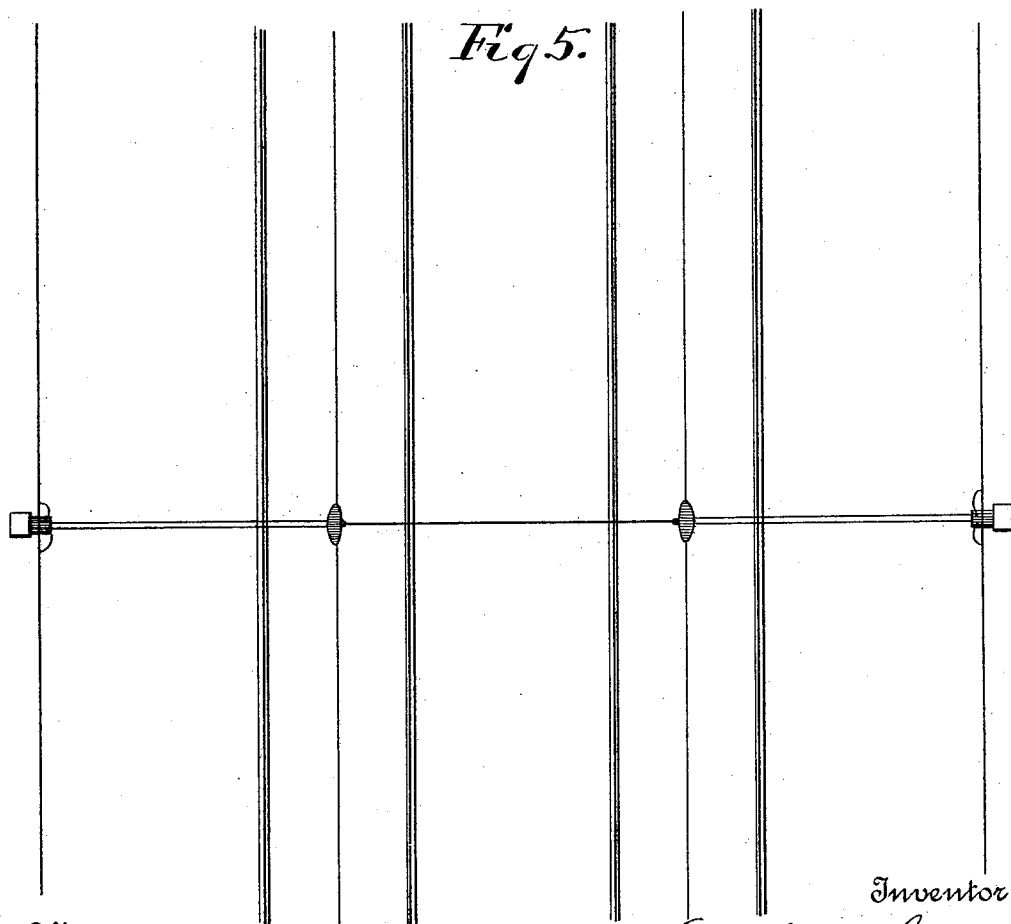


Fig 5.



Witness
C. C. Burdine
R. D. Davis

Inventor
Andrew Langstaff Johnston
per *Alexander H. Hermes*
My Attorney

UNITED STATES PATENT OFFICE.

ANDREW LANGSTAFF JOHNSTON, OF RICHMOND, VIRGINIA.

AUTOMATIC DISCONNECTOR FOR OVERHEAD CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 459,840, dated September 22, 1891.

Application filed January 19, 1891. Serial No. 378,335. (No model.)

To all whom it may concern:

Be it known that I, ANDREW LANGSTAFF JOHNSTON, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Automatic Disconnectors for Overhead Conductors; 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.

My invention relates to that class of automatic disconnectors for overhead wires in which the conductor remains connected until the wire becomes broken, and it is intended as an improvement upon my prior patent, No. 435,098, dated August 26, 1890.

My object is to provide a device adapted to the overhead trolley-wires used in connection with electric cars, and it is especially arranged for that system of electric propulsion in which the trolley-wires have relays of electricity located and supplied at suitable intervals throughout its length, as at hills, where additional power is required.

A further object of my device is to provide means that will completely disconnect the wires and keep the current from the disconnected portion while it is being connected; and a still further object of my invention is to produce a more simple, cheap, and durable device than those hitherto in use.

With these ends in view my invention consists in the peculiar features and combinations of parts more fully described hereinafter, and pointed out in the claims.

In the accompanying drawings, Figure 1 shows a plan of my complete device; Fig. 2, a side elevation of the same; Fig. 3, a detail view showing the movable contact-point for holding the circuit open, and Figs. 4 and 5 general views of my mode of application.

The letter *a* represents poles on which my device is placed. A pair of levers or bars *b* is pivoted or fulcrumed upon a stud *c*, passing into a central partition *d* within a box or inclosure *e*, which protects the parts from rain, sleet, &c. This box is fastened to the pole *a* by a bolted bracket *a'* or by any other suitable means. As the mechanism upon both sides of the partition *d* is the

same, a description of one will suffice for both. The free end of the lever *b* extends over a metal plate *f* and is brought in electrical contact therewith by a movable contact-point *g*, for the purpose to be presently described. The trolley-wire *h* enters the box or sheath *e* through a hole *i* in the side, and the wire is electrically connected to the lever *b* at a point between the pivot *c* and the contact-point *g*. When the trolley-wire is drawn up taut, the lever is pulled forward, so that the movable contact-point comes over and establishes electrical connection with the metallic plate *f*. The lever is held in this position by a coil-spring *j*, having one end attached to the back of the box and the other end to the lever, with an adjusting-link *k* interposed, whereby the tension of the spring can be regulated to perfectly counterbalance that of the trolley-wire. Feed-wires *l* are electrically connected to the plates *f*, and sloping insulators *m* are located upon opposite sides of this plate and within the radius of the lever *b*. The movable contact-point *g* is attached to operate on the under side of the lever *b* by means of a small metal box *n*, provided with threads and screwed into a threaded opening in the lever, and the shank *g'* of the point *g* extends within and is provided with notches *n'*, which are engaged by a pair of spring-catches *o*, which normally bear against the shank and make electrical contact therewith. A coil-spring *o'* keeps the point *g* in close contact with the metal plate *f*. The opposite sides *g''* of the shank of the contact-point are left without notches, so that the point can be given a partial rotation by a thumb-piece *p*, composed of non-conducting material, which operation will disengage the spring-catches *o* and allow the point to be forced back upon the metal plate *f* and insulator *m*.

Thus constructed my invention works as follows: When the trolley-wires are connected and in operative adjustment, as shown in Figs. 1 and 2, the main-line current enters through trolley-wire *h*, and thence through lever *b*, thence through contact-point *g*, plate *f*, out through feed-wire *l*, where it receives an additional supply, and then it passes down to the disconnector upon the opposite side of the partition and out over the out-

going trolley-wire *h'* in the same way it entered. Now if an accident should happen to the trolley-wire and it should become disconnected and fall to the ground the lever *b* would be immediately drawn backward by the spring *j* and onto the insulator *m*, thus disconnecting the circuit and rendering the wire dead and harmless to passers-by. In thus being drawn back the contact-point *g* slides up the inclined surface of the insulator, and in so doing is pushed into the box or sheath *n*, which allows the spring-catches *o* to engage the notches *n'*, thereby holding it in this position for the purpose of preventing the current from passing over the broken wires while they are being connected again or pulled together. The point *g* can be released and thrown into contact with the plate *f* by simply giving a half-turn to the thumb-piece *p*, which throws the catches onto the smooth sides of the shank *b'* of the point *g* and allows the spring to force the point against the plate *f*, thereby re-establishing electrical connection and permitting the current to pass through.

It is evident that my device could be varied in many slight ways which might suggest themselves to a skilled electrician. Therefore I do not limit myself to the exact construction herein shown, but consider myself entitled to all such variations as come within the spirit and scope of my invention.

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

1. In an automatic disconnecter for electrical conductors, a trolley-wire attached to a lever having its free end in electrical con-

tact with a metal plate, a feed-conductor electrically connected with said plate, and an adjustable spring-contact connected to the free end of the lever, in the manner and for the purpose substantially as described.

2. In an automatic disconnecter for electrical conductors, a trolley or other line wire attached to a spring-actuated lever or bar for holding the circuit closed by the tension of said wire, in combination with an adjustable contact arranged to render said lever or bar inoperative when the line-wire breaks, in the manner and for the purpose substantially as set forth.

3. In an automatic disconnecter for electrical conductors, an inclosure having a partition, on the opposite side of which are located spring-actuated levers connected to trolley or other wires and forming a part of the circuit, in combination with feed-wires, and contact-points or conductors connecting said levers with the feed-wires, all arranged and adapted to operate as described.

4. In an automatic disconnecter for electrical conductors, a spring-actuated lever connected to a trolley or other wire, in combination with a movable contact-point upon the lever, said point being adapted to slide over a metal plate and onto an inclined insulated surface, and a catch for holding the contact-point free of said metal plate, substantially as described.

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

ANDREW LANGSTAFF JOHNSTON.

Witnesses:

H. W. REED,
A. H. SPEAKE.