

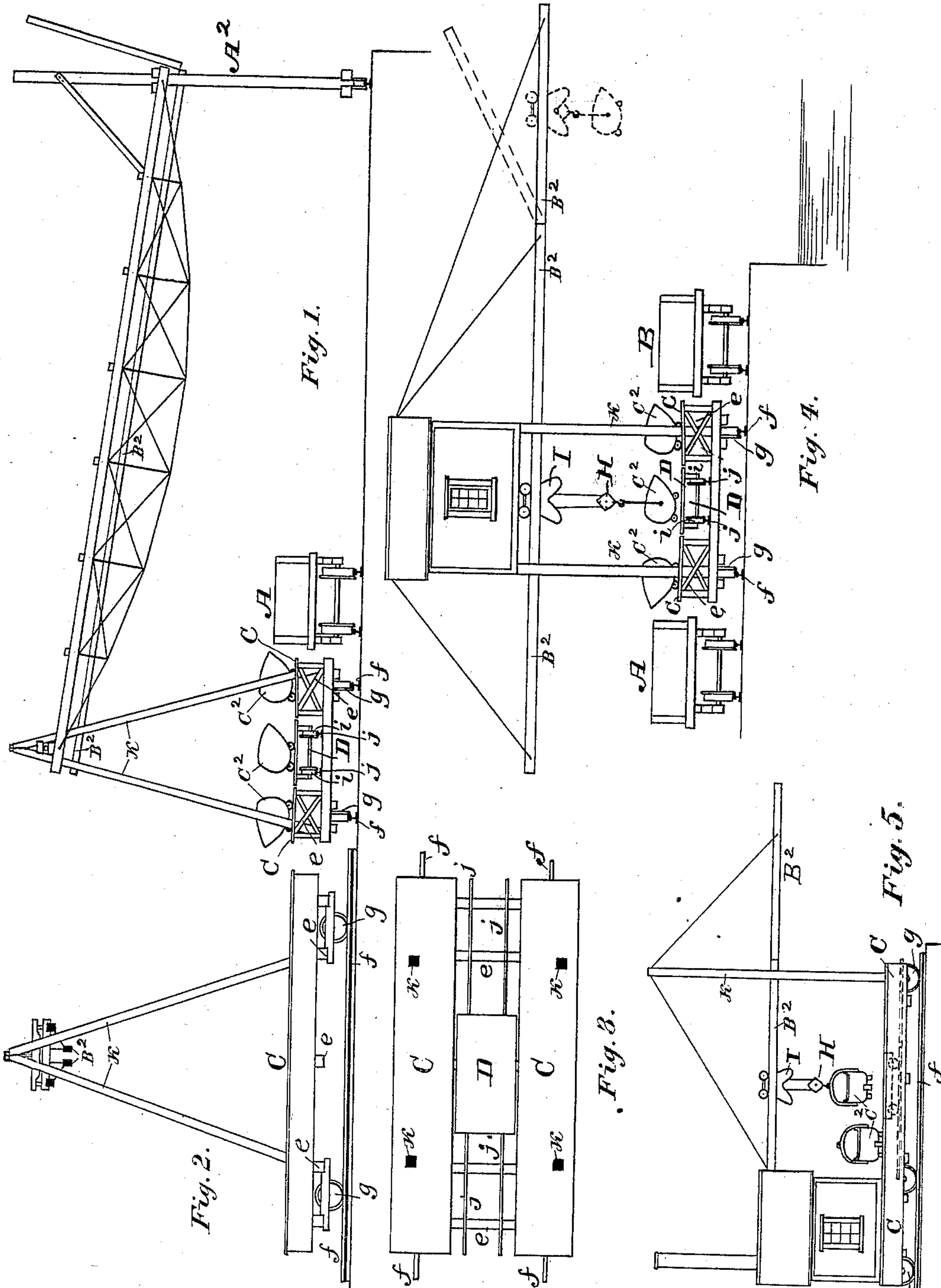
(No Model.)

2 Sheets—Sheet 1.

A. E. BROWN.  
APPARATUS FOR HANDLING MATERIAL.

No. 382,946.

Patented May 15, 1888.



Witnesses,

W. J. Graham,  
H. Hansen,

Inventor,

Alex. E. Brown,

By J. V. M. Tuttle  
Att'y.

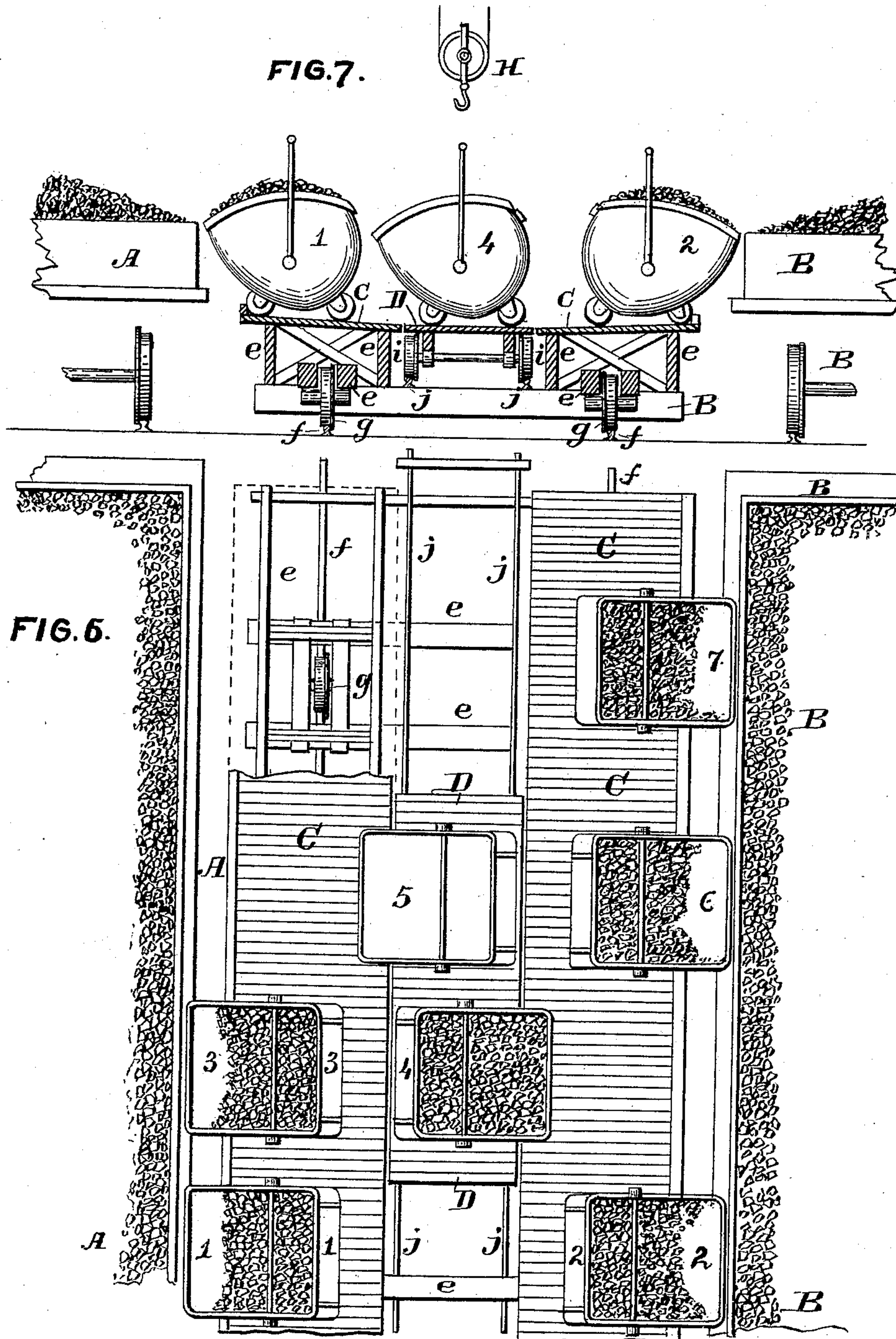
(No Model.)

2 Sheets—Sheet 2.

A. E. BROWN.  
APPARATUS FOR HANDLING MATERIAL.

No. 382,946.

Patented May 15, 1888.



ATTEST.  
*J. Henry Kaiser*  
*Victor J. Evans*

INVENTOR.  
*Alex. E. Brown*  
By *J. N. McIntire*  
Attorney



# UNITED STATES PATENT OFFICE.

ALEXANDER E. BROWN, OF CLEVELAND, OHIO.

## APPARATUS FOR HANDLING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 382,946, dated May 15, 1888.

Application filed March 5, 1887. Serial No. 229,805. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER E. BROWN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful  
5 Apparatus for Handling Material in Connection with Hoisting and Conveying Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying draw-  
10 ings, making part of this specification.

Letters Patent of the United States were granted to me March 24, 1885, No. 314,424, for an apparatus for discharging the contents of vessels and cars, &c., which, as will appear by  
15 reference to my said patent, consists, essentially, in the employment, in connection with a truck adapted to receive and hold the dumping-buckets of the hoisting and conveying machine along both of its sides, of an intermedi-  
20 ate or supplementary truck, onto which the empty and loaded buckets may be run back and forth by movements from either side of the main car toward and from its middle. In using, practically and extensively, the appa-  
25 ratus made the subject of my said patent I have found out that many and great advantages may be gained in economy of construction and in durability, as well as in facility in handling materials in bulk, by having a con-  
30 trivance, such as shown in my said patent, combined directly with the single pier of any crane-like hoisting and conveying machine, or by having such apparatus combined with one of the piers of a hoisting and conveying ma-  
35 chine of that type in which a tramway is supported upon two piers.

My present invention consists, essentially, in the combination, with either one of the piers of an elevated tramway mounted on two  
40 piers, or with the single pier of any of the crane-like hoisting and conveying machines, of a bucket-shifting apparatus, such as patented to me as aforesaid.

To enable those skilled in the art to which  
45 my present invention relates to make and use a contrivance or apparatus embracing the same, I will now proceed to more fully describe my improvement, referring by letters to the accompanying drawings, which make a  
50 part of this specification, and in which I have shown my invention carried out in those forms

of hoisting and conveying machines in which I have so far practically embodied it.

In the drawings, Figure 1 is a side view of a hoisting and conveying machine of that type 55 which comprises an elevated tramway supported by a pier at each end embracing my present invention. Fig. 2 is an end or back view of the same. Fig. 3 is a plan view of the rear pier of the same and its supporting- 60 truck. Fig. 4 is an elevation of a hoisting and conveying machine of the crane-like type, (*i. e.*, of that species in which the tramway is supported by a single pier,) embracing my present improvement. Fig. 5 is an elevation 65 of still another form of elevated tramway embracing my invention. Fig. 6 is a top or plan view, on an enlarged scale, showing (partially) two of the cars seen in Fig. 4, the improved duplex truck or platform car, and the hoisting- 70 machine buckets as these parts appear in practical operation. Fig. 7 is a sectional end view on the same scale with Fig. 6 and of the parts therein shown.

Referring to Figs. 1, 2, and 3 only of the 75 drawings, A<sup>2</sup> represents one, and K the other, of the piers of an inclined elevated tramway adapted especially to the purposes of hoisting and conveying coal or ore to or from a vessel near the dock toward and into or from rail- 80 road-cars A, located on the dock.

B<sup>2</sup> represents the tramway proper, which may be of any suitable and approved detailed construction, and C<sup>2</sup> are the hoisting and conveying buckets for lifting and transporting the 85 material, and which, together with the traversing carriage from which they are suspended, as required, are manipulated by means of any of the usual appliances for such purposes through the medium of motive power applied 90 in any of the known ways.

In the form of hoisting and conveying machine seen in Figs. 1, 2, and 3 the duplex-truck contrivance is directly combined with the rear pier, K, of the elevated tramway, as 95 clearly shown, and serves as the portable support for said pier.

The duplex-truck apparatus shown is made according to my said patent, and the details of its construction will be best understood by 100 special reference to Figs. 6 and 7 of the drawings, forming part of this specification.



It will be seen by reference to said figures that the cars of transportation are arranged so that two of them, A and B, are on parallel tracks, and are so far apart as to permit the  
 5 placement between them of an intermediate track, of comparatively wide gage, on which is mounted, to travel freely, a wide platform-car, the top or floor of which, C C, is properly secured to the frame-work *e* of the car in such  
 10 manner as to leave a narrow central opening or space, in which is mounted a smaller intermediate platform-car, D, the main portion of this duplex-car contrivance being mounted so that its wheels *g* rest and travel on the tracks  
 15 *f*, while the wheels *i* of the intermediate car, D, rest and travel upon tracks *j*, supported upon the lower portion of the frame-work *e* of the main portion of said duplex-car contrivance. At 1, 2, 3, 4, &c., is seen a series of  
 20 the buckets, C<sup>2</sup>, (such as are usually employed in hoisting and conveying machines of approved styles,) adapted to be charged from the cars A B and to be then rolled from the side or main portions, C, of the duplex-car  
 25 contrivance onto the central portion D of said contrivance, and from thence lifted by the hook H of the hoisting and conveying machine I, by means of which machine and its connections the said buckets and their con-  
 30 tents are successively carried to any desired destination, in a manner well known to those familiar with the construction and operation of hoisting and conveying machines.

The side portions, C C, of my patented plat-  
 35 form-car contrivance are of such an elevation, it will be seen, that when a row of buckets—such as seen at 1 and 2, Fig. 7—is arranged along on each one of said portions their upper forward edges will come on about a level with  
 40 the top edges of the sides of the cars A and B to be unloaded, and the width of the platform contrivance is such that when these rows of buckets are placed in position at the elevation mentioned their upper forward edges will  
 45 come so close to the upper edges of the said cars A and B that the contents of said cars can very readily be shoveled directly into said buckets.

I propose to make the two side portions, C  
 50 C, of the platform slightly inclined from their outer edges toward their inner portions, as best seen at Fig. 7, for the purpose of facilitating the rolling along of the sets of buckets 1 and 2 backward from the portions C C onto  
 55 the central portion or intermediate truck, D, by which latter the said buckets are to be moved laterally. This inclination of the portions C C should be just sufficient to render the moving of the buckets 1 and 2 by hand on  
 60 their rollers or caster-wheels very easy without creating a liability of any accidental rolling down of said buckets while the latter may be getting charged or filled from the cars A and B.

65 In the operation of the improved duplex platform the contrivance is placed, as shown at Figs. 6 and 7, between the opposite cars A

and B of two trains, and the series of buckets C<sup>2</sup> are supplied to the portions C C, in the po-  
 sitions represented at buckets 1, 2, 3, 6, and 7, 7c  
 ready to be filled by having the coal shoveled directly into them from the cars. As fast as a  
 bucket shall have been loaded, it is pushed backward or run down onto the central or in-  
 75 termediate car-platform, D, in the position illustrated at the bucket No. 4, and said inter-  
 mediate portion, D, if occasion requires it, is then pushed endwise to the proper position to  
 permit one of the operatives to connect the  
 80 catch-hook H of a hoisting and conveying machine to the eye of the bail or handle of said bucket.

In practice, the return bucket (which de-  
 scends with the hook H of the hoisting and  
 85 conveying machine) comes down onto the platform or intermediate car, D, in about the position illustrated by the empty bucket No. 5 at Fig. 6, and the operative then simply dis-  
 engages the hook H from said empty bucket and engages it with the bail of the full bucket  
 90 No. 4, (said full bucket No. 4 and empty bucket No. 5 being such a short distance apart as to permit this operation,) the hoisting-  
 machine when it begins to pull up on the said  
 95 bucket No. 4 operating usually to first cause the intermediate car, D, to travel endwise a short distance until the full bucket No. 4 (to be lifted) shall have arrived at a position about vertically beneath the hoisting-machine. Immediately on the descent of the empty  
 100 bucket No. 5 and the disengagement therefrom of the hook H said bucket is pushed or rolled by one of the operatives to the first empty space on the proper side of the plat-  
 105 form C C, ready to be refilled, and during the ascent and return of the full bucket No. 4 the intermediate car, D, will have been moved to the proper position for the reception of and will have had run onto it another filled bucket  
 110 ready for the hoisting-machine when its hook H shall next again descend with bucket No. 4 in an empty condition, and so on. With a very economical disposition of hand labor a given  
 number of buckets may be kept filled, and can  
 115 be supplied to the hook H of the hoisting and conveying machine as rapidly as it may be possible to carry off and bring back the buckets.

As clearly shown at Figs. 1, 2, 3, 4, and 5, the frame-work K (or the double A-frames of the rear pier of the tramway) is supported  
 120 wholly upon and is suitably secured to the primary or main truck portions C C of the platform-car apparatus for shifting the buckets.

It is not at all important to my present in-  
 125 vention exactly what details of construction may be employed so long as the duplex-truck system be permanently combined in a proper manner with and wholly supports the pier, which rests on it, as clearly shown in the  
 130 drawings, with reference to all three of the styles of hoisting and conveying machines illustrated.

In the cases of the balanced or crane-like



hoisting and conveying machines, such as seen at Figs. 4 and 5, the vertical frame-work K or the single pier of such type of machine may of course be suitably combined permanently with the main portions C C of the duplex truck of the car system in any manner (as to details) that may seem best in the judgment of the skilled constructor.

In the instances illustrated in the drawings the material may be conveyed either to or from a boat on the river directly from or to the system of shifting-trucks shown, on which latter the buckets are successively traversed back and forth crosswise of the truck system, their contents being successively received from or discharged into the vessel and thence discharged into or received from the cars A or B at either one or both sides of the truck system or patented apparatus shown.

Of course the novel combination constituting the subject of my present invention may be found to be applicable under a variety of conditions and under many modifications as to the details of construction to other forms of

"hoisting and conveying machines" than those shown, the pith or gist of my invention resting in having substantially such an apparatus as herein shown (and as heretofore patented by me) permanently combined directly with the pier or with one of the piers of one or another form of hoisting and conveying machine in substantially the manner hereinbefore explained.

What I therefore claim as of my invention, and desire to secure by Letters Patent, is—

The combination, with a hoisting and conveying machine, of the duplex-truck device or bucket-shifting apparatus described, having mounted thereon the pier of the hoisting and conveying machine, all substantially as set forth and described.

In witness whereof I have hereunto set my hand this 31st day of August, 1886.

ALEXANDER E. BROWN.

In presence of—

E. T. SCOVILL,  
CHAS. W. KELLY.