

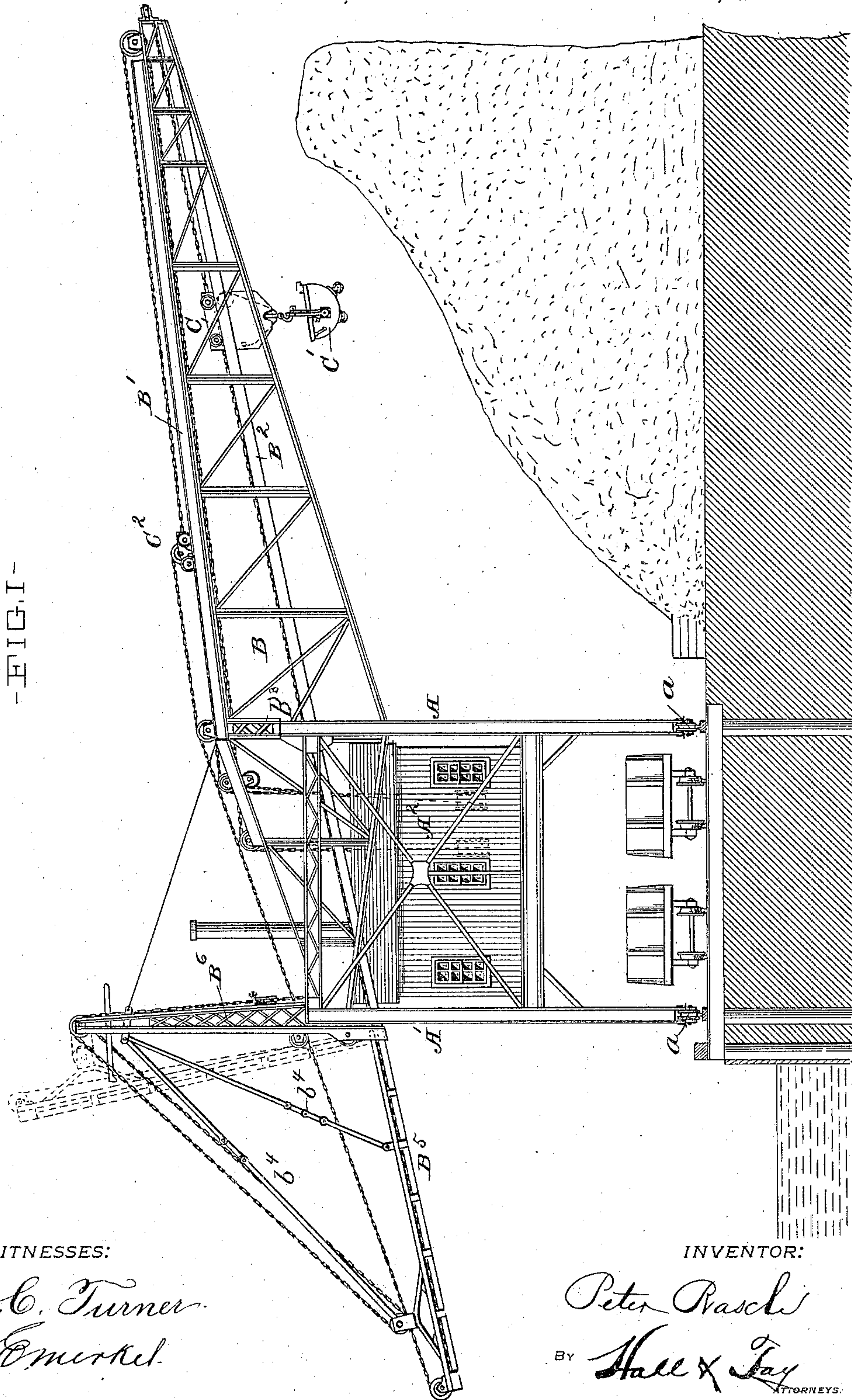
(No Model.)

3 Sheets—Sheet 1.

P. RASCH.
HOISTING AND CONVEYING APPARATUS.

No. 575,373.

Patented Jan. 19, 1897.



WITNESSES:

J. C. Turner.
A. O. Merkel.

INVENTOR:

Peter Rasch
By Hall & Jay ATTORNEYS.

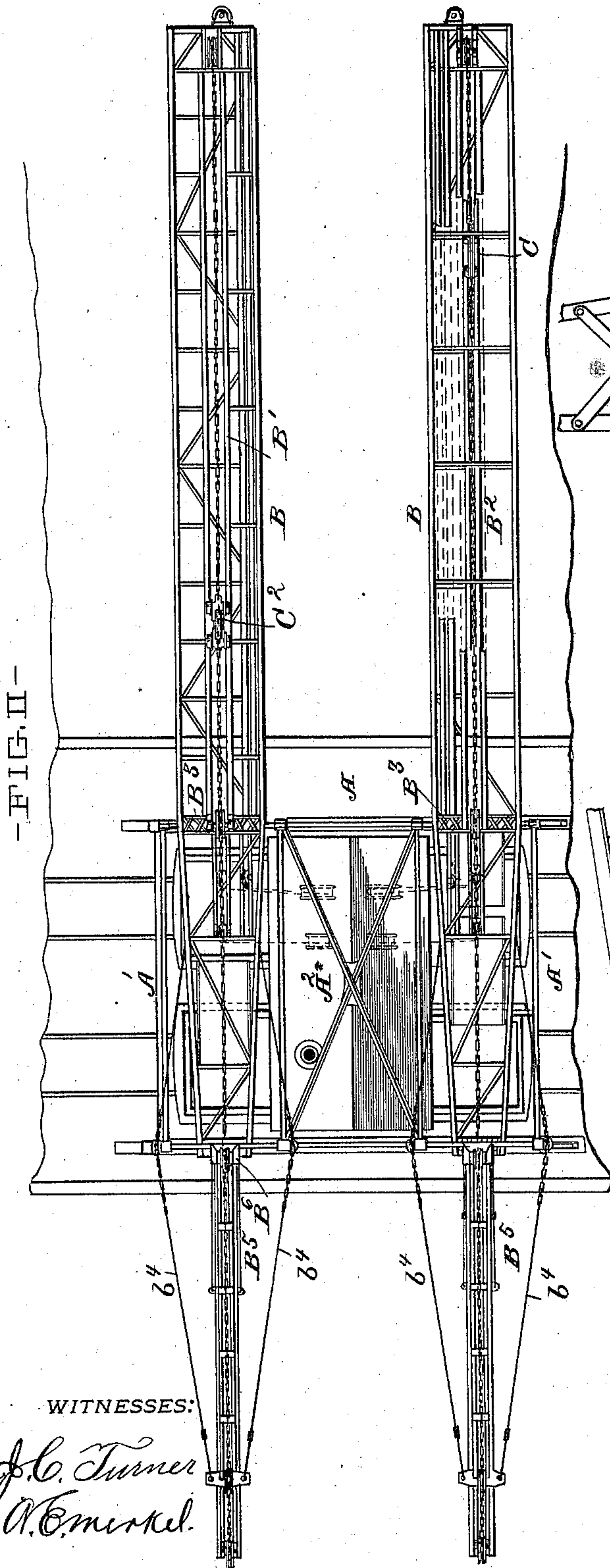
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P. RASCH.
HOISTING AND CONVEYING APPARATUS.

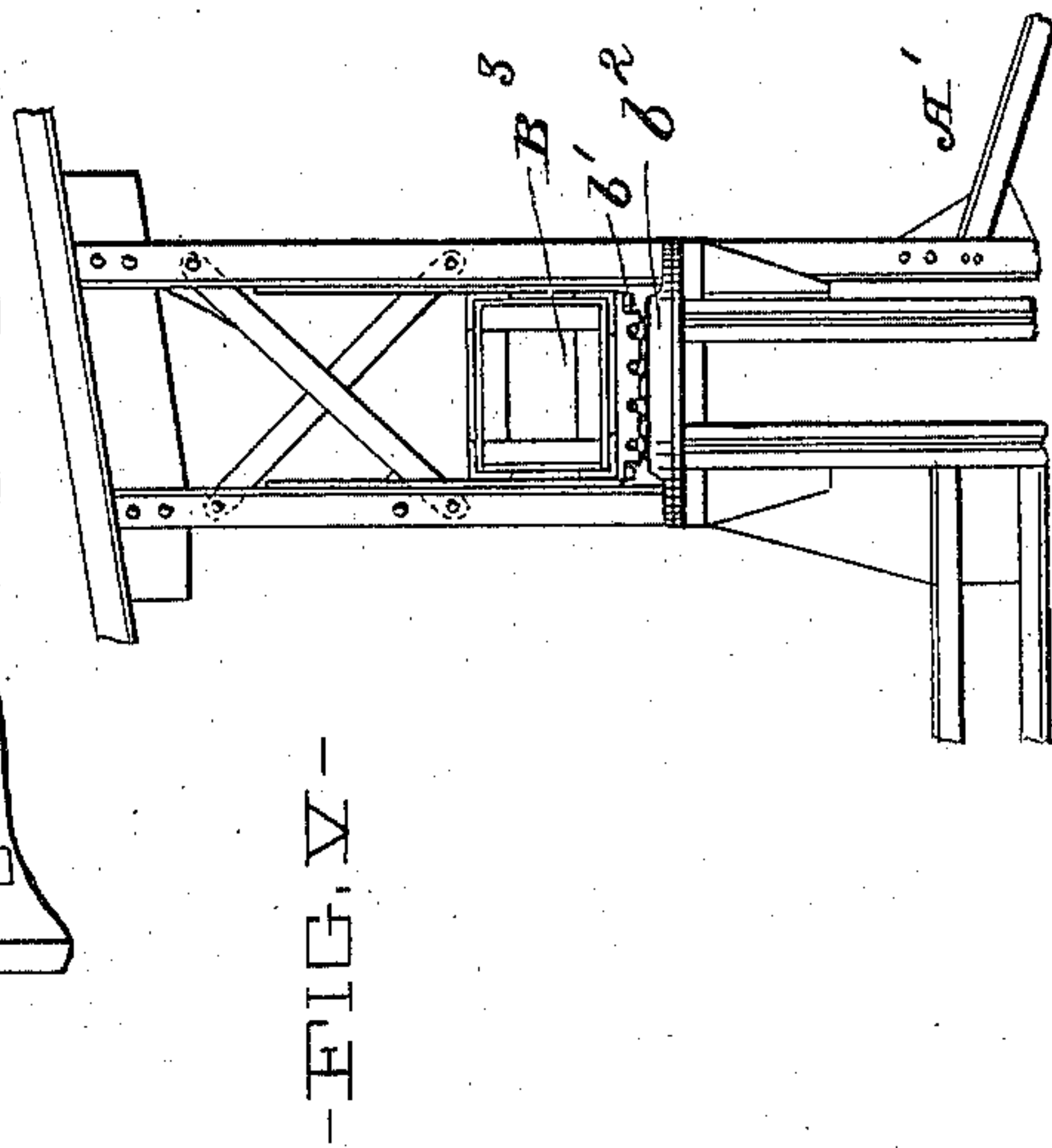
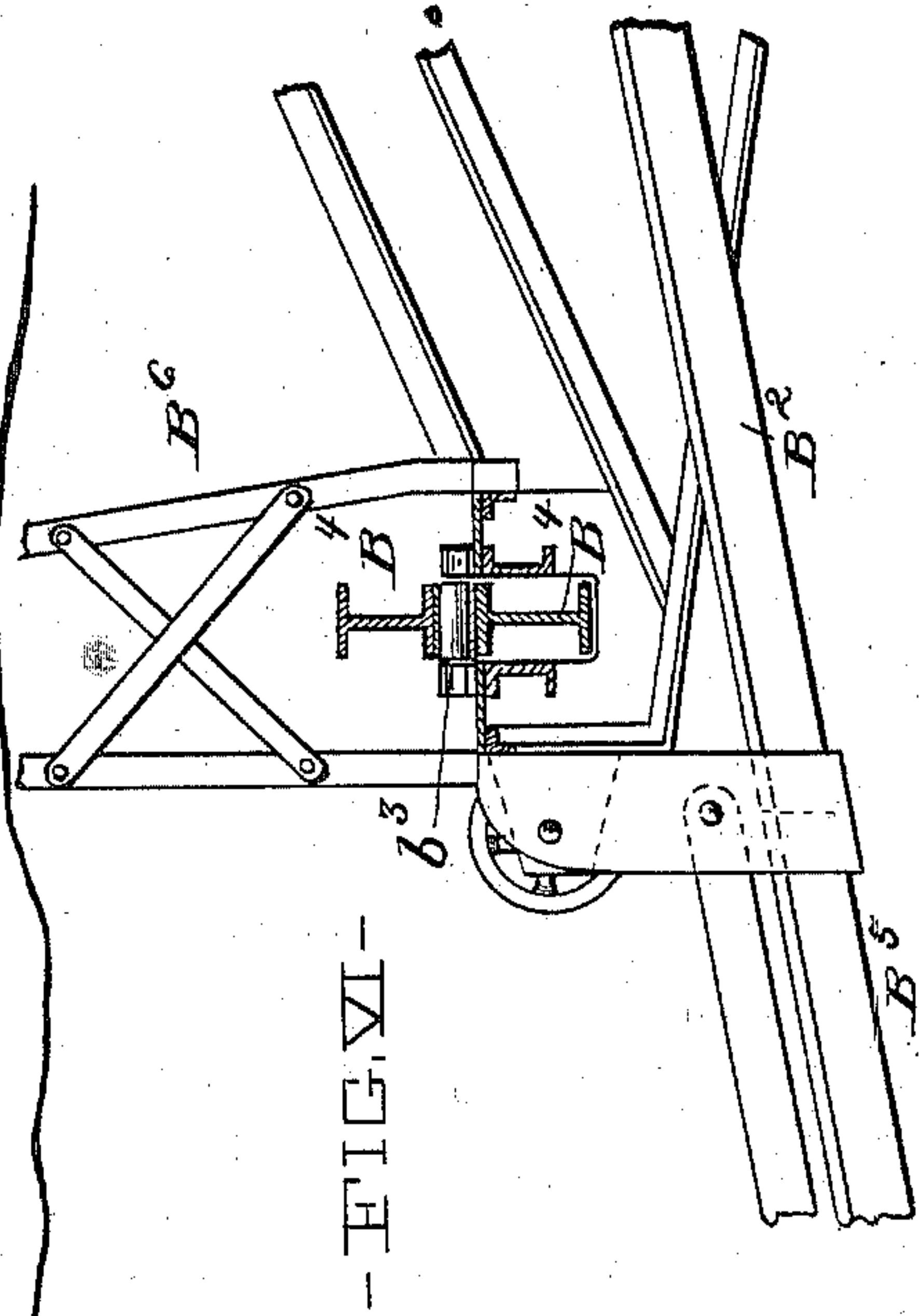
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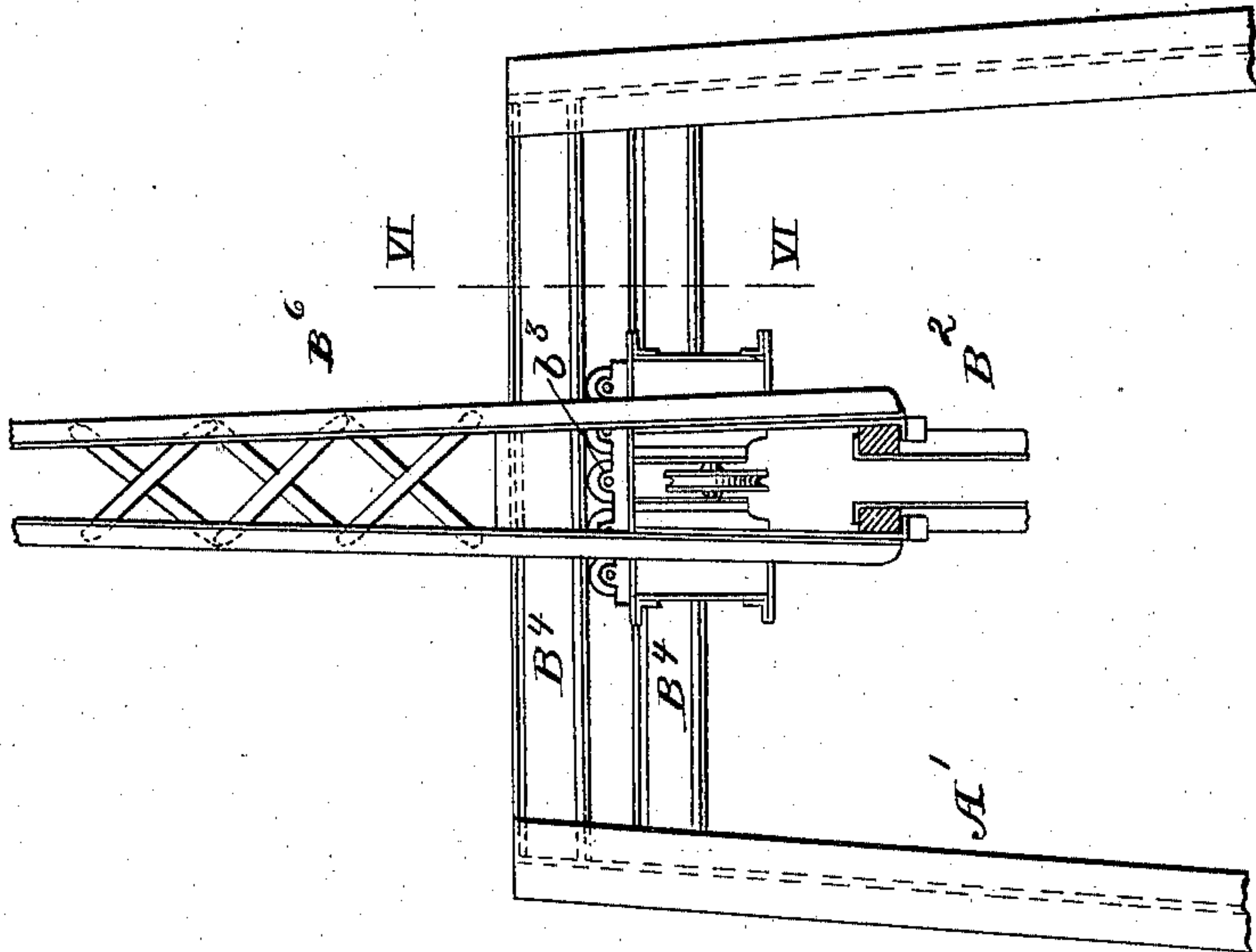
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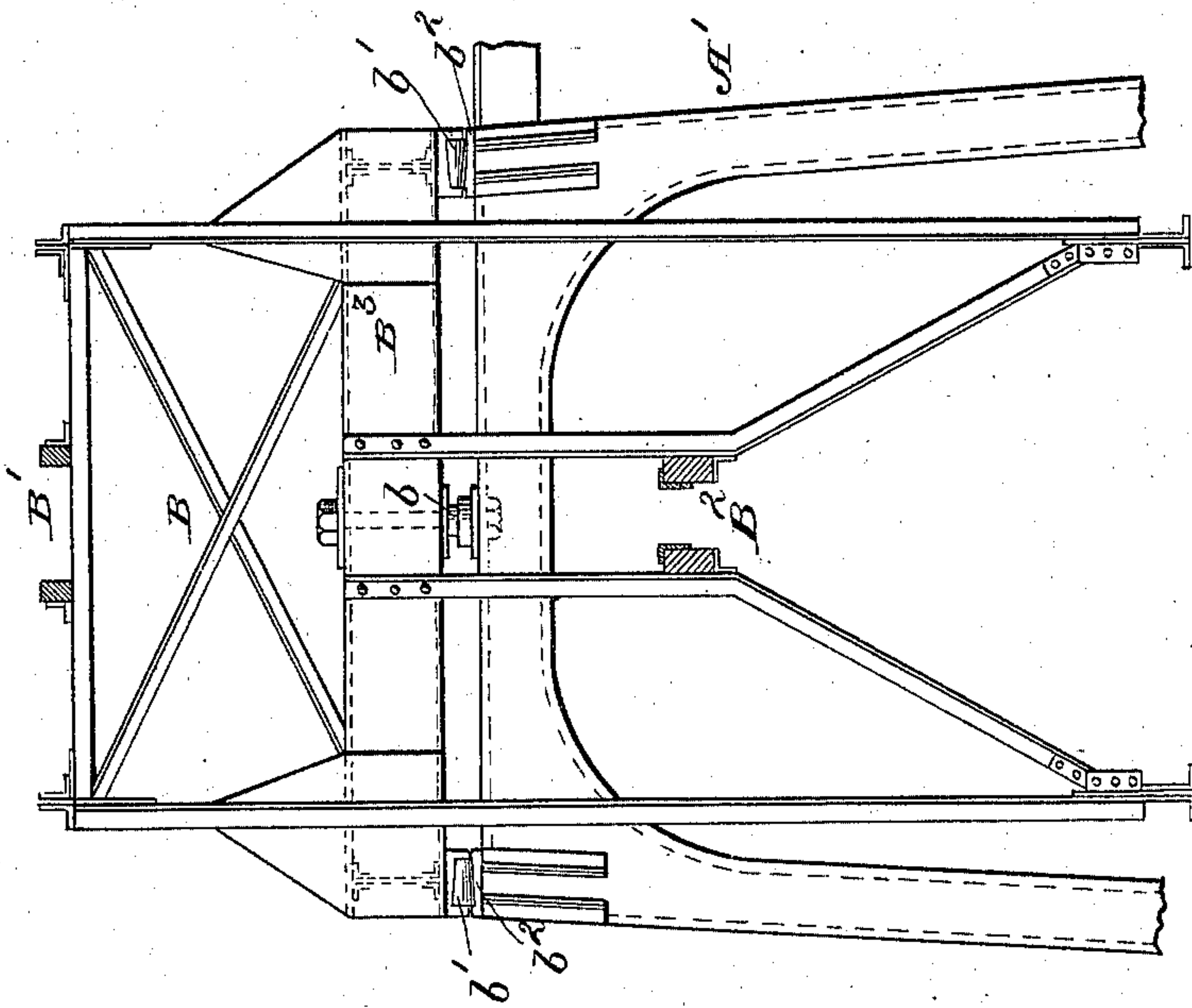
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- FIG. IV -



- FIG. III -



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

PETER RASCH, OF CLEVELAND, OHIO.

HOISTING AND CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 575,373, dated January 19, 1897.

Application filed April 25, 1896. Serial No. 589,000. (No model.)

To all whom it may concern:

Be it known that I, PETER RASCH, a subject of the King of Denmark, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Hoisting and Conveying Apparatus, of which the following is a specification, the principle of the invention being herein explained, and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention, such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of my improved hoisting and conveying apparatus; Fig. II, a top plan view of the apparatus, illustrating a portion of the top structure of one of the bridges as broken away and removed; Fig. III, an elevation of the upper portion of one of the piers, looking from the rear of the same toward the dock and showing the bridge in section; Fig. IV, a view of one of the piers, looking from the front of the same and away from the dock or water-front and illustrating the track in section; Fig. V, a detail end view of the part of the pier illustrated in Fig. III, and Fig. VI a sectional detail view on the line VI VI in Fig. IV.

The bridges are supported upon a tower structure A, which is mounted upon wheels *a*, traveling upon rails laid parallel with the water-front or other place of discharge for vessels or vehicles. The wheeled pier structure has two piers or towers A', between which an engine-house A² is supported, and upon each of which a bridge B is supported. The bridge consists of an upper nearly horizontal track B¹ and a lower inclined track B². The tracks and the entire bridge structure are suitably trussed and braced to enable the bridge structure to support the load to be hoisted and conveyed. The bridge has a transverse beam B³, which is pivoted upon a king-bolt *b*, which is pivoted upon and secured to the rear upright frame of the pier. Antifriction-rollers *b'* travel in roller-guides *b*² upon the cross-beam of the pier-frame and are journaled be-

neath the ends of the cross-beam of the bridge. The antifriction-rollers are conical and are arranged in radial relation to the king-bolt, so that they may support the bridge structure and admit of its being freely swung upon the king-bolt or pivot.

The bridge structure has a number of antifriction-rollers *b*³ at its forward end, and said rollers have transverse horizontal play between two cross-beams B⁴ at the forward upright frame of the pier, so that the forward end of the bridge may swing freely and will be held against tilting under the weight supported by the bridge structure. A jib B⁵ is pivoted to swing in a vertical plane at the forward end of the bridge structure, and is supported to form a continuation of the lower track by means of links *b*⁴, pivotally connected to the jib and to an upright B⁶ upon the forward end of the bridge. Suitable means for raising and lowering the jib are provided. A trolley-carriage C, from which the hoisting-bucket C' is supported, travels upon the lower bridge-track, and a trolley-carriage C² travels upon the upper bridge-track. Said trolley-carriages are moved and the bucket is raised and lowered by the same means as described and claimed in United States Letters Patent No. 505,637, granted to me on the 26th day of September, 1893, as assignor to the King Bridge Company, Cleveland, Ohio, and said mechanism needs, therefore, no further description.

This apparatus is particularly designed for discharging coal, ore, or similar substances from a vessel lying at the wharf-front to piles upon the wharf or into railroad-cars upon the wharf, or to convey such substances from the vessel at or cars upon the wharf to the hold of the vessel. In loading or unloading a vessel it is desirable to be able to unload from or to load into a number of hatches. The distances between the hatches of vessels are, however, different, and for this reason the two bridges are made laterally adjustable, so that the jibs of the two bridges may be adjusted directly above the two hatches of a vessel. It is desirable to unload from or load into at least two hatches, and to operate two hoisting and conveying devices from one engine. It is also desirable to have the engine located in the supporting structure, so that

such structure may move from place to place. This can be accomplished by providing two bridges, upon each of which a hoisting and conveying bucket may be carried. If, however, said bridges are not provided with means for laterally adjusting them and the bridges are rigidly supported upon the piers, the difference of distances between the hatches on different vessels would often render one of the bridges and its hoisting and conveying mechanism useless. By providing for the lateral adjustment of the bridges upon the pier structure both hoisting and conveying devices may at all times be used, as the overhanging jibs of the bridges may be brought closer together or farther apart, according to the location of the hatches. The antifric-tion-roller arrangement at the forward and rear upright frames of the piers admits of the lateral adjustment of the bridges being made with but slight exertion of power.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, provided the principles of construction set forth respectively in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In hoisting and conveying apparatus, the combination with a pier structure, of two or more bridges solely supported by and adapted to have lateral motion upon said structure, substantially as set forth.

2. In hoisting and conveying apparatus, the combination with a pier structure, of two or more cantaliver bridges solely supported by and separately pivoted upon said structure, whereby they may be swung to vary the distance between their ends, substantially as set forth.

3. In hoisting and conveying apparatus, the combination of a pier structure, two or more cantaliver bridges solely supported by and separately pivoted, and adapted to have independent motion upon said structure, whereby the distance between the supply ends of the bridges may be varied, a driving mechanism supported on said pier structure, and carriers traveling upon said bridges connected to be operated from said driving mechanism, substantially as set forth.

4. In hoisting and conveying apparatus, the combination of a pier having roller-guides at the ends of the cross-beam of the rear upright frame and having two parallel cross-beams at the upper end of the forward upright frame, with a bridge pivoted upon a king-bolt at the middle of the cross-beam of the rear upright frame of the pier, antifric-tion-rollers interposed between the bridge and the roller-guides, and antifric-tion-rollers journaled upon the bridge and having play between the parallel cross-beams of the forward upright frame of the pier.

5. In hoisting and conveying apparatus, the combination of a pier structure mounted on wheels and having two upright piers and an engine-house arranged between said piers, two bridges respectively pivoted to swing laterally upon the piers and having pivoted jibs at the forward ends, and carriers traveling upon said bridges and connected to be operated from the power source in the engine-house, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 28th day of February, A. D. 1896.

PETER RASCH.

Witnesses:

A. E. MERKEL,
J. C. TURNER.