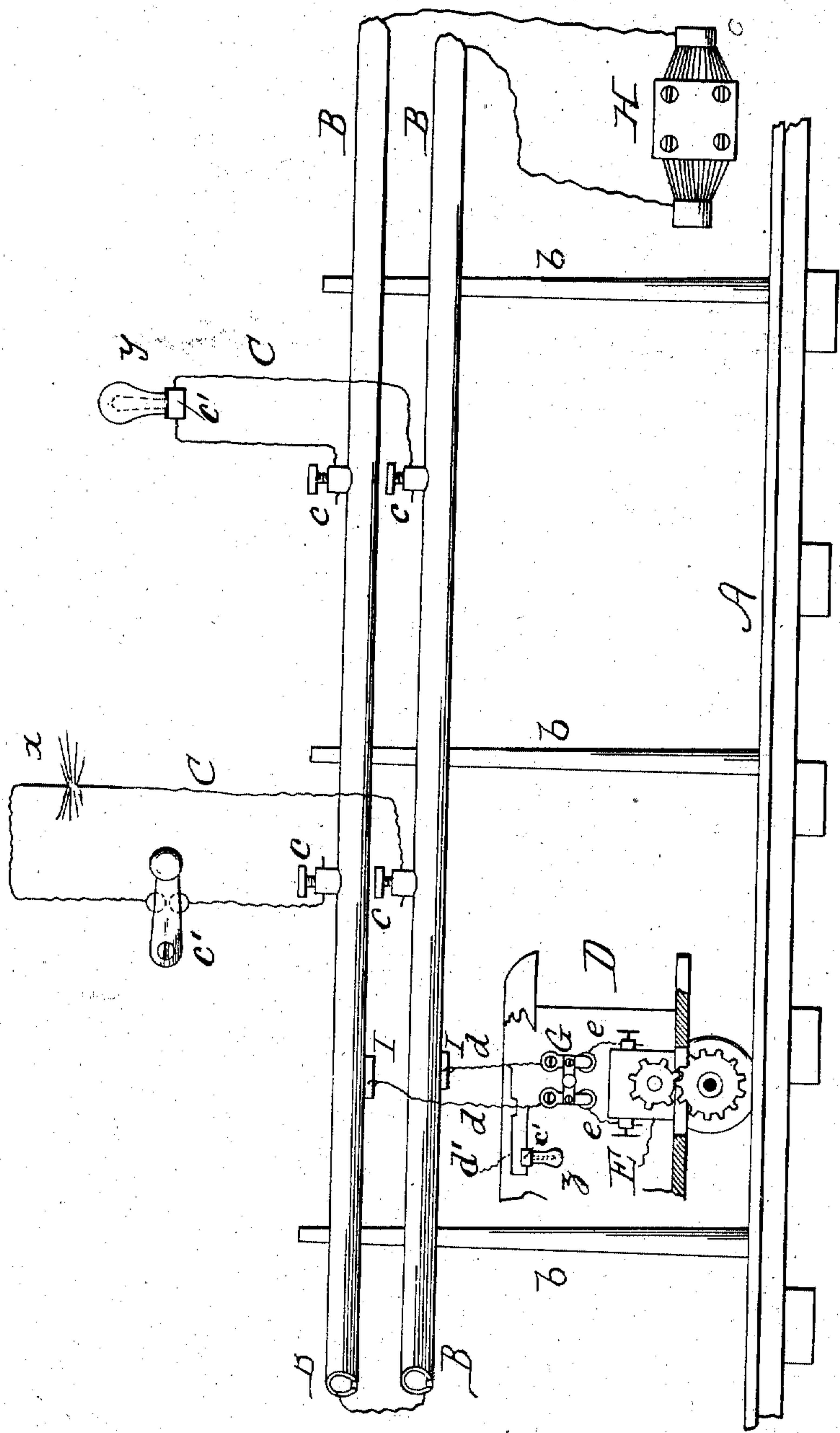


(No Model.)

B. BIDWELL.
ELECTRIC RAILWAY.

No. 318,594.

Patented May 26, 1885.



WITNESSES:

Wm. H. Vauhtorn
Geo. W. Moore

INVENTOR,

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UNITED STATES PATENT OFFICE.

BENSON BIDWELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO CHARLES F. BIDWELL, OF INDIANAPOLIS, INDIANA.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 318,594, dated May 26, 1885.

Application filed August 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENSON BIDWELL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification, reference being had therein to the accompanying drawing, which is an elevation, partly sectional, of an electric railway illustrating my improvements.

My invention has relation to electric railways; and it has for its object to include the electromotors of the cars and a series of lamps located in the cars and along the line of way in the line or a common circuit, or, in other words, to propel the cars and illuminate them and the line of way by the use of a single line-current instead of two or more separate currents, as has heretofore been used.

My invention accordingly consists of the combination, construction, and arrangement of parts, as hereinafter described and claimed, having reference particularly to the provision of a line-circuit having branches or shunts including an electric lamp, and cars or trains having an electromotor, circuit-connections to contact-brushes located on and moving along the conductors or line-circuit, and which include a switch or circuit-breaker, and a branch or shunt having an electric lamp for the cars.

In the drawing, A represents the tracks of an electric railway; B B, the line-conductors for the electric current, which conductors may be of any desired or suitable form and supported in any appropriate manner adjoining the tracks. I prefer, however, to use the slotted tubular conductors shown in an application filed by me on the 26th day of February, 1884, and in the bore of which move the contact-brushes I.

D indicates a car having an electromotor, in gear in any suitable manner with one of the axes thereof. The wires *e* of the motor lead to a switch, G, and from the latter proceed wires or conductors *d*, leading to and connected with the contact-brushes I in any appropriate way to form or provide suitable circuit-connections between said brushes and motor, which circuit includes a switch or make-and-break mechanism. Said circuit has a shunt or branch, *d'*, in which is a lamp, (indicated at

z.) The conductors B B are provided at suitable or desired points along the line of way with bosses or binding-posts *c c* for the branch or shunt circuits C, in each of which is included an electric lamp of either an arc or incandescent form.

If the arc lamp be used, as indicated at *x*, its circuit C is provided with a suitable switch, *c'*, for cutting the lamp out of the line-circuit when desired. If an incandescent lamp is employed, as shown at *y*, and for the car, the lamp itself will have the usual circuit-breaking device or closer, as indicated at *c'*, in the circuits including such form of lamp.

From the foregoing it is evident that the lamps for the car and for the line of way may at any desired time be included in the line-circuit; or, in other words, the electromotor on the cars and the latter and the line of way may be included in one or a common circuit, the result whereof is that the motors are operated and the lamps illuminated by one and the same circuit.

Any suitable form of dynamo or electric generator H may be employed for feeding the current to the conductors B B.

What I claim is—

1. In an electric railway, cars having an electromotor, a line-circuit, movable circuit-connection between the line-circuit and said motors, a branch circuit in said movable circuit, and an electric lamp with switch mechanism in said branch circuit, substantially as shown and described.

2. In an electric railway having a line-circuit and a movable circuit-connection between the latter and the cars, which includes an electromotor, a circuit breaker and closer, and a branch circuit including an electric lamp and switch, substantially as shown and described.

3. In an electric railway, the combination of line-circuit B B, generator H, branches C, having lamps and switch mechanism, brushes I, and car D, having electromotor E, switch G, circuit-connections *e d*, and branch circuit *d'*, including an electric lamp and switch, substantially as shown and described.

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

BENSON BIDWELL.

Witnesses:

SAMUEL C. MILLS,

S. J. VAN STAVOREN.

Corrections in Letters Patent No. 318,594.

It is hereby certified that Letters Patent No. 318,594, granted May 26, 1885, for an improvement in "Electric Railways," was erroneously issued to the inventor Benson Bidwell and *Charles F. Bidwell*, as assignee of one-half interest in said invention; that the patent should have been granted to the said *Benson Bidwell*, owner of the entire interest; and that the proper corrections have been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 16th day of June, A. D. 1885.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.