

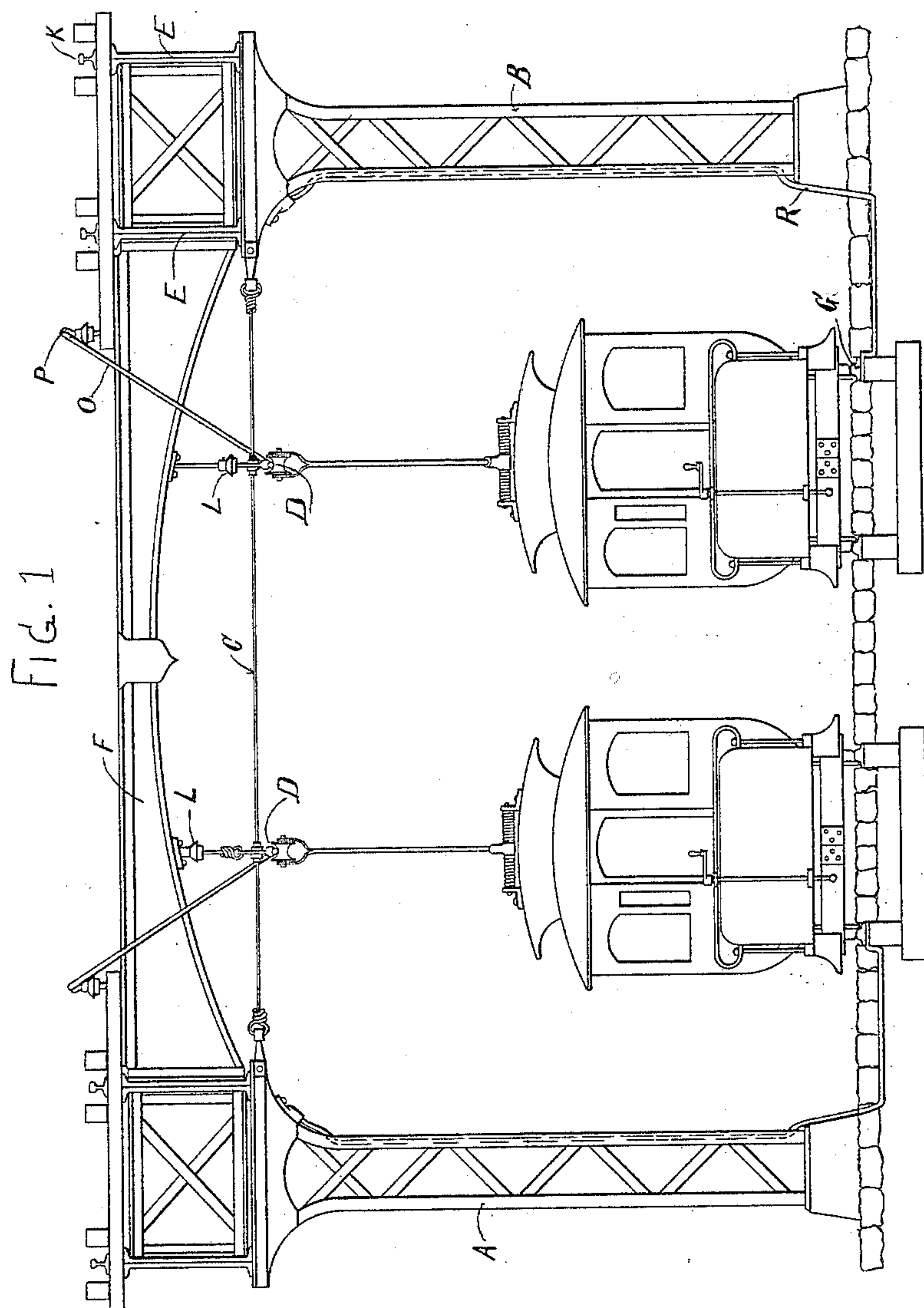
(No Model.)

2 Sheets—Sheet 1.

F. O. BLACKWELL.
ELECTRIC RAILWAY.

No. 424,848.

Patented Apr. 1, 1890.



WITNESSES

John Revell

George Baumann

INVENTOR

Francis O. Blackwell

Geo. R. Blackwell
Atty.

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FIG. 2

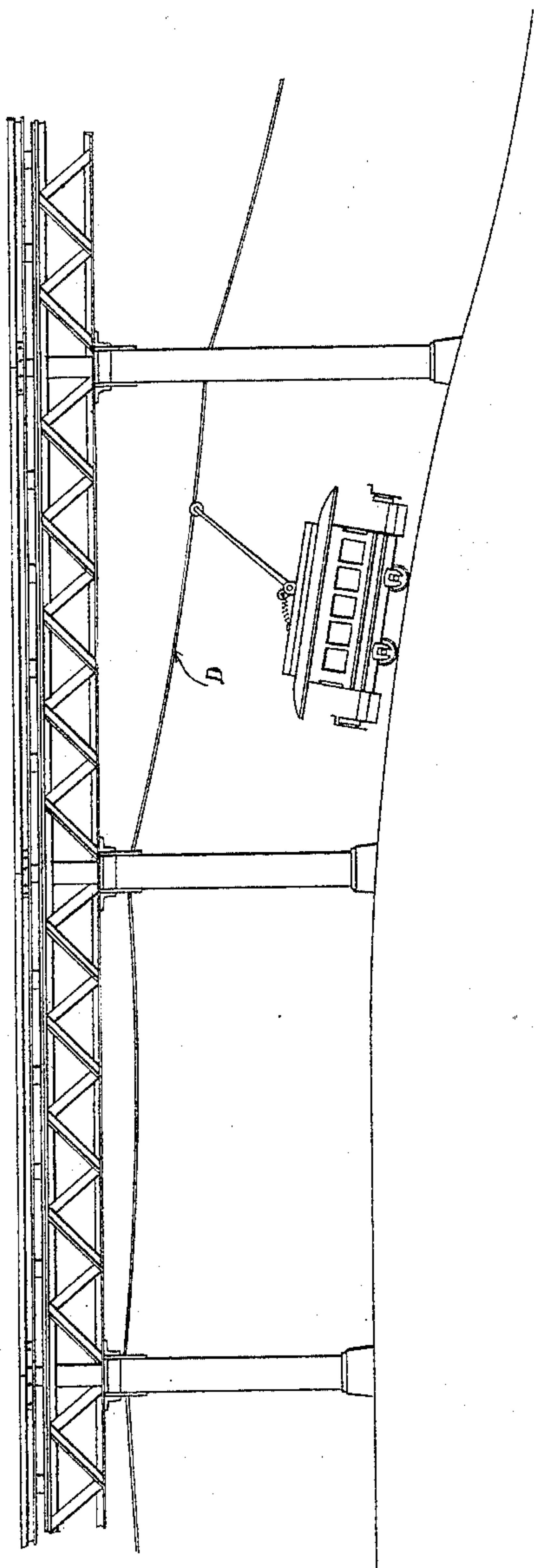
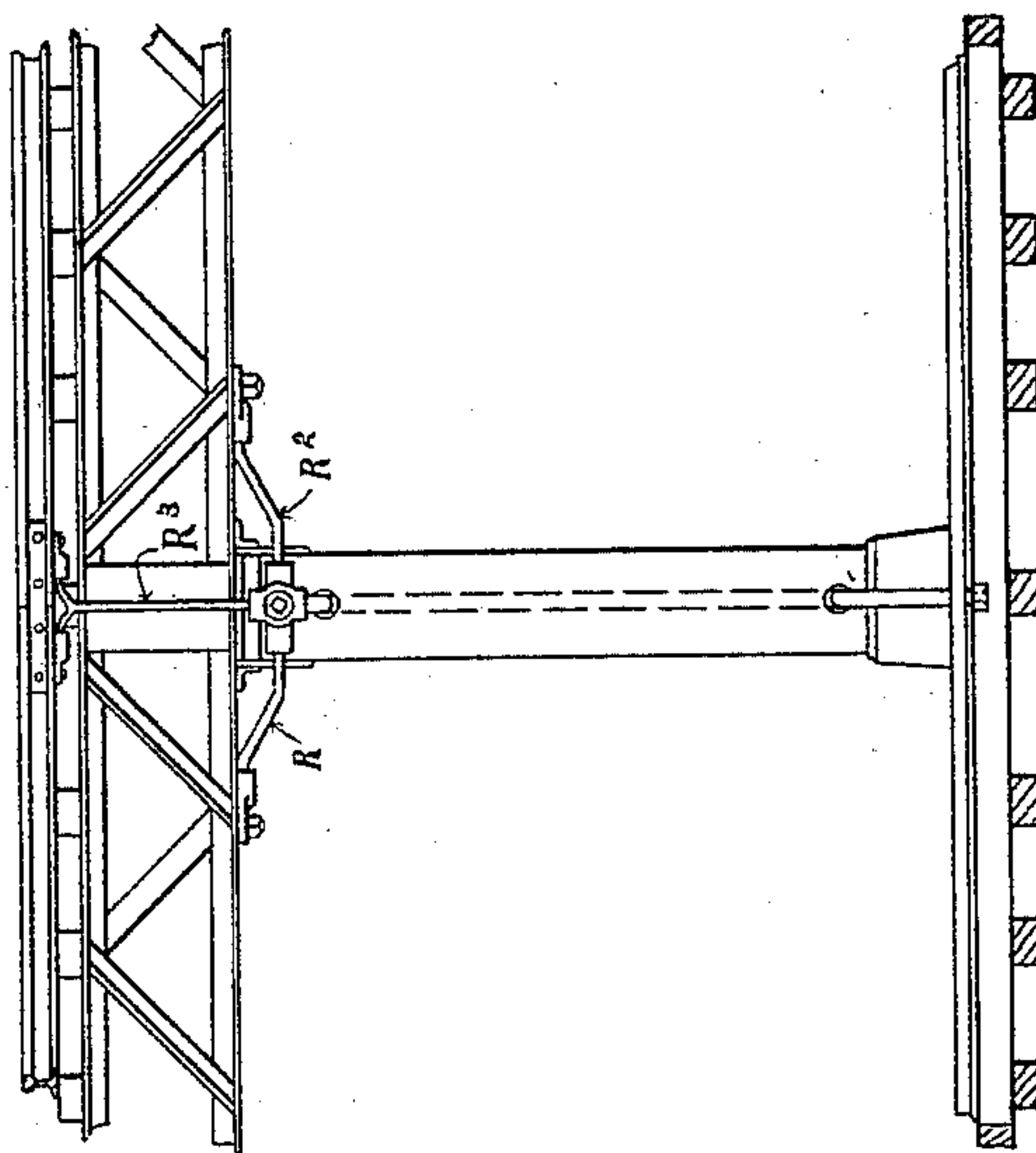


FIG. 3



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANCIS O. BLACKWELL, OF NEW YORK, N. Y., ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 424,848, dated April 1, 1890.

Application filed August 31, 1889. Serial No. 322,632. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS O. BLACKWELL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to electric railways in which the line or contact conductor is supported above the roadway upon transverse supports extending from a series of posts located by the side of the track.

My invention consists in utilizing the posts so employed for supporting the supply-wire to carry at the same time an elevated-railway structure.

My invention further consists in details of construction for carrying the invention into practice and adapting it to the divergent character of the overhead and surface railways.

In the accompanying drawings, Figure 1 is a transverse section of a street having posts at the sides of the street. Fig. 2 is a side elevation of the same, showing the construction employed to accommodate both the surface and overhead requirements. Fig. 3 is a detail.

In the drawings, A B represent oppositely-placed posts connected at the top by a transverse wire C. Between these posts are laid the rails of a double-track surface railway over which electrically-propelled cars are designed to be driven, the motive current being taken from line-conductors D D, suspended over the tracks by means of any suitably-constructed contact device. On top of posts A B are the girders E, forming an elevated-railway structure connected at intervals by the cross-girders F. In order to utilize to the utmost all the means of electrical conductivity, I connect the rails G of the surface track together and to the upright posts A B and to girders E, bringing also into circuit the rails K of the elevated structure. For the other conductor of the circuit, I employ the wires D, which are supported for transverse girders F by insulators L and braced by the transverse guy-wire C, which is stretched across the street above the cars, joining the posts A

B. These wires D are connected by wires O to insulated feed-wires P on the elevated structure. These supply-wires P are placed along parallel with the rails K of the elevated road and may be used for propelling cars thereon. The connection between the rails G of the surface track and the posts is made by means of rod R, extending up the posts, and there provided with lateral branches R' and R², Fig. 3, extending to the girders on opposite sides of the posts. A third branch wire R³ is connected to the rails of the elevated road. It being characteristic of an elevated road that it is free to carry trains at high speed it becomes necessary to do away with grades as much as possible. In surface roads, however, where comparatively light loads and slow speed are desirable the matter of grades is not of very much importance. I therefore continue the elevated structure on a level, while making the surface road conform to the inclines of the street. In this case the contact-wire D of the surface road will follow the street instead of the elevated road and remain at a substantially-constant height from the surface of the roadway.

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

1. The combination of a surface electric railway and a supply-wire therefor, held over the roadway by means of a series of posts beside the track, with an elevated-railway track carried by the said posts.

2. The combination of a surface electric railway with a series of posts located upon each side of the roadway, an elevated-railway track carried on the said posts, and a supply-conductor for the surface railway connected to transverse supports joining opposite pairs of posts, substantially as described.

3. The combination, with a railway-track, of posts on opposite sides thereof, a transverse extension therefrom, carrying an insulated electric-contact wire above the railway-track, an elevated railway upon each line of posts, and an electrically-propelled vehicle on the surface track, having a contact device in travelling connection with the said conductor.

4. The combination, in an electric railway, of metallic posts on opposite sides of the rail-

way and connected to the rails, so as to form a part of the electric circuit, an elevated railway upon each line of posts, and a contact-conductor for the electric railway, carried by
5 a transverse support from said posts, but insulated therefrom.

5. The combination, in an electric railway, of metallic side posts, a series of girders joining the same forming an elevated structure,
10 an electrical connection between the said structure and the rails of the track, and a contact-conductor for the electric railway supported by transverse connections from the said posts and insulated therefrom.

15 6. The combination, in an electric railway, of metallic side posts, a series of girders joining the said posts and forming an elevated-railway structure, electrical connections between the rails of the elevated and surface
20 tracks, and an insulated contact-conductor for an electric railway, supported above the roadway by transverse connections from the said posts.

7. The combination, in an electric railway;
25 of side posts from which the overhead contact-conductor is suspended, an elevated railway upon the said posts, and an insulated feed-wire for the contact-conductor carried along the elevated road.

30 8. The combination of a surface electric railway and a series of side posts of varying height, with an elevated railway carried on said posts on a line divergent from the line

of the surface railway, and a contact-conductor for the electric railway supported from
35 the elevated structure and following the grade of the surface track.

9. The combination, with an electric-railway track, of side posts of various lengths supporting an elevated-railway structure
40 comparatively on a level, a vehicle on the electric railway, provided with a contact device, and a conductor for the said railway, supported from the side posts at a substantially-uniform height above the surface. 45

10. The combination of a double-track electric railway with a series of posts beside the roadway, transverse extension therefrom, supply-conductors connected to the said extensions, and transverse guy-wires for the
50 conductors, connected to the said posts.

11. The combination, with a double-track electric railway, of a series of posts on opposite sides of the roadway, transverse supports joining opposite pairs of posts, supply-
55 conductors hung from the said supports, and transverse guy-wires for the conductors extending from post to post across the roadway, as described.

Signed and witnessed this 20th day of August, 1889. 60

FRANCIS O. BLACKWELL.

Witnesses:

GEORGE BAUMANN,
HUBERT HOWSON.