

P. RASCH.

HOISTING AND CONVEYING TRAMWAY MECHANISM.

No. 505,638

Patented Sept. 26, 1893.

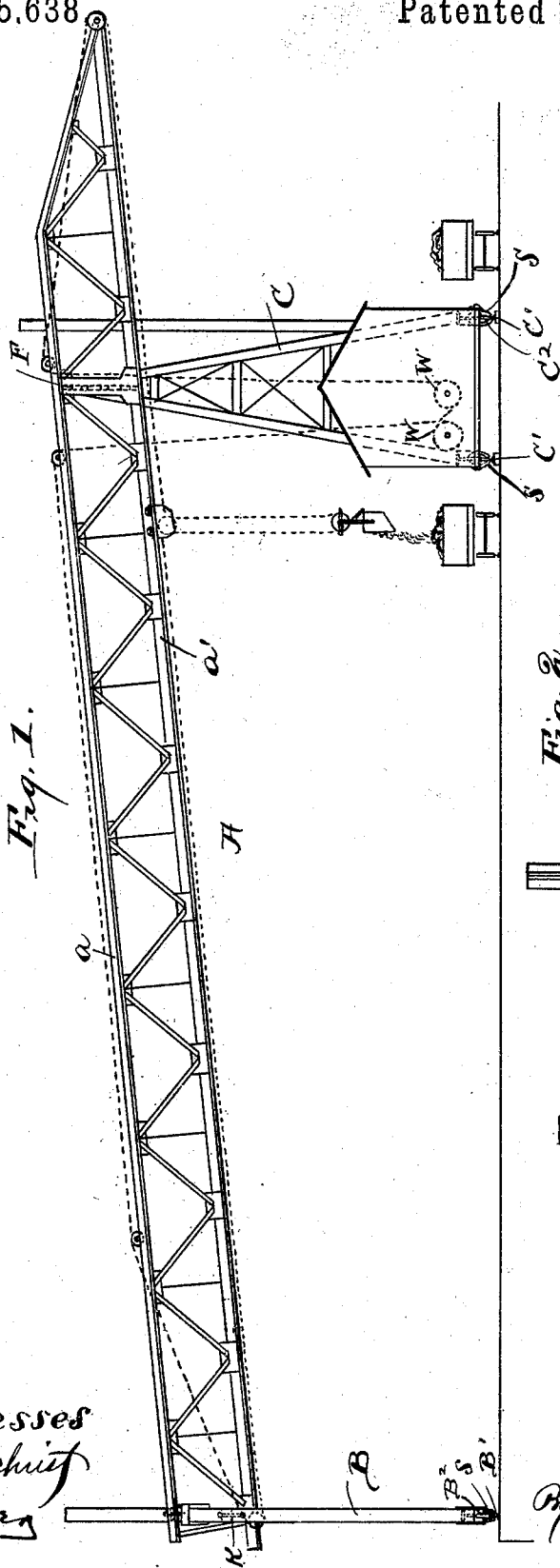


Fig. 1.

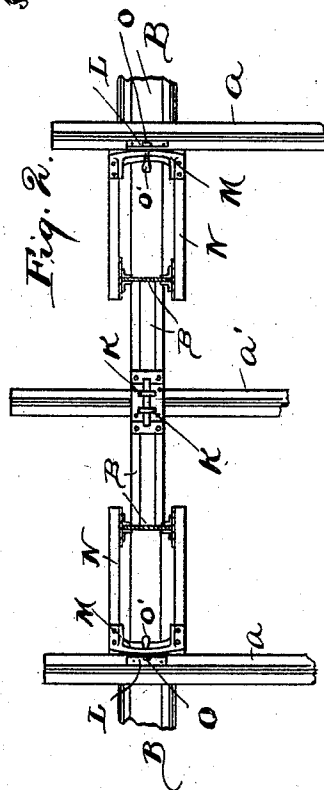


Fig. 2.

Witnesses
E. B. Gilchrist
C. A. Vorr

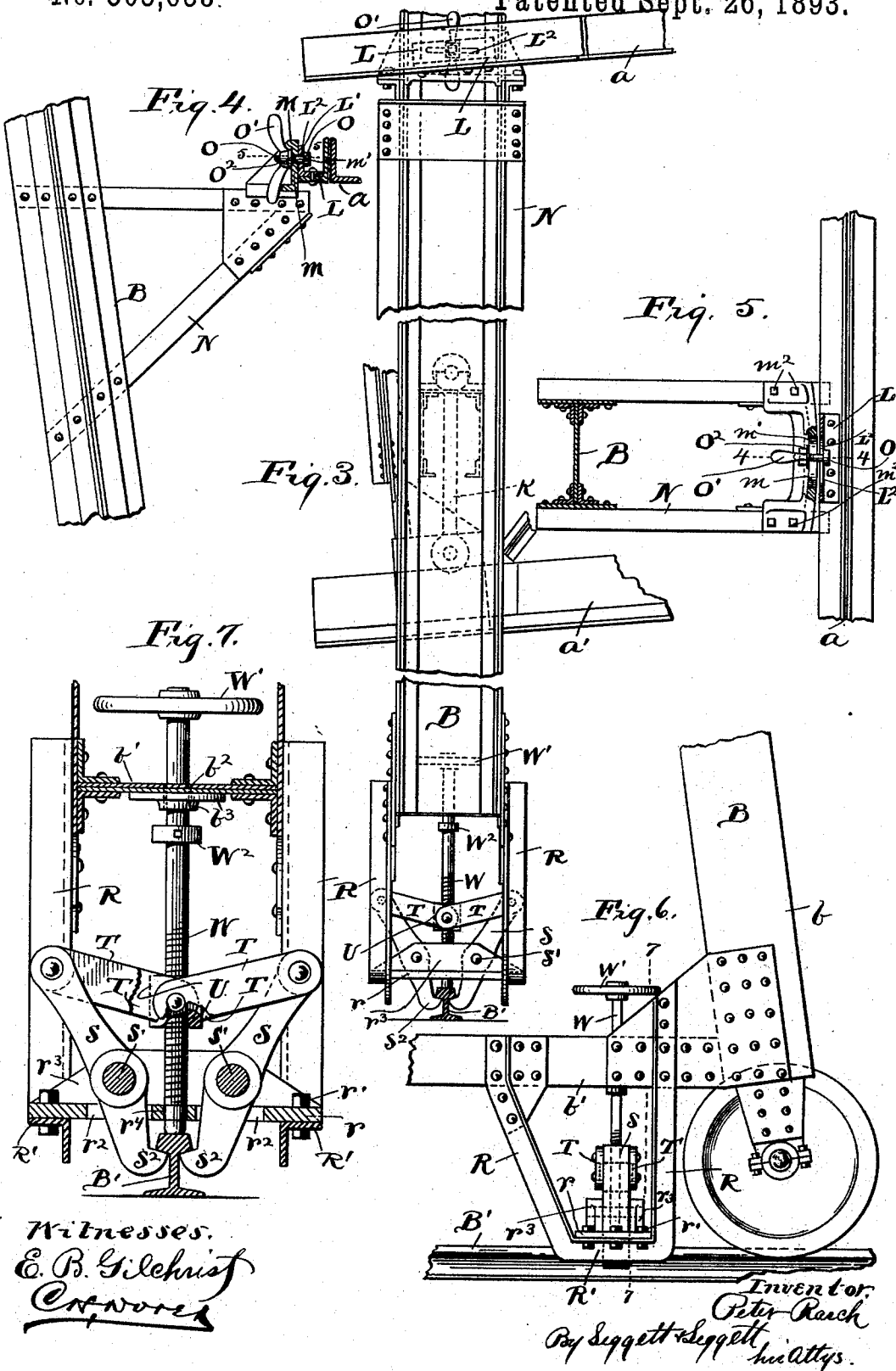
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UNITED STATES PATENT OFFICE.

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

HOISTING AND CONVEYING TRAMWAY MECHANISM.

SPECIFICATION forming part of Letters Patent No. 505,638, dated September 26, 1893.

Application filed November 21, 1892. Serial No. 452,727. (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 wherein the load-carriage track is supported by an elevated truss
15 or bridge and wherein the truss or bridge is supported by towers or piers provided with wheels that are mounted upon and adapted to move along upon a track; wherein the bridge or truss is supported from the towers
20 or piers in such a manner that when either tower or pier is moved endwise of its track, thereby increasing the distance between the towers or piers, no serious strain shall be brought to bear upon any of the parts of the
25 structure.

My present invention consists, first, in the simple means for more efficiently supporting the outer end of the bridge or truss and more rigidly securing said end of the truss and adjacent tower together, but means so composed or constructed as to be adapted for accommodating the aforesaid movement of either tower or pier endwise of its track independently of the other pier or tower.

35 My invention consists, secondly, in the simple, durable and convenient means employed for securely clamping the piers or towers to the track endwise of which they are adapted to be moved.

40 In the accompanying drawings, Figure 1 is a side elevation of an elevated bridge-tramway and hoisting and conveying apparatus. Fig. 2 is a plan of the forward or outer portion of the bridge or truss. Fig. 3 is an enlarged elevation of the outer end of the bridge
45 or truss, showing the outer tower or pier, the means employed for suspending said end of the truss or bridge from the adjacent pier or tower, and the means employed for securely clamping said tower to the track below, portions being broken away to reduce the size of
50

the drawings and the wheels upon which the tower is mounted being removed. Figs. 4 and 5 show an enlarged side elevation and plan, respectively, of my improved means for
55 more efficiently supporting the outer or forward end of the truss or bridge, Fig. 5 being partly in section on line 5—5, Fig. 4, and Fig. 4 being in section on line 4—4, Fig. 5. Fig. 6 is an elevation of a portion of a tower or pier
60 exhibiting the means employed for clamping the towers or piers to the track endwise of which the pier is adapted to be moved. Fig. 7 is an enlarged elevation in vertical section on line 7—7, Fig. 6, a portion being broken
65 away to more clearly show the construction.

Referring to the drawings, A represents the elevated truss or bridge; B the front or outer tower or pier; C the rear or inner pier or tower.

The truss or bridge and towers or piers are
70 of any suitable construction. The truss or bridge shown is composed of two upper chords a a and a lower chord a' , said chords being arranged parallel with each other and extending lengthwise of the truss or bridge and tied
75 and braced together in any suitable manner, the lower chord being located centrally of the upper chords and constituting a track for the load-carriage.

The piers or towers are mounted upon tracks
80 arranged parallel with each other, the forward or outer tower or pier upon a single-rail track, B', and the rear or inner pier or tower upon a two-rail track C', the piers or towers being adapted to be moved endwise of their
85 respective tracks, being provided with wheels, B² and C², respectively, for the purpose.

The bridge or truss is hinged, at F, to the rear or inner pier or tower in any suitable manner and is suspended from the front or
90 outer pier or tower preferably a pair of upright links or bars, K, pivotally secured, at opposite ends, to the tower and truss, respectively, in any suitable manner.

It is obvious that by the manner of support-
95 ing the truss or bridge as just described, no serious strain is brought to bear upon any part of the structure when either tower or pier is moved endwise of its track independently of the other pier or tower. It is desirable, however, in addition to the support of
100 the outer end of the truss or bridge already

indicated, to still more efficiently support said end of the bridge and to more rigidly hold the bridge or truss and outer pier together. I have therefore devised the following:—To
 5 and preferably on top of each upper chord α of the bridge or truss, at opposite sides of the outer tower or pier and in the same vertical plane, is secured an angle-iron or plate, L, that (see Figs. 4 and 5) is arranged parallel
 10 with the respective chord and with its upright member L' presenting inwardly and slotted longitudinally, as at L², which slot registers with a slot, m', in the upright member m of a plate or casting, M, that is rigidly secured,
 15 preferably by means of bolts, m², to brackets N projecting laterally from and rigid with the adjacent legs of the pier or tower.

O represents a securing-bolt that extends through slots L² and m' in members L' and
 20 m respectively, with their heads abutting the outer side of member L', and O' represents a nut, preferably a thumb-nut, as shown, mounted on the correspondingly threaded shank of the bolt, on the inner side of member
 25 m of plate or casting M, a washer, O², being interposed between the nut and member m.

By the simple, durable, inexpensive and convenient means just described, the bridge or truss is adequately supported at its outer
 30 or forward end, and without interference with the lateral movement of the truss or bridge hereinbefore referred to, slots m' and L² in member m and L', through which the securing bolt passes, accommodating the lateral
 35 movement of the truss or bridge. Upon loosening nut O' on securing-bolt O, and the tramway having been given the required position, said nut is again tightened and the truss or bridge thereby rigidly secured to the
 40 respective tower or pier.

Although I have shown and prefer the employment of a supporting-bracket O and attachments at each side of the outer tower or pier, I do not wish to be understood as limiting
 45 myself in this respect, because one of said brackets and attachments at one side of the tower or pier only, would be advantageous, and if found desirable one or more additional securing-bolts O might be employed.

Referring next to the improved means employed for securely clamping the towers to the tracks upon which they are mounted, to
 50 rigidly hold the towers or piers, when the tramway is in proper position, to their tracks, I would remark that such clamping mechanism is preferably provided in suitable proximity
 55 to each wheel of the tower.

Referring to Figs. 3, 6 and 7 of the drawings, b represents a leg of one of the towers
 60 or piers and b' represents an eye-beam or strut that extends parallel with the track upon which the wheels of the tower or pier are mounted and ties the adjacent legs of the tower, at their lower ends, together. To the
 65 outer side of each head of beam or strut b', in suitable proximity to each wheel of the tower, is secured a depending bracket, R,

preferably U-shaped, as shown, and composed of angle-iron. A bracket R thus depends or
 70 hangs from the tower or pier at either side of the rail upon which the adjacent wheel of the tower is mounted.

r represents a plate that is secured, preferably by means of bolts r', on top of central
 75 members R' of brackets R. Plate r at opposite sides of the head of the rail below, is slotted, as at r², to accommodate the location and operation of clamping-bars, S, that are pivoted, as at S', to and between upwardly-
 80 projecting flanges, lugs or members r³ of plate r. Clamping-bars S, at their lower ends, terminate in jaws, S², that are adapted to engage and clamp the lower side of the head of the rail. At their upper ends said clamping-bars
 85 are operatively connected, by means of links T, with a nut, U, the screw-threaded perforation whereof is engaged by a corresponding upright screw, W, that, at its lower end, is adapted to
 90 bear upon the head of the rail, plate r being perforated, as at r⁴, to accommodate the passage of said screw, and plate r therefore serves as a guide for the lower end of the screw. Screw W extends upwardly through
 95 beam or strut b', the latter being perforated, as at b², for the purpose. Strut b' therefore serves as a lateral guide for the upper end of screw W and is preferably reinforced, as at b³, to enlarge the bearing surface of the screw. The stem of screw W, at its upper end is provided
 100 with a crank or hand-wheel W' for operating the screw, and, at a suitable point below strut b', the screw-stem is provided with a collar or shoulder, W². The arrangement of parts is such that upon turning screw W in the direction to cause the lower end of same
 105 to engage the head of the rail, when such engagement has been effected, by continuing to turn screw W in the same direction, nut U will be elevated, thereby actuating links T and clamping-bars S, to cause the clamping-
 110 jaws to firmly engage and clamp the lower side of the head of the rail while the screw bears upon the top of said rail, and in this position of parts, collar or shoulder W² is below or out of contact with strut b'. To un-
 115 clamp the tower or pier from the rail, screw W is of course turned in the opposite direction until collar or shoulder W² on the stem of the screw engages beam b' whereupon by continuing to turn the screw in the same direction it is quite obvious that nut U will be
 120 lowered, resulting in the actuation of links T and clamping-bars S to effect a disengagement of clamping-jaws from the head of the rail.

By the construction just described, it will be observed that but one operation is required
 125 in actuating the clamping-mechanism, viz., that of turning screw W, and the mechanism is therefore very convenient. The mechanism, besides, embodies great simplicity, durability and efficiency.

Referring again to the mechanism for clamping the towers to the rail or rails of the

track below, I would remark that the construction shown very clearly in Figs. 6 and 7, whereby a pair of links T are provided for each clamping-bar but secured, respectively, to opposite sides of nut U, is of no inconsiderable importance, for by said construction the rotation or turning of nut U is positively prevented. Adjacent links of opposing pairs of links at the point of attachment to nut U, would, of course, be halved together where they overlap each other.

What I claim is—

1. The combination with an elevated bridge or truss and two towers or piers supporting said truss or bridge, the latter being supported in such a manner that either pier or tower is adapted to be moved laterally independently of the other tower or pier, of one or more brackets projecting laterally from the one pier or tower, and suitable means for rigidly securing the truss or bridge to said bracket or brackets, substantially as set forth.

2. The combination with an elevated truss or bridge and two towers or piers supporting said bridge or truss, the latter being supported in such a manner that either tower or pier is adapted to be moved laterally independently of the other pier or tower, of one or more laterally projecting brackets rigid with the one tower, an upright plate supported by said brackets, an angle-iron or upright plate secured to the truss or bridge, a bolt and nut for securing said upright plate or member of the bracket or brackets to the aforesaid upright plate or upright member of the aforesaid angle-iron of the truss, the bolt holes being elongated lengthwise of the truss, substantially as and for the purpose set forth.

3. The combination with an elevated bridge or truss and two towers or piers for supporting said truss or bridge, the latter comprising two upper chords and being supported in such a manner that either tower or pier is adapted to be moved laterally independently of the other pier or tower, of a bracket projecting laterally from the one tower or pier into suitable proximity to one of the upper chords of the truss or bridge, an angle-plate or iron secured to and extending lengthwise of said chord, an upright plate or member supported by said bracket, a bolt for securing said upright plate or member and angle-iron together, the bolt-holes being elongated endwise of said members, substantially as and for the purpose set forth.

4. The combination with an elevated truss or bridge composed of three chords suitably tied and braced together and arranged the one centrally below the other, and two towers or piers for supporting said bridge or truss, the latter being supported in such a manner that either tower or pier is adapted to be moved laterally independently of the other pier or tower, the one pier or tower, below the upper chords, being provided, at each side, with a laterally-projecting bracket, an upright plate or member supported by each of

said brackets, and extending lengthwise of the adjacent upper chord of the bridge or truss, an angle-plate or iron secured to each of said chords next to and arranged parallel with the upright plate or member of the adjacent bracket, one or more bolts and nuts for securing said angle-plates or irons to the aforesaid upright plate or member of the adjacent bracket, the bolt-holes being elongated lengthwise of the members provided with them, substantially as set forth.

5. In mechanism for clamping the towers or piers to the rail or rails upon which they are mounted, the combination with the tower or pier, and a pair of clamping bars pivotally connected with the tower and terminating at their lower ends in jaws for clamping the lower side of the head of the rail, of an upright screw adapted to bear upon the head of the rail, and suitable means operatively connecting the clamping-jaws with said upright screw for simultaneously actuating said jaws to clamp or release the head of the rail, substantially as set forth.

6. In mechanism for clamping the piers or towers to their supporting-rail or rails, the combination with an upright screw adapted to bear upon the head of the rail, a nut mounted on said screw and a stop to limit the upward movement or elevation of said screw, of a pair of clamping-bars adapted to clamp the under side of the head of the rail and operatively connected with the aforesaid nut, the arrangement of parts being such that the clamping-bars are simultaneously actuated to release or clamp the rail according as the aforesaid nut is elevated or lowered by turning the screw in the one direction or the other, substantially as set forth.

7. In mechanism for clamping the piers or towers to their supporting-rail or rails, the combination with an upright screw, a nut mounted on said screw, a stop to limit the upward movement or elevation of said screw, of a pair of clamping-bars for clamping the under side of the head of the rail at opposite sides of the web of the latter, respectively, links operatively connecting said clamping-bars with the aforesaid nut, the arrangement of parts being such that when the screw, upon turning the same, has engaged the top of the rail, the screw, by continuing to turn the same in the same direction will elevate the nut to actuate the clamping bars to clamp the rail, and when the screw is turned in the opposite direction, and has reached the upward limit of its movement, by continuing to turn the screw in the same direction, the nut will be lowered and thereby actuate the clamping-bars to disengage or release the rail, substantially as set forth.

8. The combination with the tower or pier, and rail upon which said tower or pier is mounted, the tower or pier at or near its lower end having a transverse beam or strut, of a pair of brackets rigidly secured to said strut and depending at opposite sides of the rail,

respectively, a plate supported by said brackets a suitable distance above the rail, said plate having one or more upright flanges, an upright screw extending upwardly through
5 the aforesaid strut of the tower and adapted to bear on top of the rail, the aforesaid flanged plates being perforated for the passage of said screw, a nut mounted on the threaded portion of said screw, a shoulder or collar on
10 the screw below the aforesaid strut for limiting the upward movement or elevation of the screw, and a pair of clamping-bars pivoted to the flange or flanges of the aforesaid flanged-plate and operatively connected with the
15 aforesaid nut, the arrangement of parts being such that upon turning the screw, after it has reached the upward limit of its movement, the aforesaid nut will be operated to actuate the clamping-bars to disengage or re-
20 lease the rail, and by turning said screw in the opposite direction after the same has engaged the head of the rail, the nut will be op-

erated to actuate the clamping-bars to clamp the rail, substantially as set forth.

9. In mechanism for clamping the piers or 25 towers to their supporting-rail or rails, the combination with an upright screw adapted to bear upon the rail, a nut mounted on said screw and a stop to limit the upward movement or elevation of the screw, of a pair of 30 clamping-bars for clamping the rail from opposite sides, respectively, and a pair of links operatively connecting each clamping-bar with the aforesaid nut, the links of each pair of links being pivoted to opposite sides of the 35 nut, respectively, substantially as and for the purpose set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 1st day of November, 1892.

PETER RASCH.

Witnesses:

C. H. DORER,
WARD HOOVER.