

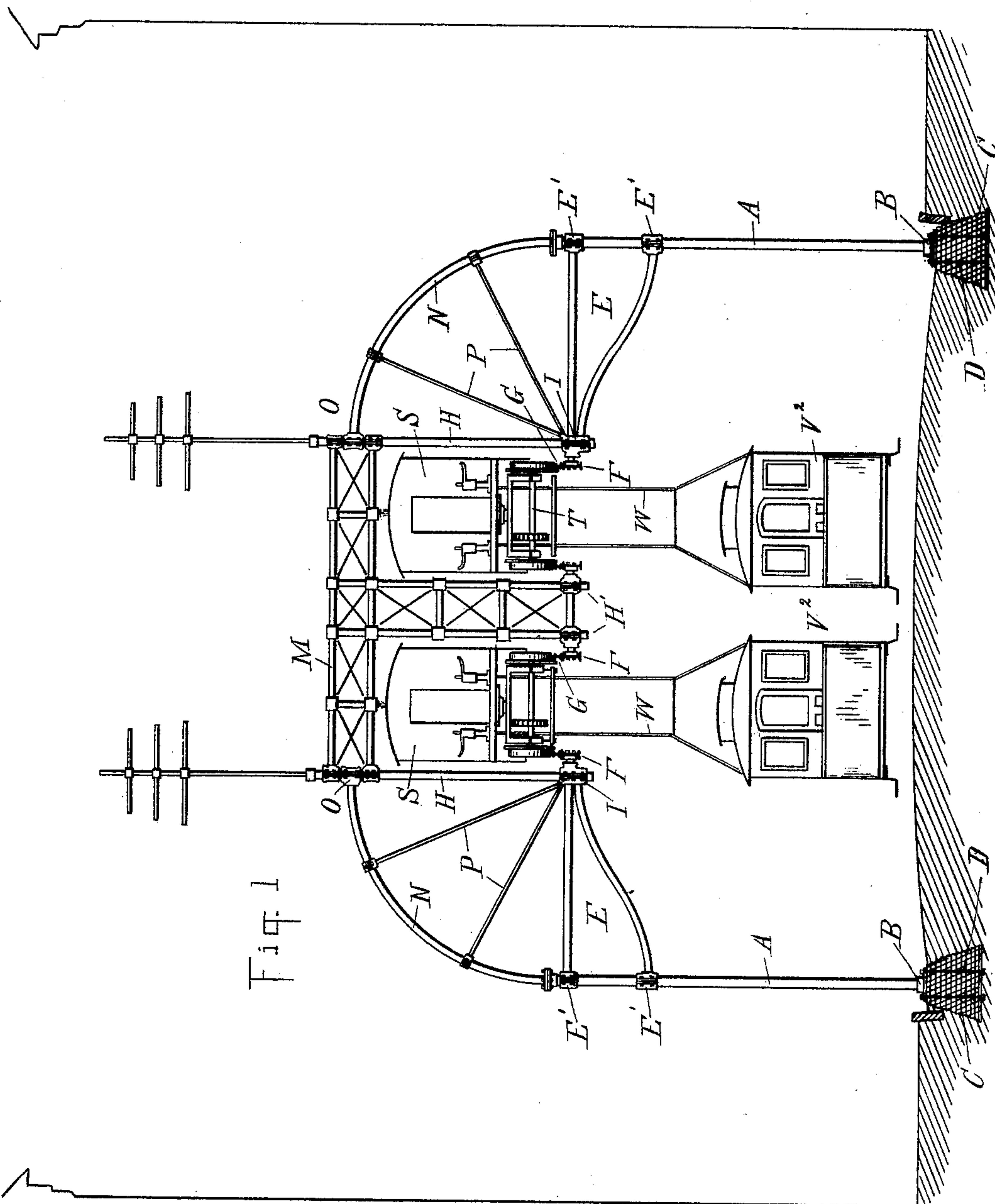
(No Model.)

4 Sheets—Sheet 1.

L. J. CODY.
ELEVATED RAILWAY.

No. 410,577.

Patented Sept. 10, 1889.



Witnesses:

P. M. Hulbert.
J. Paul Mayer

Inventor:

Lorenzo J. Cody
By *Thos. S. Sprague, Son*
Att'y.

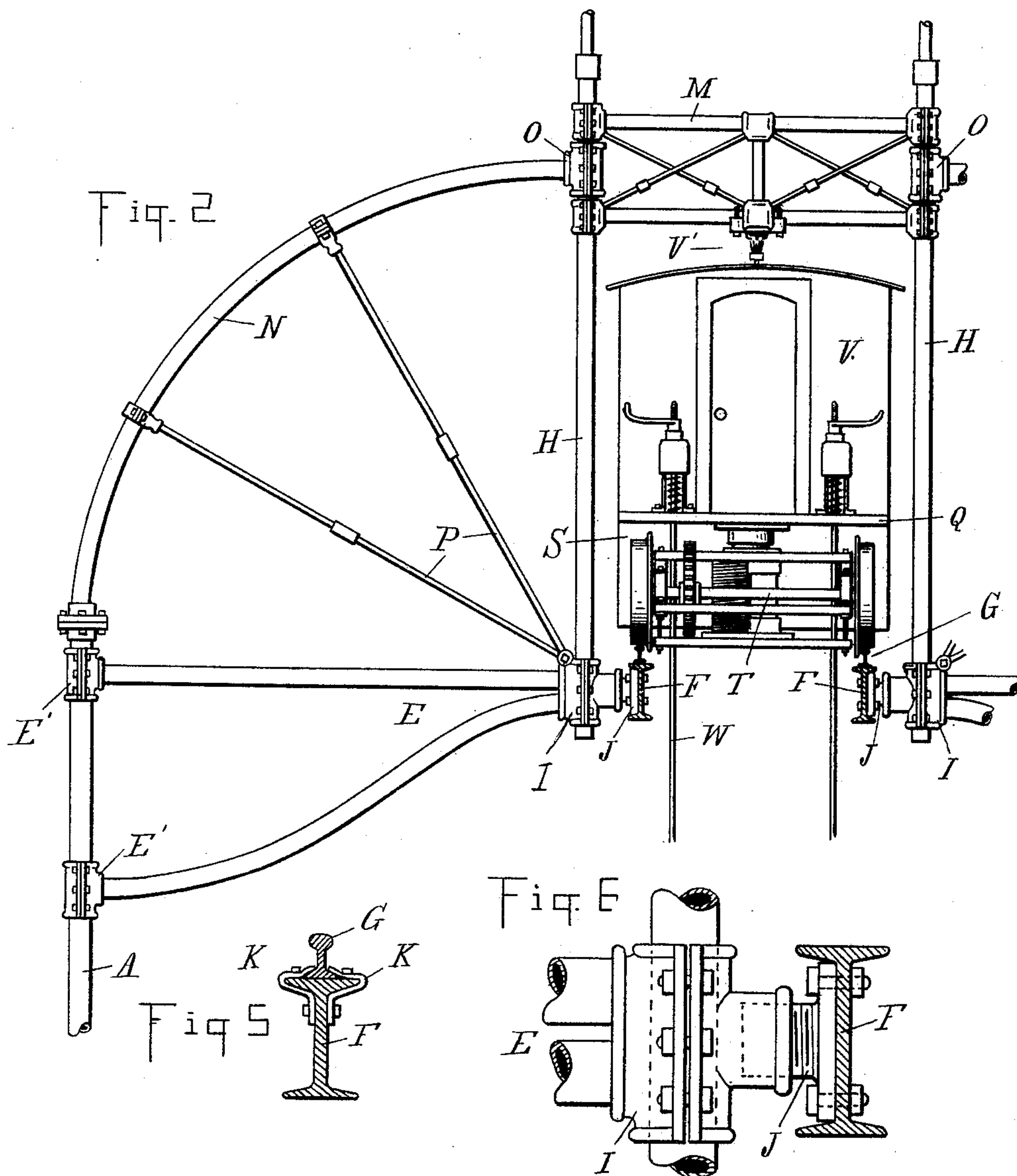
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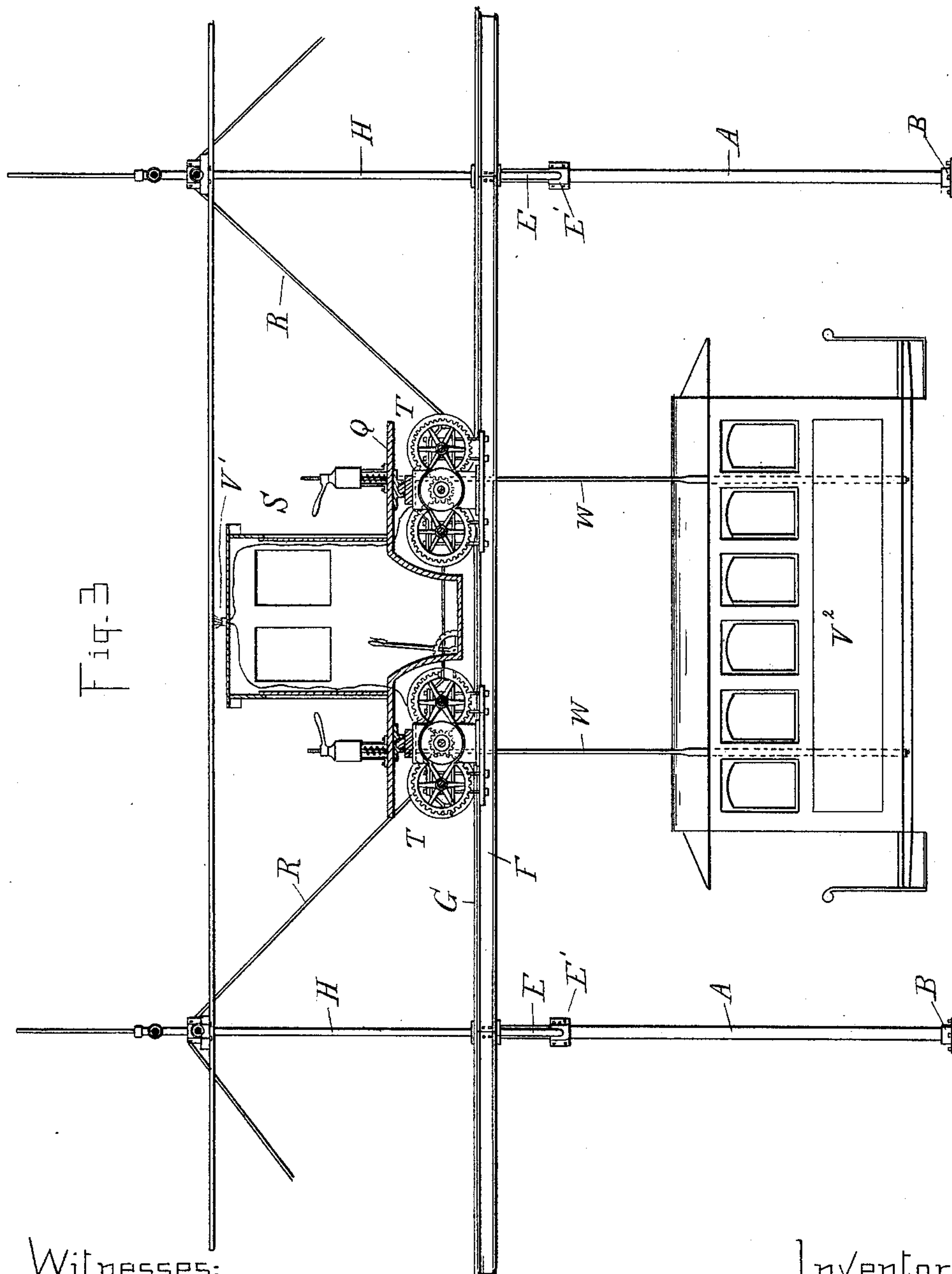
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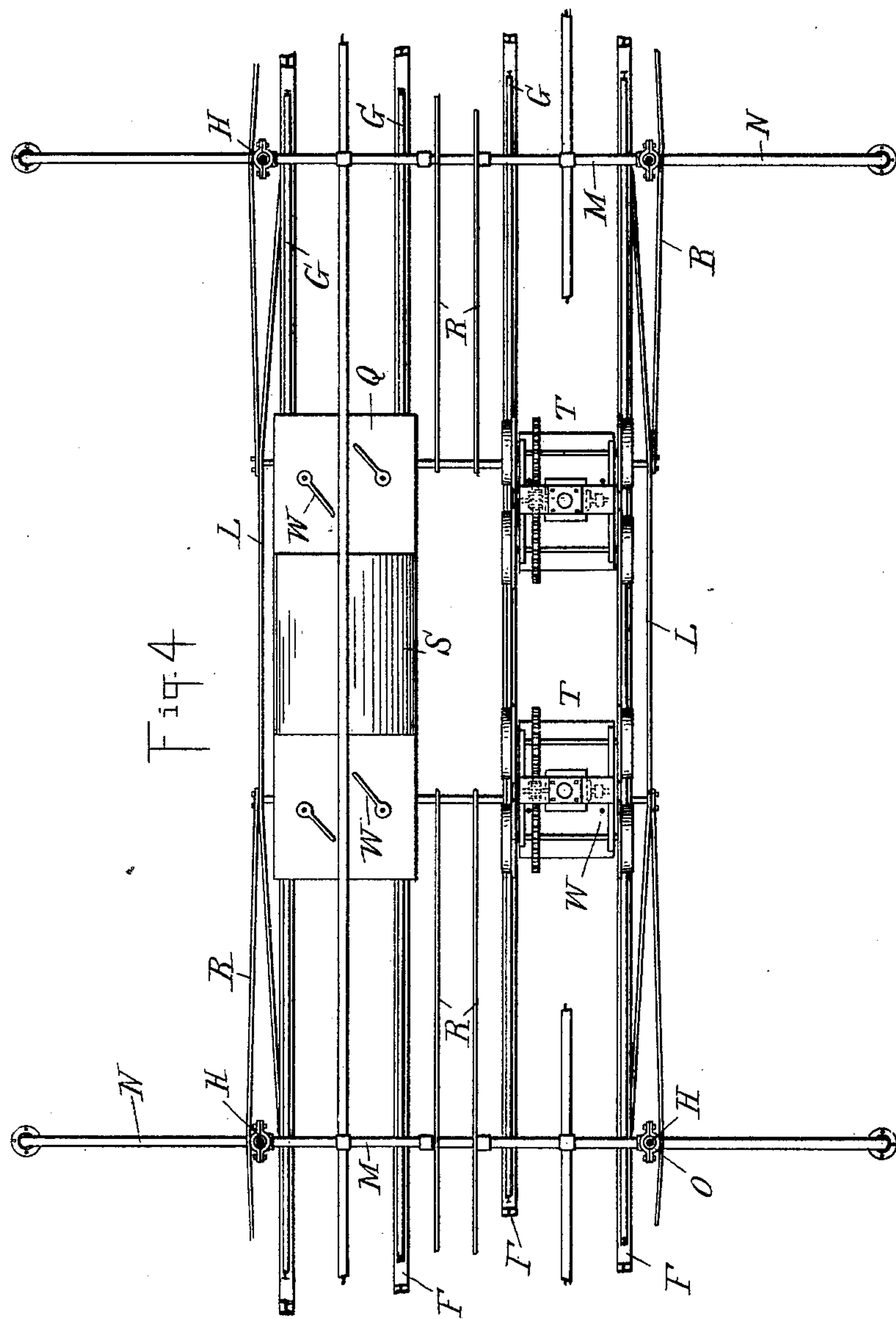
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UNITED STATES PATENT OFFICE.

LORENZO J. CODY, OF SAULT STE. MARIE, MICHIGAN.

ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 410,577, dated September 10, 1889.

Application filed February 2, 1889. Serial No. 298,427. (No model.)

To all whom it may concern:

Be it known that I, LORENZO J. CODY, a citizen of the United States, residing at Sault Ste. Marie, in the county of Chippewa and State of Michigan, have invented certain new and useful Improvements in Elevated Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in elevated railways; and the invention consists in the novel construction of the elevated roadway, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is a cross-section of my elevated roadway with a double two-rail track. Fig. 2 is also a cross-section of my elevated roadway, drawn on a larger scale and constructed for a single two-rail track. Fig. 3 is a longitudinal central section through the center of the track. Fig. 4 is a plan of Fig. 1; and Figs. 5 and 6 are sectional details, more specifically referred to hereinafter.

The roadway is wholly constructed of iron and steel, and preferably of wrought-iron pipe with screw-fittings, and is composed of the following elements:

A are upright posts placed opposite each other on the sides of the street.

B is the base of the post, into which the post is firmly secured, and this base is firmly secured to a suitable foundation C, preferably constructed of masonry, into which vertical bolts B are embedded, the upper ends of which pass through the base-plate and are screw-threaded for the purpose of bolting the base thereto.

E are strong bracketing devices, preferably simply brackets, each consisting of a horizontal member and an inclined member, and they are vertically adjustable upon the upper ends of the posts by means of the fittings E', which are constructed in halves bolted together. The brackets project laterally from the posts at such a height above the street as to afford a clear passage for all kinds of vehicles underneath. The brackets support the longitudinal girders F, which in turn support the track-rails G, and they are also adjustably connected with the lower ends of the hangers

H of the overhead trusses. To this end I use suitable fittings I, which receive the ends of the bracketing devices in screw-sockets and are clamped adjustably upon the lower end of the hangers H. These fittings have also laterally-projecting screw-sockets, into which are secured the screw-threaded shanks of the bearings J, which have vertical flanges, to which the longitudinal girders are bolted. These girders are solid beams, preferably so-called I-beams, and the track-rails are bolted to the upper flanges thereof in any suitable manner, such as by means of the clips K, as shown in Fig. 5. To prevent any outward deflection the longitudinal girders are preferably trussed upon their outer sides by means of suitable truss-rods L. For long spans between supports the girders are constructed in the form of a truss instead of a solid beam or of a trussed beam.

Elevated cross-girders are supported upon the upper ends of the posts. To this end I preferably secure to the posts the inclined or curved extension N, to which the hangers H are secured by suitable fittings—such as the fittings O—of similar character as used in other places. To the lower ends of the hangers are connected the inner ends of the brackets, as before described, and to their upper ends I secure the intermediate girders M, preferably consisting of a lattice truss constructed of wrought-iron tubing. The hangers H may be upwardly extended and provided with suitable cross-trees for the purpose of supporting electric-light wires or other electrical conductors.

H' are intermediate hangers in a two-track construction to support the intermediate parallel girders from the cross-girders, and these hangers are strongly trussed together in any suitable manner.

P are tie-rods between the curved extensions N and the bracketing devices, and R are other tie-rods from the cross-girders to the longitudinal girders. Other tie-rods are applied wherever it is found necessary or advisable to strengthen the parts or hold them firmly in their fixed relative position, and where circumstances will permit or necessitate guys or stays to anchor the spans may be used additionally.

S is a propelling-carriage adapted to run upon the tracks, and consisting, preferably, of two trucks T, pivotally supporting a platform Q. Upon this platform is built a suitable cabin or pilot-house V, to shelter the engineer in charge of the car and the operating devices or levers by means of which the carriage is propelled or its movement upon the rails controlled.

V' is the car, which is supported by two pairs of hangers W fore and aft from the propelling-carriage, and the upper ends of these rods rest upon springs and are screw-threaded and provided with screw-levers, by means of which the cars may be raised or lowered from or toward the ground, as contingencies may require, for the free suspension of the car in suitable proximity to the roadway, and to permit of raising the car to avoid obstacles, such as deep snows in winter. The hangers W are suitably braced to prevent the swaying of the car, and suitable safety-guards are secured to the trucks to prevent them from jumping the track and to the hangers to prevent the car from falling to the ground in case of accident to the propelling-carriage.

The construction of my elevated roadway is especially devised for city streets, where it is most desirable to avoid such unsightly and massive constructions as are in present use, and which deprive the streets of such a large proportion of their light and air as to form a serious obstacle to the more general introduction of this otherwise preferable method of operating street-railways.

My construction combines the maximum of strength with a minimum of material, it occupies no unnecessary space, and has an airy and graceful appearance. The spans can be built in sections without necessitating the interruption of traffic in the street, and in a minimum of time. The brackets which support the trucks are independently adjustable up or down, and the bearings at the ends of the brackets can be adjusted laterally in or out with a sufficient limit to easily compensate for irregular work in construction, or to adjust the track at any time should a settling or slight deflection take place, as frequently happens, even with the most perfect workmanship. By constructing the propelling-carriage with independently-pivoted trucks less liability is incurred of spreading the tracks, and greater facility is obtained to make sharp curves in the track around corners, and the increased safety, room, and convenience to the passengers from having the motor or propelling devices in a separate carriage independently housed and inaccessible to the passengers will be readily conceded.

The carriage and propelling apparatus are not herein claimed, as they form the subject of a pending application filed as a division of this case.

What I claim as my invention is—

1. In an elevated railway, a two-rail roadway having each rail independently adjustably supported above the roadway, substantially as described.

2. In an elevated railway, the combination of the following elements: the two rows of posts on opposite sides of the roadway, the bracketing devices secured on top thereof, the rail-supporting girders secured to the inner ends of the bracketing devices, the rails independently adjustably supported, and the overhead cross-trusses provided with the hangers supporting the bracketing devices, substantially as described.

3. In an elevated railway, the combination of the following elements: the two rows of posts on opposite sides of the roadway, the bracketing devices vertically adjustably secured on top thereof, the bearings laterally adjustably secured to the ends of the bracketing devices, the rail-supporting girders secured thereto, the track-rails supported thereon, the overhead cross-trusses, and the hangers from said cross-trusses adjustably supporting the ends of the bracketing devices, substantially as described.

4. In an elevated railway, the combination of the following elements: the posts on opposite sides of the roadway, the brackets provided with fittings adjustably clamped to the posts, the inwardly curved or inclined extensions on the top of the posts, the hangers secured to said extensions, the cross-trusses connected to the upper ends of said hangers, the fittings adjustably connecting the lower ends of the hangers to the ends of the brackets, and the bearings adjustably secured to said fittings and having bolting-flanges, to which rail-supporting girders are bolted, substantially as described.

5. In an elevated railway, the combination of the following elements: the posts provided with the base B, bolted to the foundation C, the brackets provided with the fittings adjustably clamped to the posts, the curved extensions N on the posts, the hangers suspended from said extensions, the fittings adjustably securing said hangers to said extensions, the cross-trusses vertically adjustably secured to the hangers, the fittings adjustably connecting the hangers and brackets, the bearings laterally adjustably supported by the bracketing devices, and the rail-supporting girders secured to such bearings, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of January, 1889.

LORENZO J. CODY.

Witnesses:

J. PAUL MAYER,
H. M. HULBERT.