(No Model.) 2 Sheets—Sheet 1.

S. G. RANDALL.

ELEVATED TRANSPORTATION.

No. 453,939. Patented June 9, 1891.

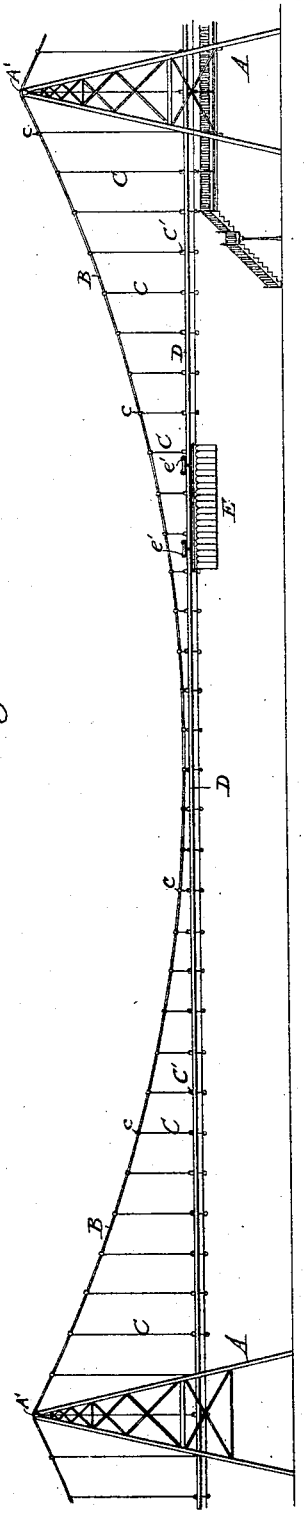

Fig. 1.

Attest:
Sidney F. Hollingsworth
Baltus D. Long.

Inventor:
Silas G. Randall
by his attorneys
Baldwin, Davidson & Wright

(No Model.) 2 Sheets—Sheet 2.

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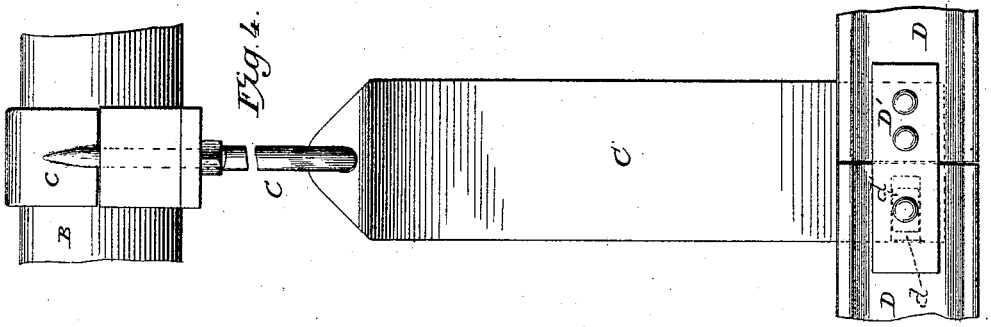

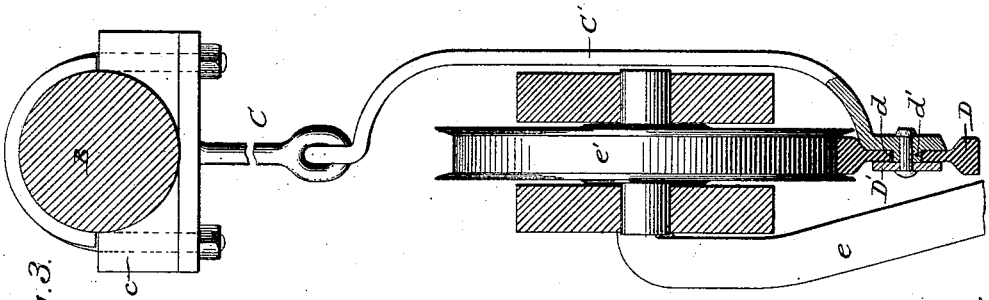

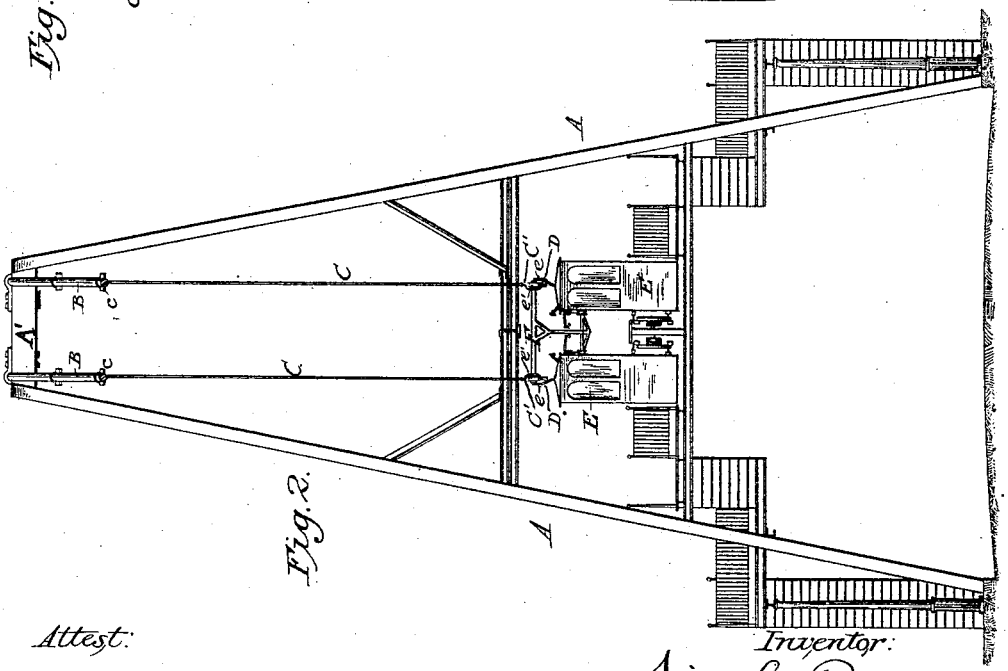

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Sidney P. Hollingsworth

Baltus de Lang.

Inventor:

Silas G. Randall

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UNITED STATES PATENT OFFICE.

SILAS G. RANDALL, OF GREENE, NEW YORK, ASSIGNOR TO AMELIA A. RANDALL, OF SAME PLACE.

ELEVATED TRANSPORTATION.

SPECIFICATION forming part of Letters Patent No. 453,939, dated June 9, 1891.

Application filed November 18, 1889. Serial No. 330,685. (No model.)

To all whom it may concern:

Be it known that I, SILAS G. RANDALL, a citizen of the United States, residing in Greene, in the county of Chenango and State of New York, have invented certain new and useful Improvements in Elevated Suspension-Railways, of which the following is a specification.

In accordance with my invention I erect at intervals towers or supporting structures, which serve to sustain two parallel cables, from each of which I suspend sections of rail, forming a single-rail continuous track, the sections of which are united at their ends by flexing or loose joints. Two tracks upon which suspended cars may be run in opposite directions are thus provided. At suitable intervals the structures supporting the cables are converted into stations, at each of which two attendants, one for the up-line of cars and the other for the down-line, are required.

Further description of the general organization of my improvements with the details of construction are hereinafter more fully set forth. They are clearly illustrated in the accompanying drawings, in which—

Figure 1 is an elevation showing a general view of my elevated railway. Fig. 2 is a transverse section taken between the supports and indicating the support in view as built for a passenger-station. Fig. 3 is a transverse section, on an enlarged scale, showing a suspending-cable, a rail-suspending link, a hanger, and a car-wheel resting on the rail. Fig. 4 is a side elevation illustrating the same subject-matter.

The supports A may be located twenty rods apart, and may each consist of four uprights suitably anchored at the curbing of a street, and converging toward each other at the top, where, as well as at intermediate points, as shown, they are suitably braced. The two uprights on each side of the street converge toward each other, as shown in Fig. 1, and are connected to a cross-piece A′, which connects the pairs of uprights on opposite sides of the street, which also converge toward each other, as shown in Fig. 2. The cables B B extend over the tops of these structures and have a natural dip or fall, like the cables of a suspension-bridge, between their supports. From each cable a series of links or rods C, clamped upon the cable by any suitable clips *c*, depend, and from each link a laterally-curved hanger C′ is suspended. The hangers C′ are preferably of a uniform length, while the links C vary in length to accommodate the dip or fall of the cable between the supports. At their upper ends the hangers C′ are flexibly connected to the links C, and at their lower ends are bolted to and support the vertical T-rails D directly under or in the same plane as the cable.

At the abutting ends of the rails a connection like that shown in Figs. 3 and 4 is preferably employed. One of the rails has in it a transverse aperture or slot *d*, in which a hub *d′* on the hanger fits, but has play endwise. On the opposite sides of the abutting ends of the rail a fish-plate D′ is bolted to the solid rail and to the end of the hub *d′*, projecting through the slot in the other rail. By this construction, it will be perceived, a certain amount of flexibility or elasticity, both in vertical and horizontal lines, is given to the track.

By discarding the idea of a necessarily rigid track and accepting the idea of an elastic, yielding, or vibrating track I am enabled to make the whole structure, including both the supports A and the sustaining-cables B, of the lightest character, thus increasing the facility and rapidity with which such a structure may be erected, and reducing the expense to a minimum. All the strains and weight on each track are directly in line with its sustaining-cable B, and where cars are located all along the line of the cable at equal intervals the weight is evenly distributed, and relatively light cables may be employed.

Cars E may be suspended from the rails D by hangers *e*, each connected with the top of the car and having at its upper end a horizontal frame or truck, in which two carrying-wheels *e′* in line with each other are mounted in suitable bearings. Two such trucks or hangers may be provided for each car. At suitable intervals, and, if desired, between each pair of opposite hangers C′, a rigid cross-rod

F unites the opposite hangers and serves to steady the two tracks, prevent their swaying somewhat, and add strength to the structure.

I claim as of my own invention.

1. The combination, substantially as hereinbefore set forth, of a series of supports, a pair of rail-suspending cables strung thereon, rail-supporting links, clamping devices for attaching the links to the cables and from which the links depend in true vertical planes, curved rail-supporting hangers flexibly connected to the links at their lower ends, and a series of rails connected together to form two parallel tracks and arranged directly under or in the same vertical planes as the cables and the links.

2. The combination, substantially as hereinbefore set forth, of a series of supports, a rail-suspending cable strung thereon, hangers hung from the cable, rails supported by the hangers, and flexible joints connecting the ends of the rails.

3. The combination, substantially as hereinbefore set forth, of a series of supports, a rail-suspending cable strung thereon, a series of curved hangers C′, and a series of rails placed end to end and flexibly connected and sustained by the hangers.

4. The combination, substantially as hereinbefore set forth, of the hangers C′, the abutting rails, a hub passing through a slot in one of the rails, the fish-plate, and bolts connecting it to the rail and hub.

In testimony whereof I have hereunto subscribed my name.

SILAS G. RANDALL.

Witnesses:
J. E. JULIAND,
W. J. RUSSELL.