

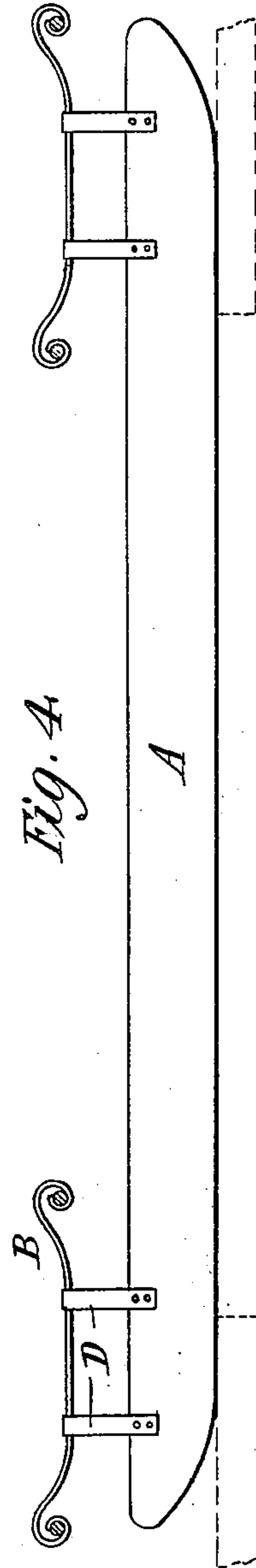
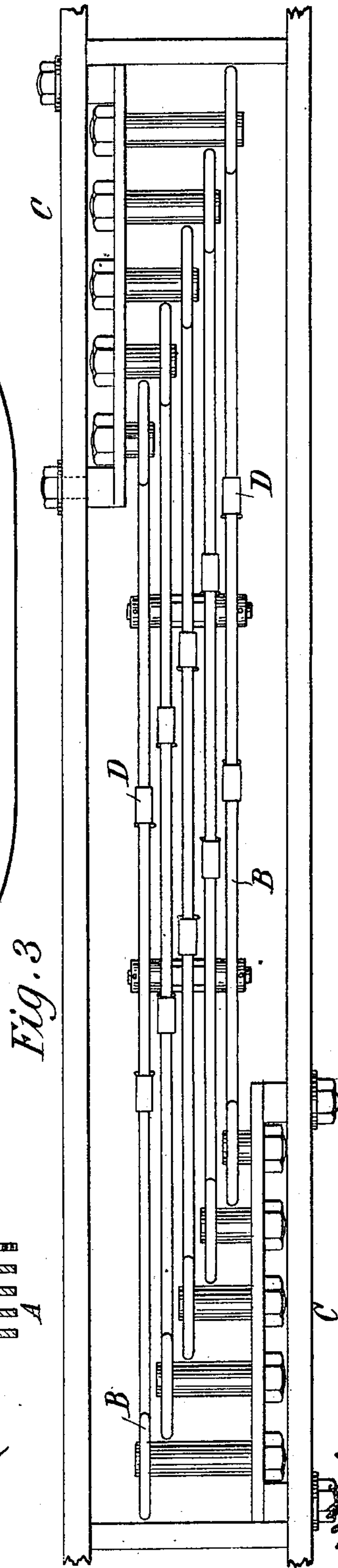
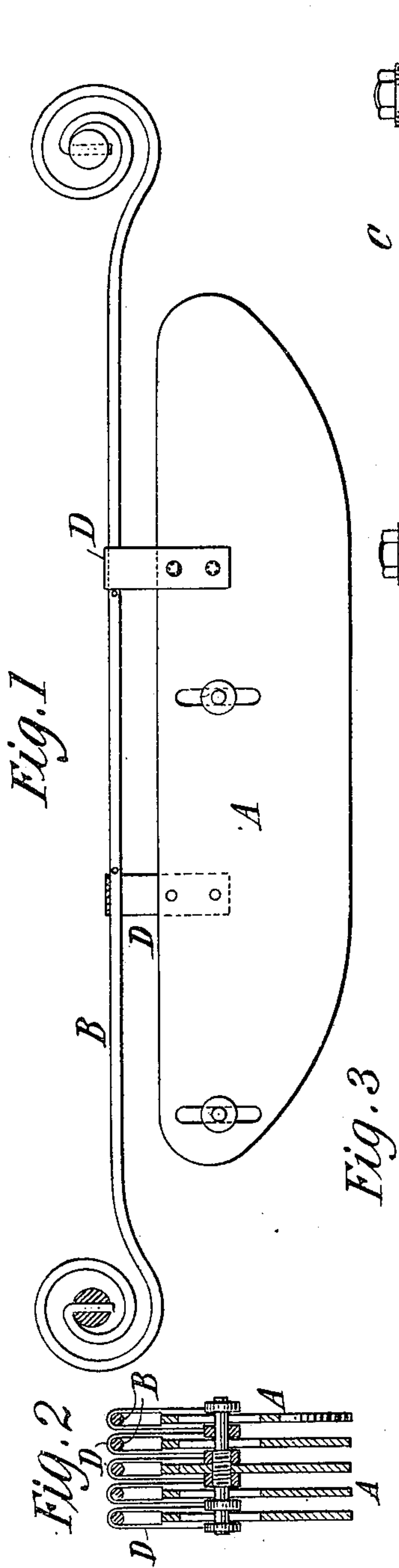
No. 667,509.

Patented Feb. 5, 1901.

F. C. ESMOND & N. P. OTIS.
CURRENT COLLECTOR FOR ELECTRIC RAILWAYS.

(No Model.)

(Application filed Nov. 17, 1899.)



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK C. ESMOND, OF NEW YORK, AND NORTON P. OTIS, OF YONKERS,
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CURRENT-COLLECTOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 667,509, dated February 5, 1901.

Application filed November 17, 1899. Serial No. 737,296. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK C. ESMOND, residing at New York city, borough of Brooklyn, county of Kings, and NORTON P. OTIS, residing at Yonkers, county of Westchester, State of New York, citizens of the United States, have invented certain new and useful Improvements in Current-Collectors for Electric Railways, of which the following is a specification.

Our invention relates to current-collectors or devices for establishing electrical connection between a traveling vehicle and a conductor extending along the railway-track and consisting either of a third rail or of a sectional conductor, the sections being of considerable length or reduced to mere points and energized successively by any of the various forms of apparatus pertaining to electric railways of this type.

Our invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a contact-bar or skate-like plate and its means of support, there being a plurality of such bars or plates grouped together to form a unitary laminated contact device. Fig. 2 is a section of the plate or bar aforesaid. Fig. 3 is a plan of a current-collector composed of a group of such plates or bars attached individually to a common support, and Fig. 4 is a side view of an elongated plate or bar designed to bridge between short separated sections of conductor.

Referring to the drawings, A is a plate or bar having rounded ends and adapted to bear edgewise upon the upper surface of the line conductor. This bar or plate is supported from a curved spring B, attached at its opposite ends to a common supporting-frame C or to any suitable part of the vehicle which will serve as a common support for a group of similar plates or bars. The bar is hung loosely from the frame by loops D D, passing over the spring B, so that the suspended plate A may have a free vertical movement with relation to the spring and also an additional movement of the same nature due to the yielding of the spring.

A plurality of plates or bars A are grouped together side by side in planes longitudinal

with the vehicle and are each supported independently in the manner shown in Fig. 1, and, moreover, are offset with relation to one another, as fully appears in Fig. 3. Bolts with separating-washers are passed through slots in the plates to further retain them together. A laminated contact device thus constituted will form one terminal of the motor-circuit of an electric-railway vehicle and serve to transmit to such motor the current passing along the line conductor on which the contact device bears.

In Fig. 4 there is shown a modification of the bar or plate A, wherein the bar or plate is considerably lengthened and provided at each end with a support of the character shown in Fig. 1.

By means of this device it is always possible to maintain the electrical contact by reason of the constant automatic adjustment of the multiplicity of bars, plates, or laminæ to the surface of the conductor whereon they individually bear.

What we claim as new, and desire to secure by Letters Patent, is—

1. A current-collector for electric railways, comprising a plurality of metallic bars or laminæ grouped together on edge and upheld from a common support to form a unitary device but having each an independent spring-support and an independent vertical movement with respect to said support.

2. A current-collector for electric railways, comprising a plurality of metallic bars or laminæ grouped together on edge and individually spring-supported from a common support to form a unitary device with the several bars movable vertically independently of one another and of the support.

3. A current-collector for electric railways, comprising a plurality of parallel bars or laminæ extending longitudinally of the vehicle and grouped together on a common support to form a unitary device, but each having an independent vertical movement with respect to the said support and an additional movement against a spring.

4. A current-collector for electric railways, comprising a plurality of parallel longitudinal bars or laminæ grouped together on a

common support to form a unitary device, each bar or lamina having an independent yielding support at each end.

5 5. A current-collector for electric railways comprising a plurality of bars or laminae offset with relation to one another and grouped together in a common support but individually movable vertically with relation to the support.

10 In witness whereof we have hereunto set our hands and seals, this 24th day of July,

1899, and August 8, 1899, respectively, before the subscribing witnesses.

FREDERICK C. ESMOND. [L. s.]
NORTON P. OTIS. [L. s.]

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