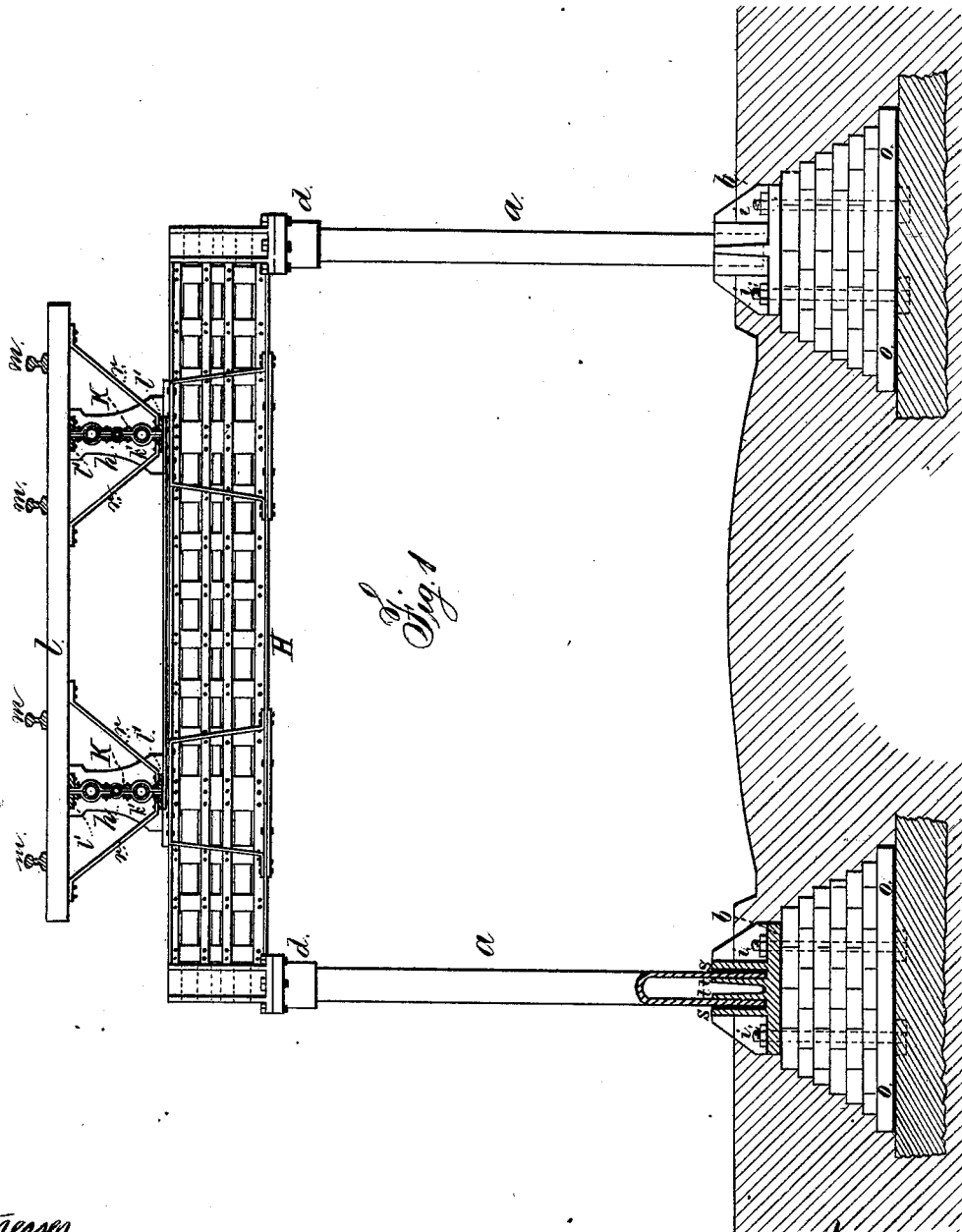


J. JOHNSON.
Elevated Railway.

No. 213,905.

Patented April 1, 1879.



Witnesses

Chas. A. Smith
Geo. D. Pinckney

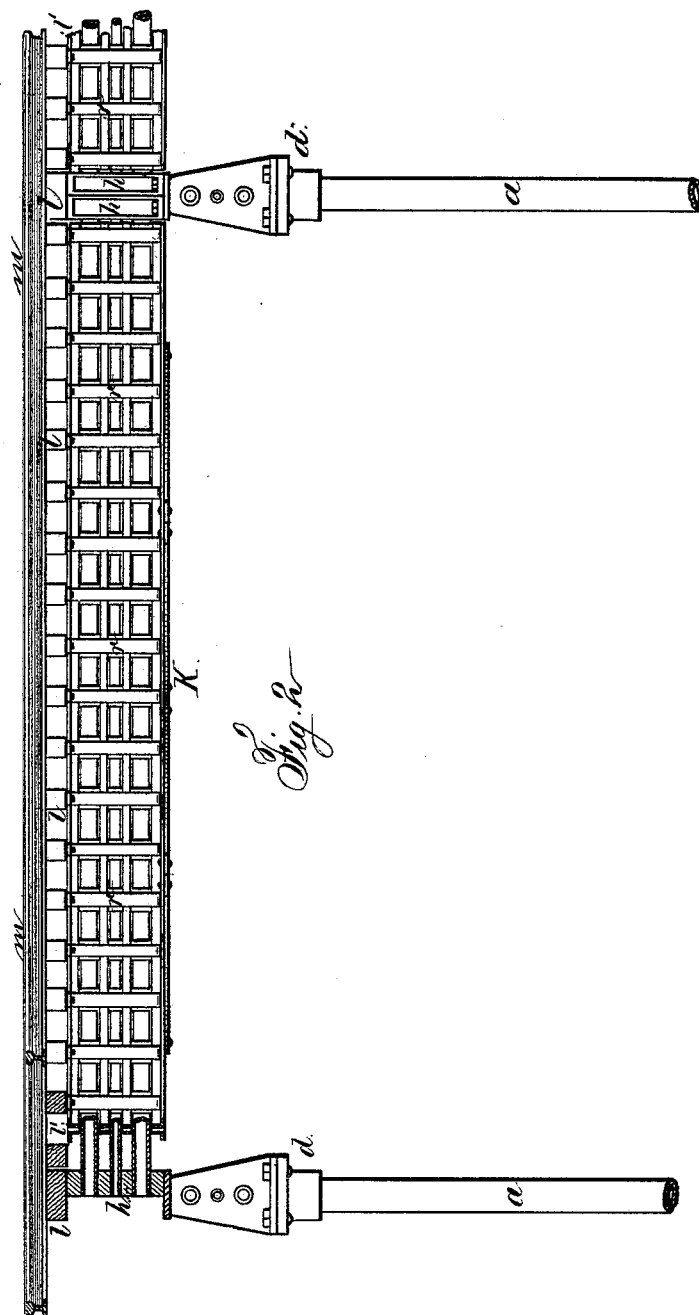
Inventor

Job Johnson.
per Lemuel W. Lovell
att.

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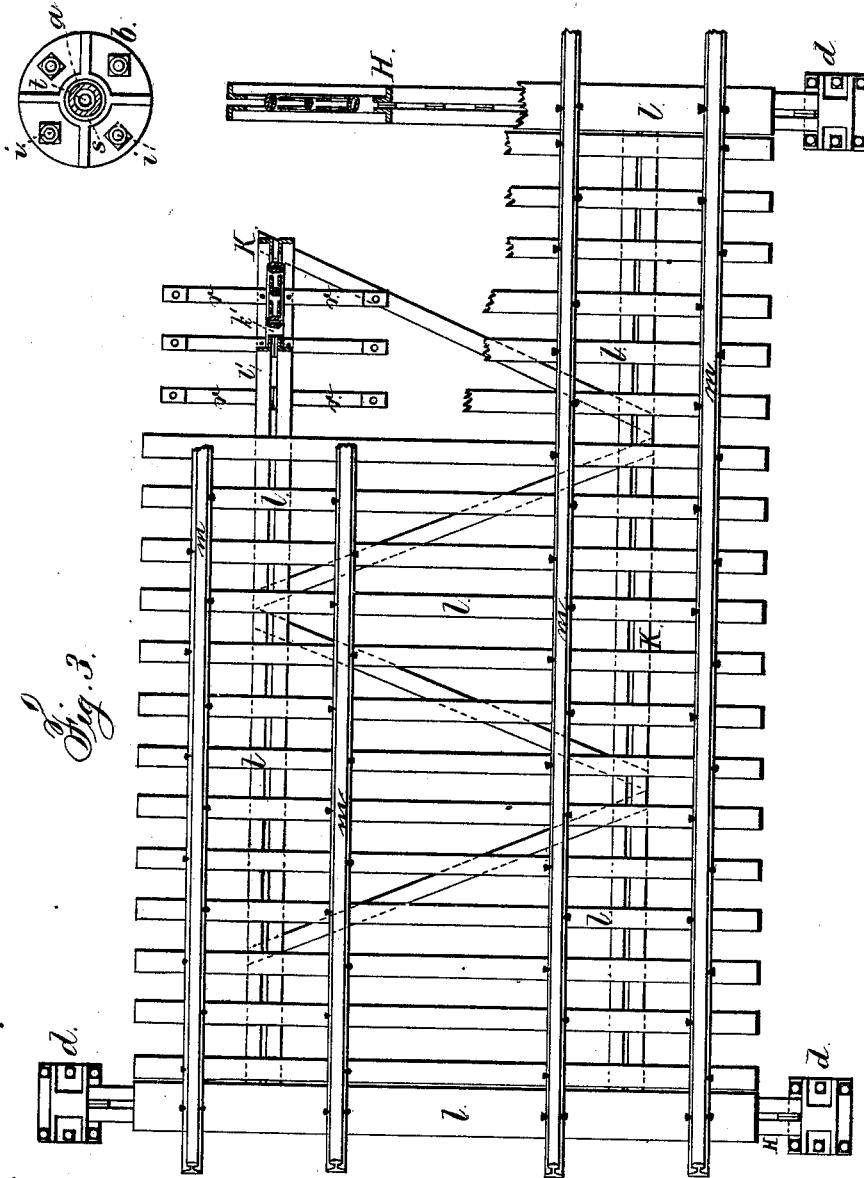
Inventor

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Chas. H. Smith
Geo. T. Pinckney

Inventor

Job Johnson
per Lemuel W. Serrell

UNITED STATES PATENT OFFICE.

JOB JOHNSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ELEVATED RAILWAYS.

Specification forming part of Letters Patent No. **213,905**, dated April 1, 1879; application filed July 25, 1878.

To all whom it may concern:

Be it known that I, JOB JOHNSON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Elevated Railways, of which the following is a specification:

The present invention is an improvement upon the elevated railways heretofore patented by me in the particulars hereinafter set forth.

In the drawings, Figure 1 is an elevation transversely of the track. Fig. 2 is a side view of the track-girders, and Fig. 3 is a plan of the elevated railway.

The columns *a* are made of round welded wrought-iron or steel tubes, instead of the polygonal riveted tubes shown in my Patent No. 176,000, April 11, 1876, such round tubes, whether of cast or wrought metal, being stronger in proportion to the weight of material, and there being no labor in riveting them. They are received at the bottom ends into annular sockets between double ferrules upon the bed-plates *b* and leaded in; and these bed-plates are bolted to the masonry foundation by bolts *i*, that pass down through the base-plate *o*, that is of metal, so that the bolts will bind the bed-plates to the masonry so firmly that they cannot work loose.

The caps *d* of the columns *a* are made with annular grooves, receiving the ends of the columns. These annular grooves are between double ferrules or short cylinders *s t*, and the column is leaded into place, and upon these caps are plates, to which are bolted the transverse girder *H*, that is made of one or more tubes and truss-plates, similar to those shown in my Patent No. 192,170, June 19, 1877.

My present improvement is made with reference to the construction of a platform or deck for one, two, or more railway-tracks, whereby strength is obtained, and two longitudinal beams are rendered capable of sustaining two or more tracks, instead of requiring four or more longitudinal truss-beams, as heretofore usual, two for each track.

The longitudinal girders *K* are each made of a tube or tubes, *k'*, united by the trestle-plates, as shown in my Patent No. 192,170, and two top and bottom angle-iron bars, *l'*.

These trestle-plates are made to fit the surfaces of the tubes and angle-irons, across which they pass, and, being bolted together in pairs, clamp the parts firmly; and these longitudinal girders are bolted at their ends to the bearing-plates *h* upon the truss or girder *H*, and they are so constructed as to come below the center line of each track, and upon these longitudinal girders the platform-beams *l* are laid and secured by bolts passing through the top angle-bars. These beams *l* are to be of a sufficient size and strength to sustain the track-rails *m*, forming two or more complete tracks for trains running in opposite directions; and the platform-beams are further sustained and strengthened by diagonal rib-braces *r r*, that extend from the lower portion of the longitudinal girder upwardly and outwardly to the platform-beams beneath the track-rails, such braces *r* being bolted or riveted at the ends to the respective parts, so as to form isosceles triangles, with the point downward, and with the longitudinal girder central to each triangle.

By this construction the platform-beams and the ribs are braced to one and all of the longitudinal girders, and the whole structure is stiffened and braced, and one girder assists the other in carrying a passing train.

The street below the elevated railway is but little darkened by the structure, because only one beam is used to one track.

The amount of material is reduced as low as is consistent with strength, and the platform allows for the introduction of switches and turnouts.

When three tracks are used there should be three longitudinal girders, and the deck or track beams crossing over these girders and being secured by bolts to their upper surfaces, and being braced by the diagonal braces *r*, the whole structure is so intimately connected that one part supports the other, so as to obtain great strength and little weight.

I claim as my invention—

1. In an elevated railway, the combination of two or more longitudinal beams or girders with the transverse platform-beams *l*, track-rails *m*, and diagonal braces *r*, constructed and arranged substantially as set forth, where-

by the two or more longitudinal girders support the rails of the two or more tracks, as set forth.

2. The combination, in a truss or beam, of one or more longitudinal tubes, K, and top and bottom angle-bars, *l'*, connecting trestle-plates, diagonal braces *r*, and cross-beams *l*, substantially as set forth, whereby the structure is

sectionally an isosceles triangle with the point downward, as set forth.

Signed by me this 18th day of July, A. D.

1878.

JOB JOHNSON.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.