(No Model.) 3 Sheets—Sheet 1.

W. B. MACK.

ELEVATED RAILWAY.

No. 340,337. Patented Apr. 20, 1886.

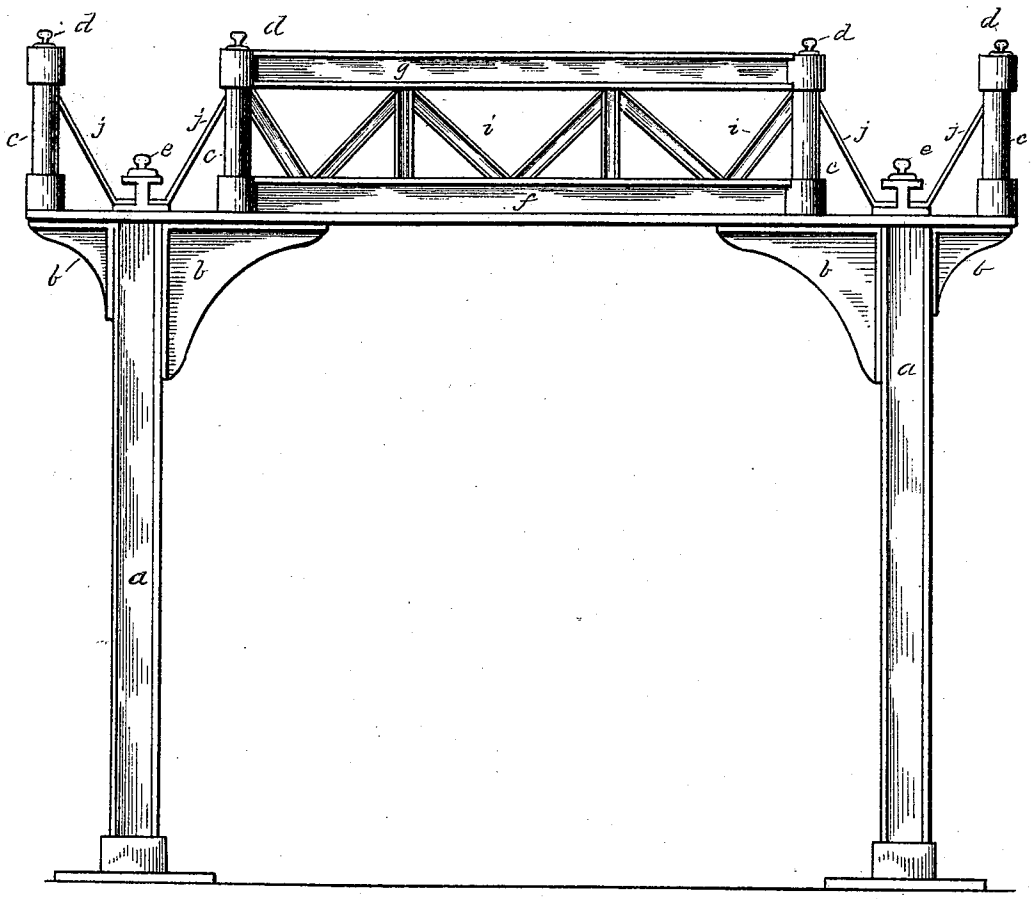

Fig. 1.

Witnesses:
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C. S. Loomis.

Inventor:
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(No Model.) 3 Sheets—Sheet 2.

W. B. MACK.

ELEVATED RAILWAY.

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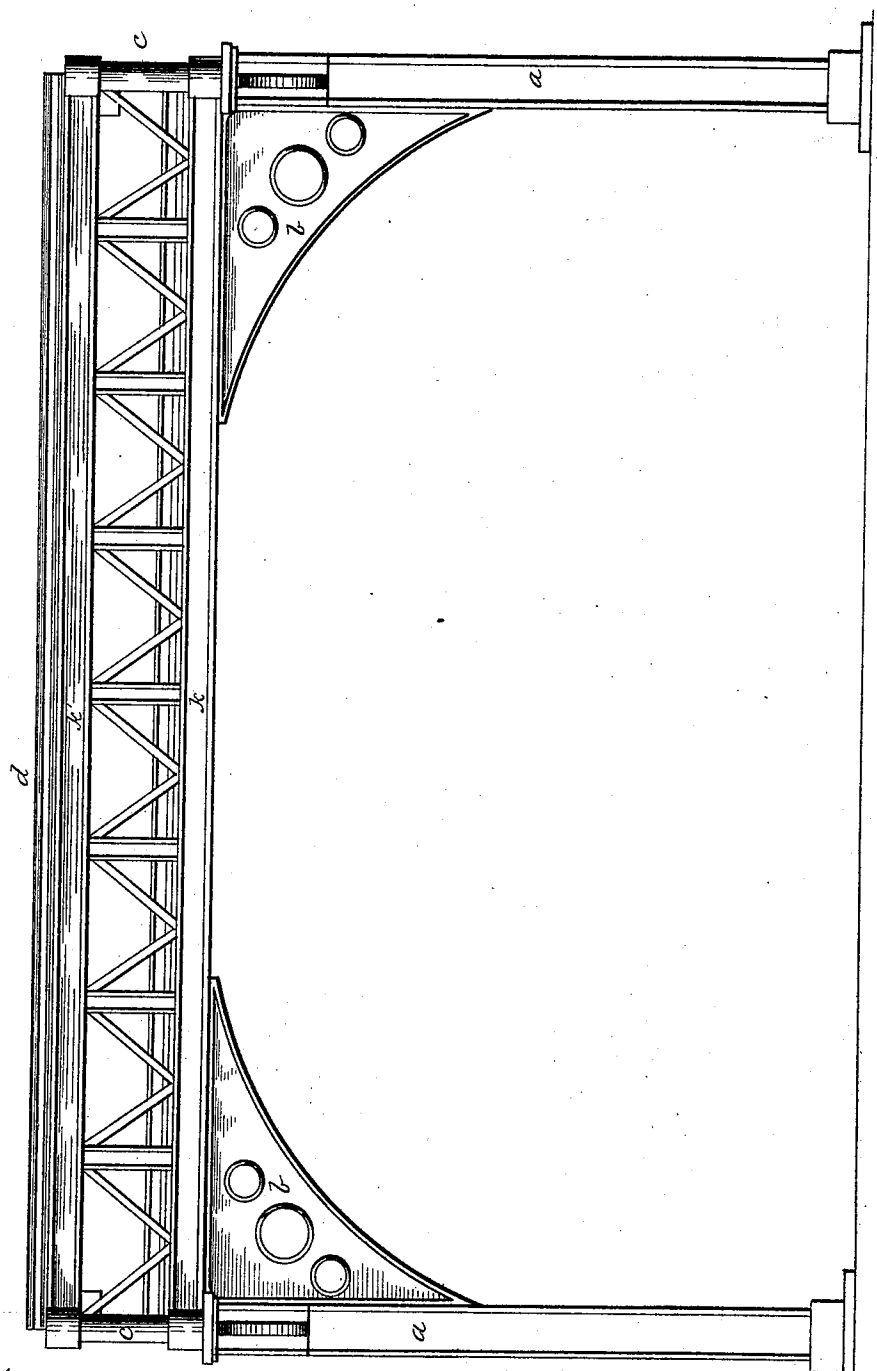

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

W. B. MACK.

ELEVATED RAILWAY.

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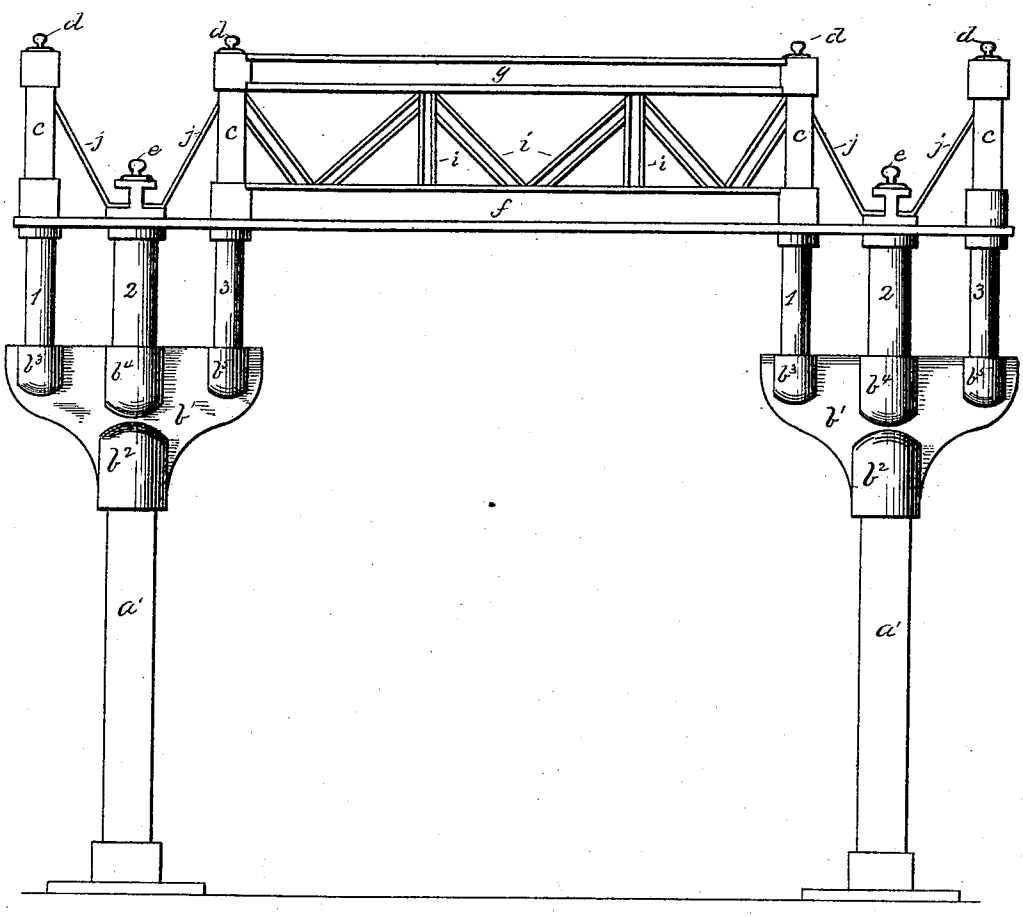

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM B. MACK, OF BOSTON, MASSACHUSETTS.

ELEVATED RAILWAY.

SPECIFICATION forming part of Letters Patent No. 340,337, dated April 20, 1886.

Application filed February 17, 1886. Serial No. 192,169. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. MACK, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Elevated Railways, of which the following is a specification.

My invention relates to railroads, and more especially to what are known as "elevated" railroads, and has for its object the construction of such a road which shall be firm, safe, and easily traversed by cars or trucks, and one on which electricity may be readily employed as a motor.

To the foregoing ends my invention consists in two tracks or ways of three rails each, one way constructed on each side of a street, with girders and braces connecting and supporting the two ways at substantially regular intervals, two rails of each way being arranged somewhat as usual, and the third at a lower plane.

My invention also consists in the details of construction of a road of the character mentioned, all as hereinafter described, and subsequently pointed out in the claims.

In the drawings hereto annexed, and forming a part of this specification, Figure 1 represents a cross-sectional elevation of my improved elevated railway. Fig. 2 is a side elevation of the same; and Fig. 3 is a view similar to Fig. 1, representing a modification.

The same letters of reference indicate corresponding parts in all the figures.

a a represent pillars erected at substantially regular intervals along, and in this instance presumed to be on each side of a street. Said pillars are provided on their upper ends with braces or brackets *b b*, which support pillars *c c*, upon the upper ends of which rails *d d* are mounted, and to which they are secured.

On substantially the upper ends of the pillars *a a*, and midway between the rails *d d*, but at a much lower plane, are mounted and secured the rails *e e*. This arrangement of rails is adapted to a car-truck of the construction discovered in the application for Letters Patent filed by me on the 1st day of February, 1886.

Pillars *a a* are connected and supported by girders *f*, extending from the outer braces or brackets on the post on one side of the street to the corresponding braces or brackets on the opposite post, to which braces or brackets they are properly secured, as they are in like manner secured to the base of the outer supporting-pillars, *c c*. Another girder, *g*, extends from the upper ends of the outer supporting-pillars, *c*, of one track to the same point of the opposite supporting-pillars of the other track, to which pillars the said girder *g* is suitably secured. Braces *i i* are arranged between girders *f* and *g*, as shown, to insure their firmness as supports for said pillars, and as means for binding the two girders together.

Extending downwardly and inwardly toward rail *e* from the tops of the pillars *c c* are braces *j j*, which still further serve to support and maintain in proper positions pillars *c c* and the rails mounted thereon.

A properly-constructed road-bed, *k k'*, supported by pillars *a a* and their braces or brackets *b b*, extends between such pillars of each road, as shown in Fig. 2.

By the arrangement shown and described I am enabled to construct a firm and entirely safe road adapted to the use of the truck described in my aforesaid application, and to make it entirely feasible to employ electricity as a motor on elevated roads, since the wheel of the car-truck traversing the rail *e* is calculated in an eminent degree to be made the driving-wheel of the car, and said rail *e* can readily be insulated from all parts of the road-bed, as will be understood by reference to Fig. 1 of the drawings.

Another advantage of my construction is, that elevated roads as now built, in which parallel tracks are strengthened and supported by cross-girders, can, with slight expense and without weakening their structure, be changed and adapted to my system and arrangement by merely removing the portions of the girders *f* and *g*, extending between pillars *c c* of the same track, laying a rail in the middle of the road-bed on the tops of pillars *a a*, similar to rail *e*, as herein shown and described, and arranging and securing the braces *j j* as set forth herein.

In Fig. 3 I have shown modified means for supporting the road-bed. In this construction the supporting-pillars *a'* are tubular in form, in contradistinction to the square or I-shaped beams *a*. (Represented in Figs. 1 and 2.) Brackets *b'* are constructed with sockets b^2 in

their bases, in which the upper ends of pillars *a'* enter, and by which means brackets *b'* are supported. Sockets b^3 b^4 b^5 are also formed in the upper portions of said brackets, in which the lower ends of pillars 1 2 3 rest, said pillars being in a line directly underneath the means for supporting rails *d e d*, as shown. By this modified construction a somewhat stronger and firmer bed is formed than by that represented in Figs. 1 and 2.

Having thus described my invention, I claim—

1. An elevated railroad of two substantially parallel tracks, each track supported on a single line of pillars, *a a*, and consisting of three rails, two arranged on pillars or posts parallel to each other, as usual, and a third arranged at a lower horizontal plane between the two first mentioned, the two tracks being bound together at substantially regular intervals by girders and braces, and the pillars supporting the upper rails of each track being sustained firmly in position by braces extending inwardly from their upper ends to the road-bed, as set forth.

2. An elevated railroad of two substantially parallel tracks, each track supported on a single line of pillars, *a a*, braces or brackets *b b* of said pillars, pillars *c c*, rails *d d*, rails *e*, intermediate of said rails *d d*, and arranged at a lower horizontal plane, braces *j j*, extending from the top of pillars *c c* to the road-bed to or near the rail *e*, and girders *f g* and their braces *i i*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 28th day of January, 1886.

WILLIAM B. MACK.

Witnesses:
A. R. WOODRON,
EDWARD S. ROSE.