

(No Model.)

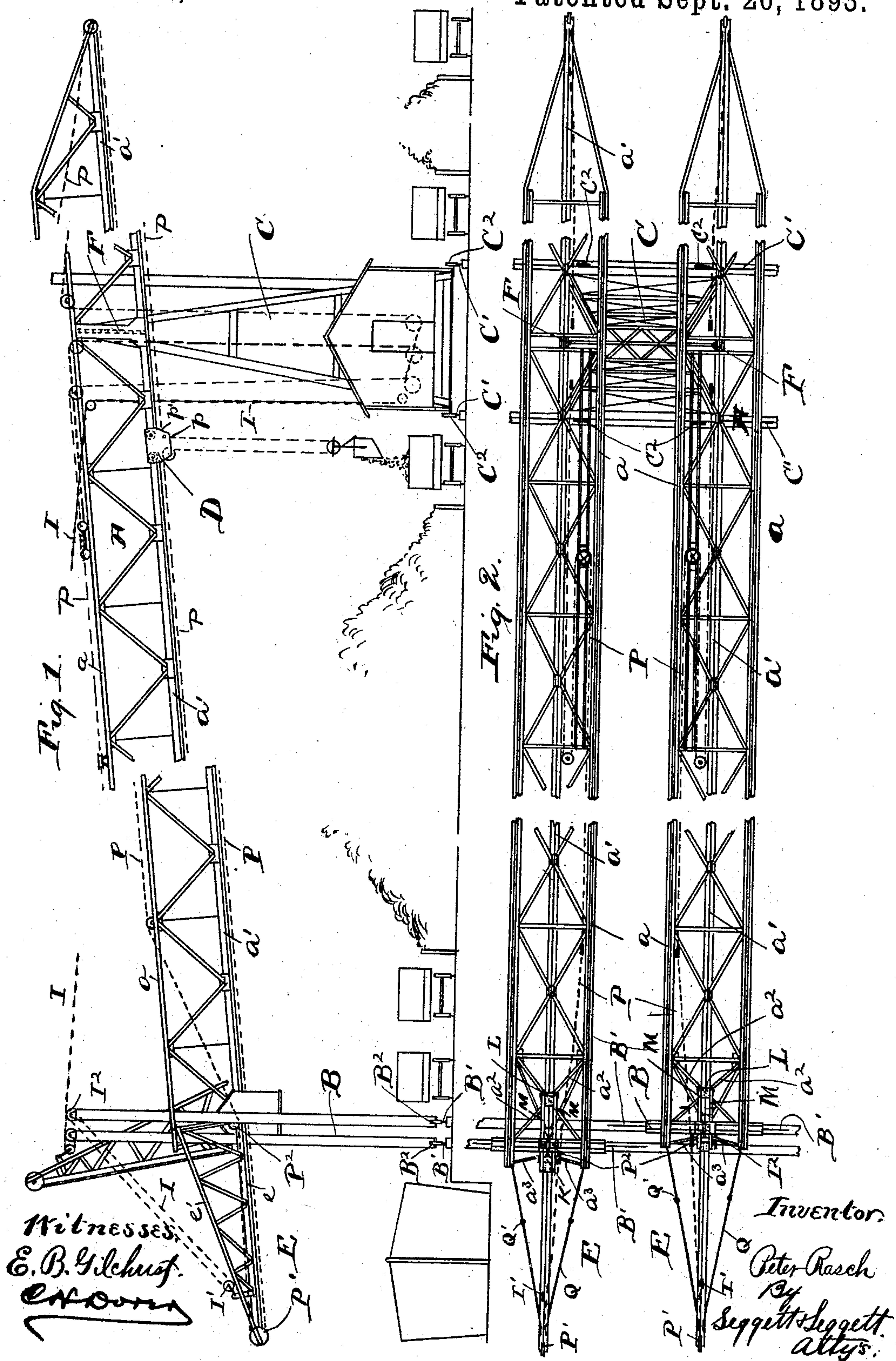
2 Sheets—Sheet 1.

P. RASCH.

## ELEVATED TRAMWAY FOR HOISTING MECHANISM.

No. 505,636.

Patented Sept. 26, 1893.



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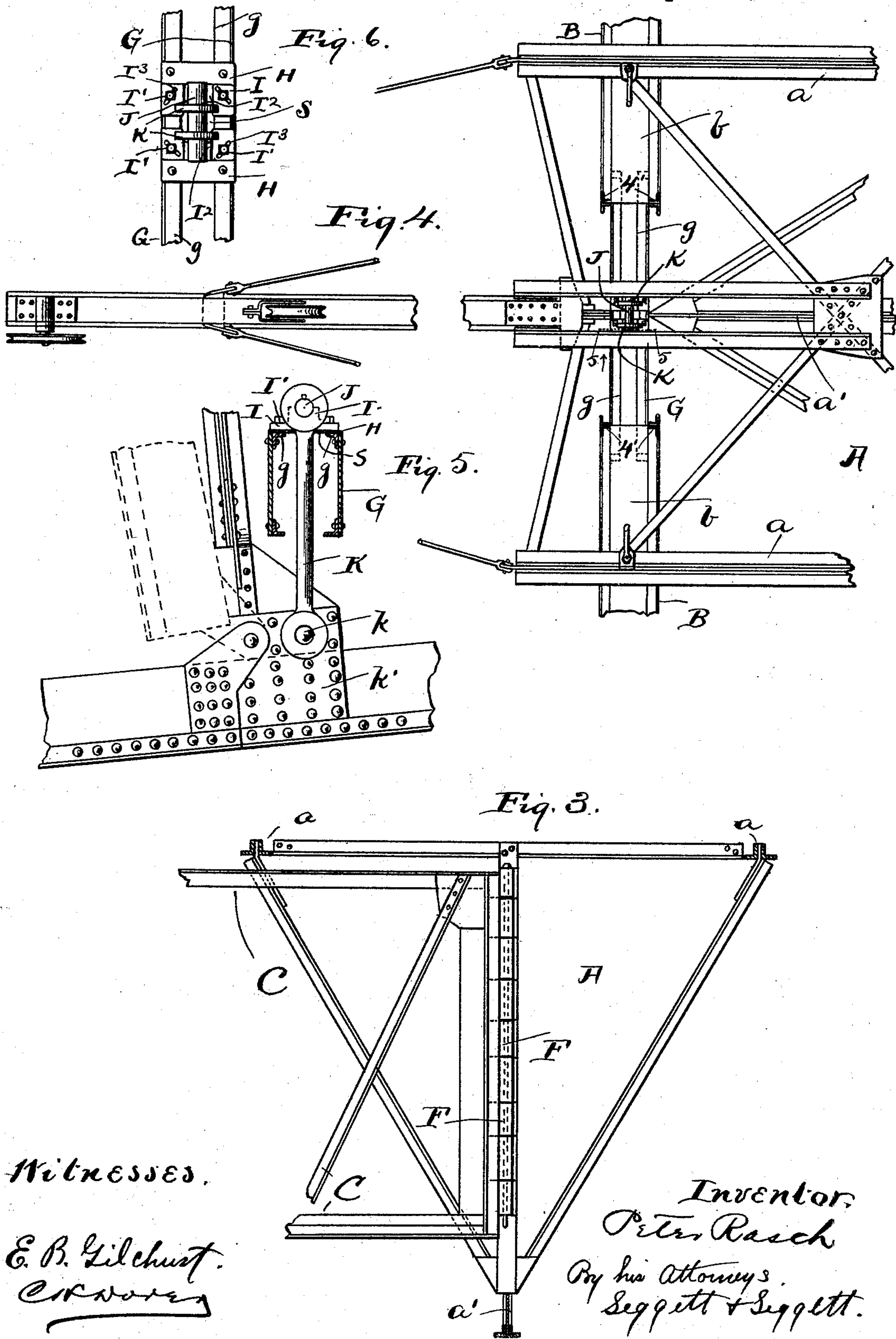
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ELEVATED TRAMWAY FOR HOISTING MECHANISM.

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Witnesses.

E. B. Gilchrist.  
*E. B. Gilchrist*

Inventor,  
*Peter Rasch*  
By his Attorneys,  
*Seggett & Seggett.*



# UNITED STATES PATENT OFFICE.

PETER RASCH, OF CLEVELAND, OHIO, ASSIGNOR TO THE KING BRIDGE COMPANY, OF SAME PLACE.

## ELEVATED TRAMWAY FOR HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 505,636, dated September 26, 1893.

Application filed October 1, 1892. Serial No. 447,577. (No model.)

*To all whom it may concern:*

Be it known that I, PETER RASCH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful  
5 Improvements in Elevated Bridge-Tramways for Hoisting and Conveying Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to  
10 which it pertains to make and use the same.

My invention relates to improvements in elevated bridge tramways for hoisting and conveying machines employed for lifting materials, such for instance, as coal and ore, and  
15 transporting them short distances—as for instance in cases where material is taken from boats at a dock and transferred to cars on tracks contiguous, on or near the dock, or to any near locality on shore, or where the material is taken from a certain locality and  
20 conveyed a short distance to another locality or to cars or boats for transportation, the object being to provide a tramway of the variety indicated that will embody simplicity in its construction and be more durable, efficient and desirable than the tramways heretofore employed.

In the accompanying drawings, Figure 1 is a side elevation of an elevated bridge tramway and hoisting and conveying apparatus embodying my invention, and Fig. 2 is a top plan of the same, portions being broken away in said figures to reduce the size of the drawings. Fig. 3 is a detail showing the manner  
35 of hinging the bridge or truss to the rear or inner tower or pier of the tramway. Fig. 4 is an enlarged top plan of the forward or outer portion of the bridge or truss, showing the upper portion of the front or outer tower broken away at 4'. Fig. 5 is an enlarged side elevation, in detail, partly in section on line 5—5, Fig. 4, looking in the direction of the arrow, illustrating the means employed for  
40 suspending the forward or outer end of the bridge or truss from the outer or forward pier or tower. Fig. 6 is a top plan of said suspending devices, showing also preferable means whereby said suspending devices are capable of turning laterally with the lateral  
50 movement of the truss or bridge, as will hereinafter fully appear.

My improved tramway comprises a bridge or truss A supported at opposite ends by a pier or tower; B representing the front or outer pier or tower, and C the inner or rear  
55 tower or pier. Bridge or truss A shown is of the triangular variety, the upper chords  $a$  and lower chord  $a'$  being arranged parallel with each other and extending lengthwise of the bridge or truss, and tied or braced together in any suitable manner, the lower  
60 chord of the truss or bridge being located centrally of the upper chords and constituting a track for the load-carriage D, said chords being tied and braced together in any suitable manner. The rear or inner pier or tower supports the engine house containing the machinery for operating the cable or cables whereby the load-carriage is hoisted and  
65 propelled. Bridge or truss A, at its forward or outer end, is supplemented with an apron E adapted to extend out over boats to be loaded or unloaded at the dock. The piers or towers are mounted upon tracks arranged parallel with each other, the forward or outer  
70 pier or tower upon a single-rail track B' and the inner or rear tower or pier upon a two-rail track C', the piers or towers being adapted to be moved endwise of their respective tracks, being provided with wheels, B<sup>2</sup> and C<sup>2</sup>, respectively, for the purpose. To  
80 accommodate the lateral horizontal movement of the bridge or truss of either pier or tower endwise of its track independently of the other pier or tower, the bridge or truss is hinged to the rear pier or tower, as  
85 at F. (See Figs. 1 and 3.) I would here remark that there are preferably employed a pair of trusses or bridges hinged, respectively, at opposite sides of the rear tower or pier and a tower or pier B is provided for  
90 each truss or bridge, each pier or tower B having a track of its own. From an economical standpoint, the arrangement and combination just described wherein two load-carriages supporting bridges or trusses are hinged  
95 to a single rear or inner tower or pier in common, as shown, are of no inconsiderable importance, and each forward or outer tower or pier having its own track it follows that  
100 by the construction and arrangement shown the adjacent legs of said forward or outer



piers or towers can pass each other so that the two bridges or trusses and consequently the load-carriage tracks, can be brought as close to each other as practicable.

5 It is well known that the truss or bridge must be supported from the outer or forward pier or tower in such a manner that when either tower or pier is moved endwise of its track independently of the other pier or tower, 10 thereby increasing the distance between the towers, no serious strain shall be brought to bear upon any of the parts of the structure, and an important feature of my present invention consists in the comparatively simple 15 and efficient means employed for this purpose. A preferable construction is shown in the drawings, wherein a pair of horizontal channel-iron shaped beams G, arranged a suitable interval apart and parallel with each 20 other, connect the main upright members *b* of the outer or forward pier or tower. Riveted to the top of these beams and centrally of the latter is a plate, H. I represents a plate or block bolted, as at I', to the top of 25 plate H, with the bolts extending through the inwardly-projecting flanges *g* of beams G. J represents an oscillating-shaft that is arranged parallel with beams G and has bearing in plate or block I centrally of said beams, 30 plate or block I being enlarged, as at I<sup>2</sup>, to form the bearings for said shaft. Operatively mounted upon shaft J, between its bearings, is a pair of links or bars, K, that depend below the shaft and are arranged a suitable interval apart and at their opposite or lower 35 ends are pivotally secured, as at *k*, to plates, *k'*, secured to opposite sides, respectively, of the lower chord of the truss or bridge. It will thus be observed that the truss or bridge 40 is suspended from the forward or outer tower by means of said links or bars and the latter are of such length that in moving either tower or pier laterally, independently of the other tower or pier, and thereby increasing the distance between the piers or towers, they, the 45 suspending-links or bars, will accommodate such lengthening of the distance between the towers or piers without seriously straining any of the parts of the structure. Plate H and block I are of course slotted, as at S, to 50 accommodate the location and operation of said links or bars.

Referring to the securing-bolts of plate or block I it will be observed that a bolt is provided at each side of the bearings of shaft J 55 and that the holes in plate I, for the passage of said bolts, are diagonally elongated, as at I<sup>3</sup>, in such a manner that when either of the towers or piers is moved endwise of the track 60 independently of the other pier or tower said plate and consequently shaft J and suspending-links or bars K, will be permitted to turn or move in a direction corresponding to that in which the truss or bridge is moved, thereby 65 by preventing any strain being brought upon any of said parts.

While I desire to claim the details of construction embodying my invention, on account of their simplicity and efficiency, I do not wish to be understood as limiting the 70 scope of my invention to said details, and reference may be made in this connection to the fact that certain features are disclosed but not claimed in this application which are claimed in application, Serial No. 445,576, 75 filed even date with the present application.

What I claim is—

1. The combination with two piers or towers, and a bridge or truss hinged to the one pier or tower so as to be capable of swinging 80 or moving laterally in a horizontal plane, of one or more links or bars pivotally secured to the other tower or pier and to the bridge or truss, substantially as and for the purpose set forth. 85

2. The combination with two piers or towers, and a bridge or truss hinged to the one tower or pier so as to be capable of swinging or moving laterally, of one or more suspending links or bars pivotally secured at opposite 90 ends to the other tower or pier and the bridge or truss, respectively, and suitable means whereby said suspending bar or bars are adapted to turn or move with the lateral movement of the bridge or truss, substantially as 95 and for the purpose set forth.

3. The combination with two piers or towers and a bridge or truss hinged to the one tower or pier so as to be capable of swinging or moving laterally, of an oscillating-shaft 100 supported by the other tower or pier, one or more depending links or bars operatively mounted upon said shaft and pivotally connected at their lower end with the bridge or truss, and suitable means whereby said shaft 105 and suspending-links or bars are adapted to turn or move with the lateral movement of the truss or bridge, substantially as and for the purpose set forth.

4. The combination with two piers or towers and a bridge or truss pivoted to the one tower or pier so as to be capable of being swung or moved laterally, of one or more cross-beams or members rigid with the other tower or pier, a plate or block bolted to said cross- 115 beams or members, an oscillating-shaft having bearing in said block or plate, one or more suspending links or bars operatively mounted on said shaft and pivotally connected with the truss or bridge, said shaft-bearing plate 120 or block being slotted to accommodate the location and operation of said suspending-bar or bars, and the bolt-holes being elongated diagonally in such a manner that said shaft-bearing block or plate shall be capable of 125 turning or moving with the lateral movement of the bridge or truss, substantially as set forth.

5. The combination with two single-rail tracks, B', and a double-rail track, C', arranged substantially as indicated, and a pier 130 or tower mounted upon each of said tracks,



of two trusses or bridges supported at one  
end, in common, by the tower or pier mounted  
upon the double-rail track, and supported at  
the opposite end, respectively, by one of the  
5 piers or towers on the single-rail tracks, said  
towers or piers being movable endwise of their  
track and independently of one another, and  
the connection of said bridges or trusses with  
the respective towers or piers being such that  
10 said trusses or bridges may be moved later-

ally toward or from each other, substantially  
as set forth.

In testimony whereof I sign this specifica-  
tion, in the presence of two witnesses, this 22d  
day of August, 1892.

PETER RASCH.

Witnesses:

C. H. DORER,  
WARD HOOVER.