

(No Model.)

G. VALLEY.

ARC INTERRUPTER FOR STREET CAR CONTROLLERS.

No. 561,838.

Patented June 9, 1896.

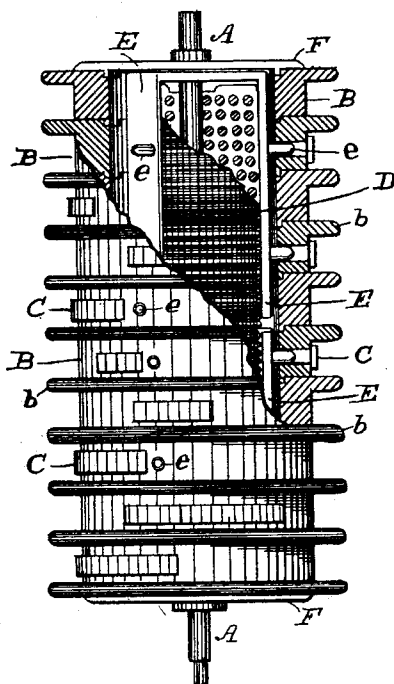


Fig. 1

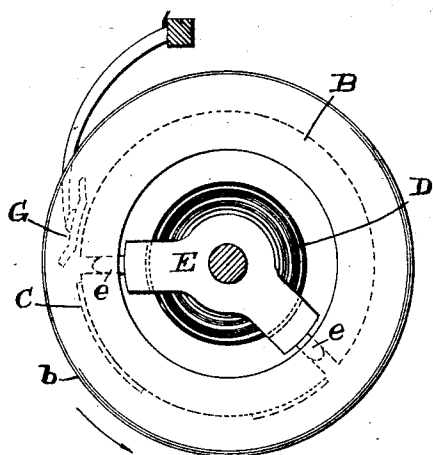


Fig. 2

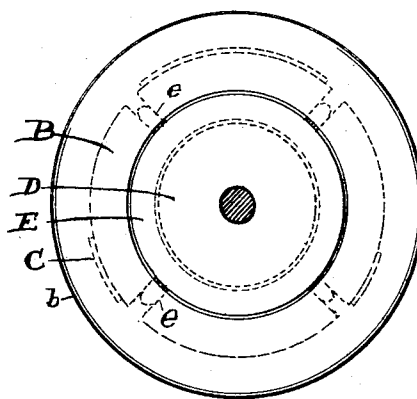


Fig. 3.

Witnesses:
Myron B. Vorce.
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Inventor:
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UNITED STATES PATENT OFFICE.

GUSTAF VALLEY, OF CLEVELAND, OHIO, ASSIGNOR TO THE STEEL MOTOR COMPANY, OF SAME PLACE.

ARC-INTERRUPTER FOR STREET-CAR CONTROLLERS.

SPECIFICATION forming part of Letters Patent No. 561,838, dated June 9, 1896.

Application filed February 10, 1896. Serial No. 578,745. (No model.)

To all whom it may concern:

Be it known that I, GUSTAF VALLEY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Arc-Interrupters for Street-Car Controllers; 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 magnetic blow-outs for breaking the arc in electric-street-car controllers; and it consists in the novel construction, arrangement, and combination of parts to effect that purpose, as hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a view in elevation of the drum of a street-car controller embodying my invention, the same being broken away in places to more clearly disclose the construction. Fig. 2 is a top plan view of the same with the cap-plate removed. Fig. 3 is a diagram illustrating a modification of the construction.

A is the shaft of the controller, actuated by the usual handle, (not shown,) and to which shaft are secured the usual annular disks BBB, of non-conducting material, preferably having each a rim *b* projecting beyond the body of the disk, to which the contact-pieces C are affixed. Cap-plates F F engage the end disks of the drum and are secured to the shaft A, the whole forming a hollow drum, through the center of which passes the shaft A. Within the hollow space I arrange an electromagnetic bobbin D, whose pole-pieces E E extend from the core outside of the coil D on one or more sides lengthwise nearly to the center of the drum, as seen in Fig. 1. The coil D may have an independent core; but I prefer to wind the coil upon the shaft A as a core and to attach thereto at each end of the drum one of the pole-pieces E, which gives a better balanced and more symmetrical construction.

Proper connection of the ends of the coil D is made to the electrical circuit in which the controller is included, so that the coil D is made an electromagnet, of which the shaft A is the core and the pieces E E the poles.

At a point contiguous to each of the contact-strips C, and on the side thereof toward the contact-finger G, by which connection is made, a hole is made in each of the disks B, into which hole projects a plug *e*, of conducting material, affixed to the pole-piece E, as shown in Fig. 2. The electrical connections of the finger-bar do not differ from those ordinarily employed, except in having added thereto the connections of the coil D. When the drum is turned so as to break contact between any of the pieces C and its corresponding contact-finger G, an arc is frequently drawn between the piece C and the receding finger G, as would take place, for instance, in the position of the parts shown in Fig. 2 when the drum was turning in the direction indicated by the arrow. The formation of such arcs burns and destroys or seriously injures the contact parts and the insulation of the drum; but with the construction shown the arc is instantly extinguished by the attraction of the point *e* on the magnetic pole E, and by causing the electromagnet to act directly at right angles to the arc instead of partially lengthwise thereof, as would be the case if the magnetic pole were arranged external to the drum instead of internally thereof, I secure a quicker breaking or "blowing out" of the arc and a diminished tendency to its formation.

The pole-pieces E may have any desired number of arms or may be tubular in form, as shown in Fig. 3, so that the plugs *e* may with the greater ease be inserted at any desired point.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An arc-interrupter for street-car controllers, comprising essentially an electromagnet internal to the drum and having projections from its pole-pieces extending through the drum in proximity to the contact-pieces thereof, substantially as described.

2. An arc-interrupter for street-car controllers, having an electromagnetic coil wound upon the shaft of the drum as a core, and having projections from its pole-pieces extending through the drum in proximity to the contact-pieces thereof, substantially as described.

3. In an arc-interrupter for street-car controllers the combination, with the drum, of an

electromagnetic coil upon the shaft thereof, and pole-pieces extending from the shaft along the coil and having projections extending through the drum in proximity to the
5 contact-pieces thereof, substantially as described.

4. In an arc-interrupter for street-car controllers, the combination with the drum of an
10 electromagnetic coil upon the shaft thereof, and cylindrical pole-pieces extending from the shaft outside the coil and having projections extending through the drum in proximity to the contact-pieces thereof, substantially as described.

15 5. In an arc-interrupter for street-car controllers the combination with the drum composed of annular disks secured upon a shaft, of an electromagnetic coil having pole-pieces extending along the coil within the disks, and
20 projections from the pole-pieces extending through the disks in proximity to the contact-pieces thereon, substantially as described.

6. The combination of the drum composed of annular disks secured upon a shaft, an electromagnetic coil upon the shaft, pole-pieces extending from the shaft along the coil within the disks, and projections from the pole-pieces extending through the disks in proximity to the contact-pieces thereon, substantially as described.

7. The combination of the drum composed of annular disks secured upon a shaft, an electromagnetic coil upon the shaft, cylindrical pole-pieces extending from the shaft along the coil, and projections from the pole-pieces extending through the disks in proximity to the contact-pieces thereon, substantially as described.

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

GUSTAF VALLEY.

Witnesses:

JOHN R. RYDER,
WM. P. DUNLAP.