

No. 654,629.

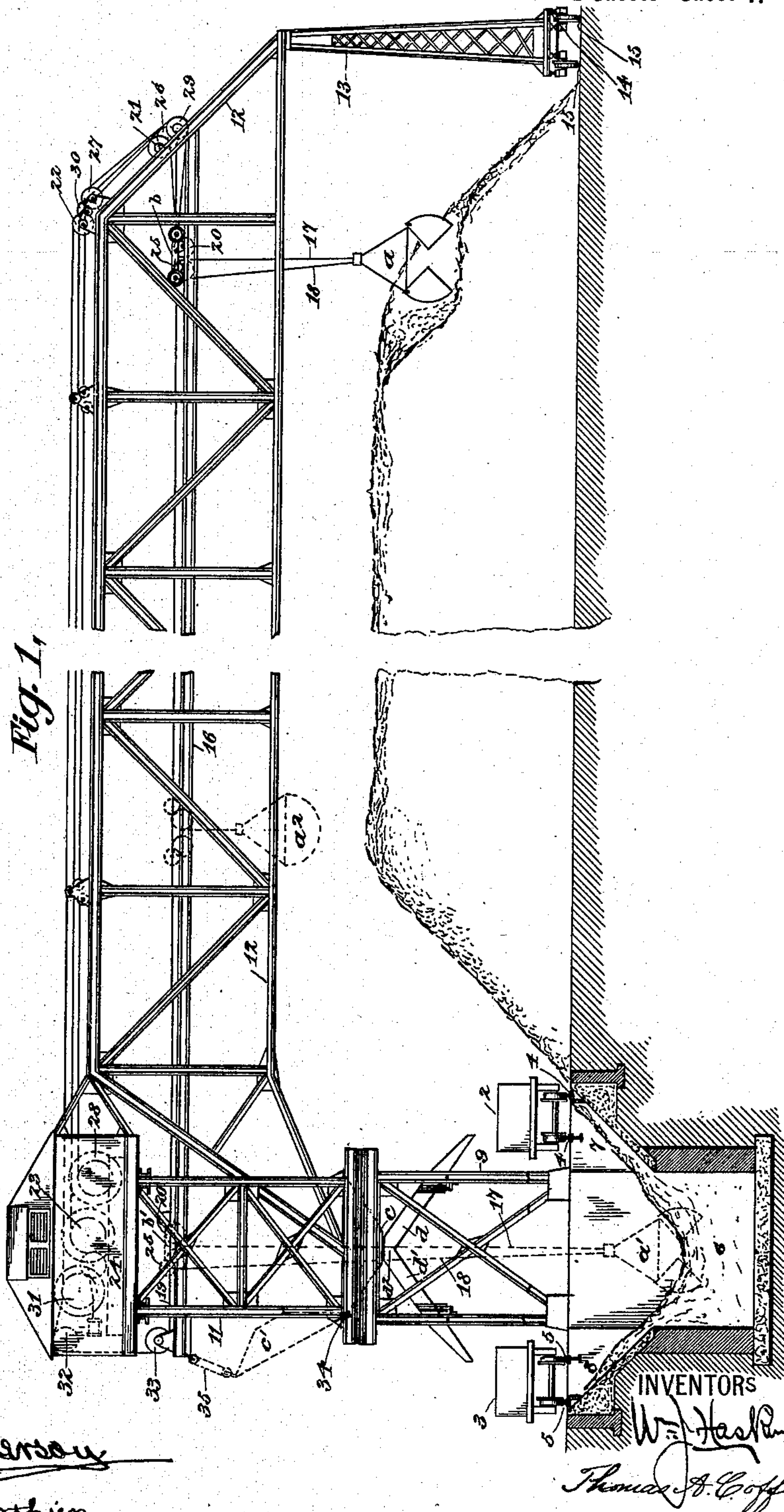
Patented July 31, 1900.

W. J. HASKINS & T. A. COFFIN.
CONVEYING APPARATUS.

(Application filed Sept. 5, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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Fig. 4.

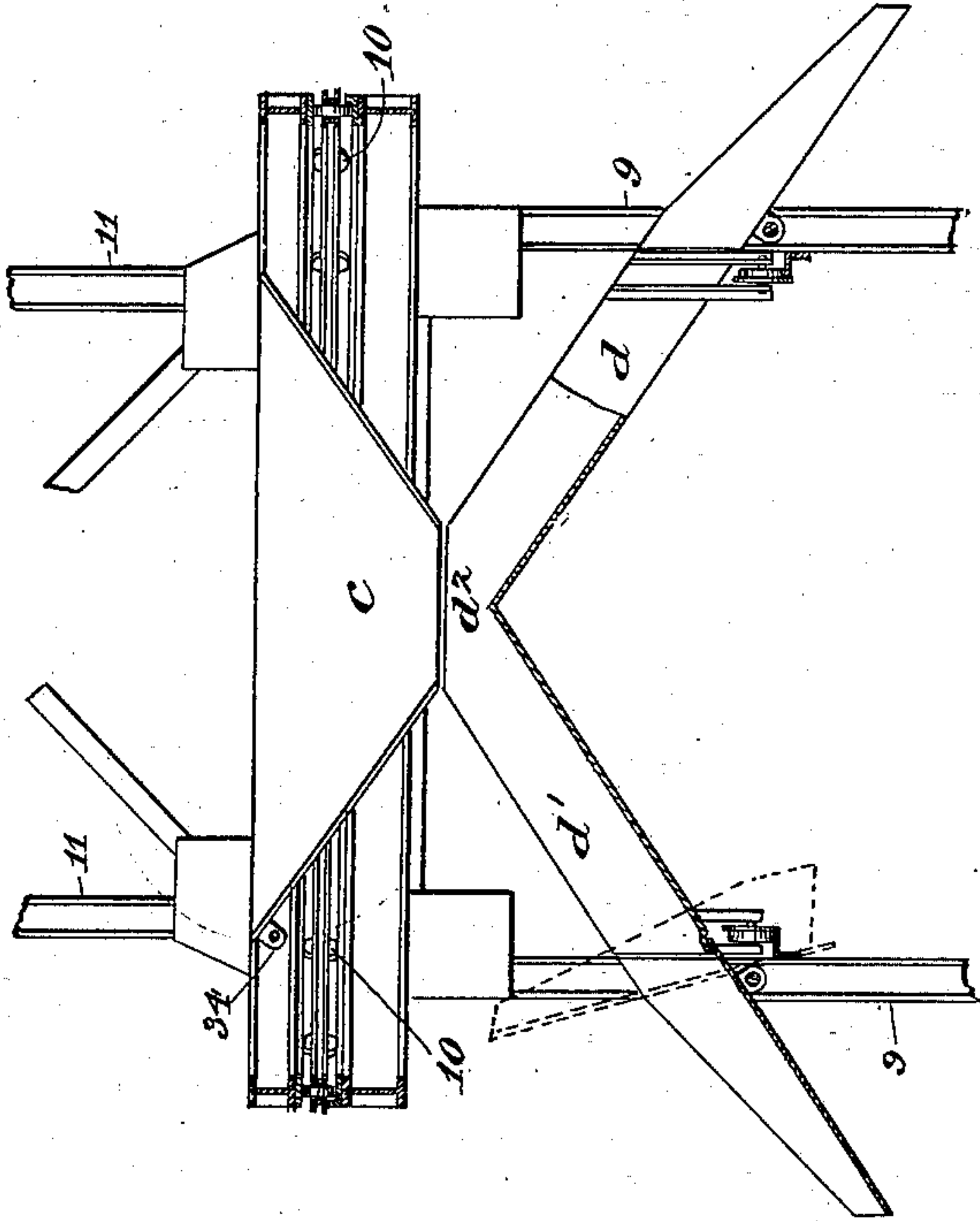


Fig. 3.

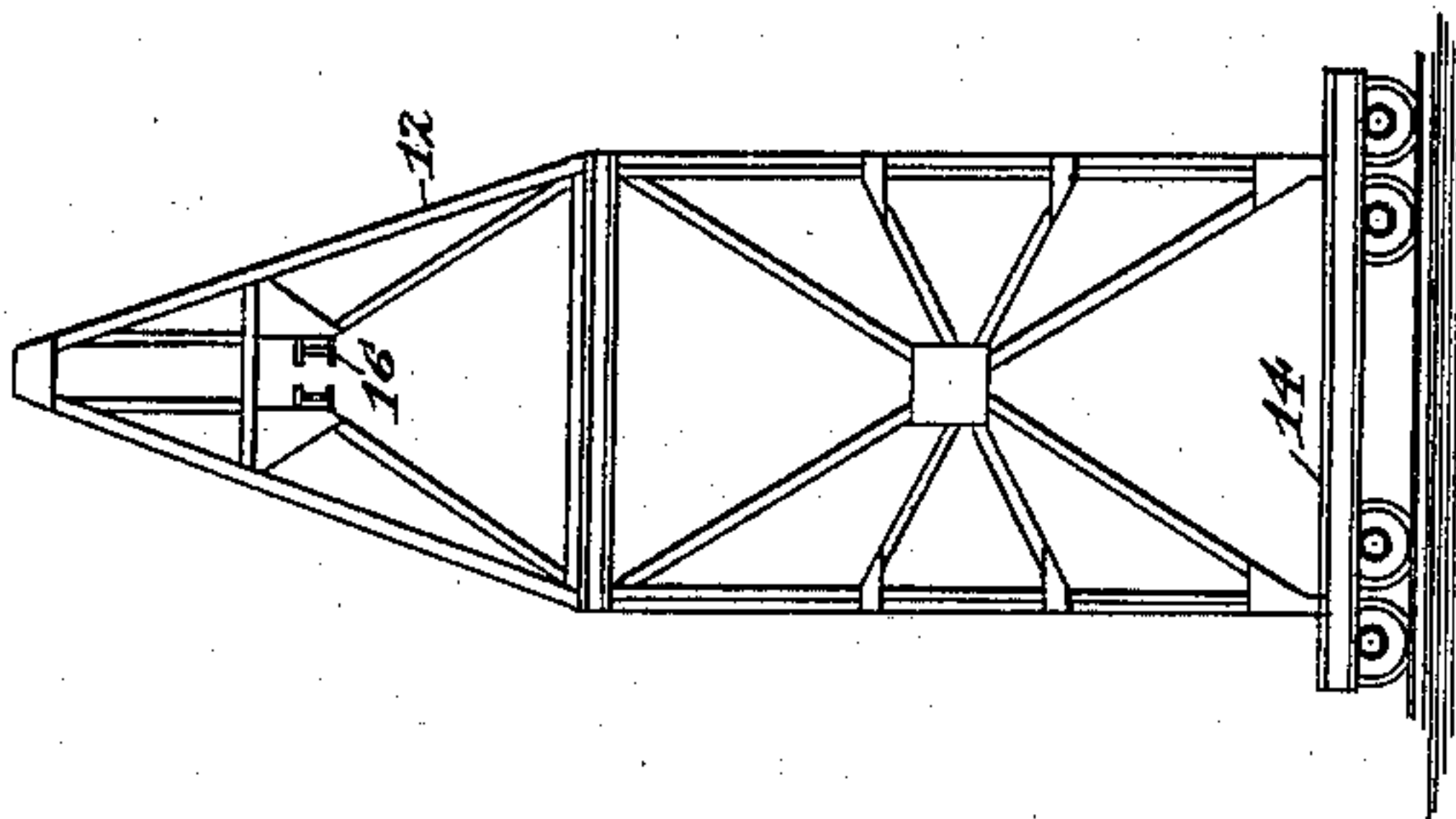
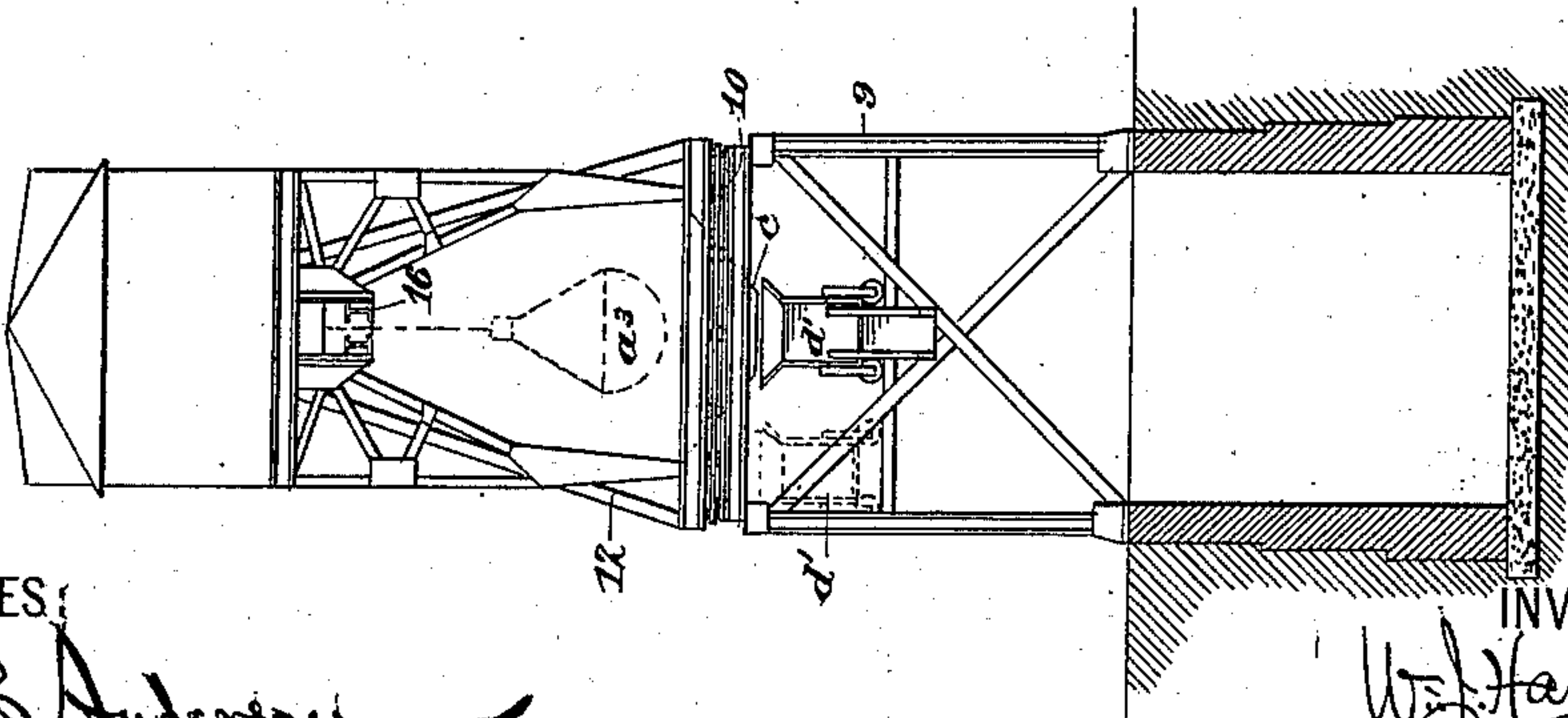


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM J. HASKINS AND THOMAS A. COFFIN, OF NEW YORK, N. Y.

CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 654,629, dated July 31, 1900.

Application filed September 5, 1899. Serial No. 729,407. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. HASKINS, a resident of New York, in the county of New York, and THOMAS A. COFFIN, a resident of New York, (West New Brighton,) in the county of Richmond, State of New York, citizens of the United States, have invented certain new and useful Improvements in Conveying Apparatus, of which the following is a specification.

It is the custom with railroads during the summer months to haul coal from the mines to a convenient locality and there store it as a reserve supply to be drawn upon during the winter season. The coal is unloaded from the cars and stored in a pile adjacent to the track and when required is loaded onto the cars for delivery. Heretofore these unloading and reloading operations have been accomplished by a plurality of conveying apparatuses at large labor and expense, and the need has long been felt of a conveying apparatus such as our present invention supplies which will perform the labor of unloading and loading expeditiously and inexpensively. In the accompanying drawings, Figure 1 is a side elevation of our apparatus, partly in section. Fig. 2 is an end elevation at the head of the apparatus. Fig. 3 is an end elevation at the tail of the apparatus. Fig. 4 is a detail of the spout-support.

1 is the coal-storage heap.

2 and 3 are coal-cars running on the parallel tracks 4 and 5. Between said tracks is the pit 6, into which lead the inclined chutes 7 and 8 from beneath the cars 2 and 3, respectively.

9 is a tower erected above the pit 6 and carrying on top the turn-table 10, upon which is supported the supplemental tower 11, carrying the inner or central end of the horizontal truss 12, the outer end of which is supported on the tail-tower 13, carried by a truck 14, running on the track 15, which track is outside of the coal-storage heap and in a circle concentric with the center of the turn-table 10.

a is an opening and closing coal-bucket, (shown also in other positions by the dotted line *a'*, *a''*, and *a'''*.)

b is the carriage (shown also in another position by the dotted lines *b'*) from which the coal-bucket is suspended and which runs from end to end of the truss 12 on the hori-

zontal trackways 16, which trackways are carried by said truss.

17 is the bucket-hoisting rope, 18 the bucket-closing rope, and 19 the carriage traction-rope. The bucket-hoisting rope 17 extends from the bucket over the carriage-sheave 20, thence around the tail-sheaves 21 and 22, mounted on the truss 12, and thence to the friction-drum 23 of the triple friction-drum engine 24, (the preferable construction of which engine is shown in United States Patent No. 541,308, dated June 18, 1895.) The bucket-closing rope 18 extends from the bucket over the carriage-sheave 25, around the tail-sheaves 26 and 27, mounted on the truss 12; and to the friction-drum 28 of said engine 24. The traction-rope 19, being secured at both ends to the carriage *b'*, extends around the tail-sheaves 29 and 30, mounted on the truss 12, to and around the friction-drum 31 of said engine 24, around the sheaves 32 and 33, and back to the carriage. The engine 24 is placed on top of the supplemental tower 11. When the carriage occupies its inward position, the bucket-hoisting rope 17 is substantially in the center of oscillation of the turn-table 10.

c is a hopper pivoted to the supplemental tower 11 at 34, which hopper may be swung upward into the position *c'* by the tackle 35. When this hopper is in the position *c*, its discharge-opening is substantially concentric with the center of oscillation of the turn-table 10, with which it turns.

d and *d'* are two spouts, the junction of which, *d''*, is provided with a receiving-opening, which in operation coincides with the discharge-opening of the hopper *c*. When in operation, the spouts *d* and *d'*, respectively, discharge coal into the cars 2 and 3 from the hopper *c*. When not in operation, the spouts *d* and *d'* are shoved laterally on their support on the tower 9 to the position shown in dotted lines in Fig. 2. A suitable form of support for the spouts on the tower 9, permitting it to be thus shoved laterally, is represented in detail in Fig. 4.

The operation of the apparatus may be described as follows: A train-load of coal arriving on the track 4 or 5 will be dumped through the chute 7 or 8 into the pit 6. The hopper *c* and spouts *d* and *d'* are in their non-operating positions (shown in dotted lines) and the

carriage is in the position b' . The operator by removing the friction from the hoisting-drum 23 and from the bucket-closing drum 28 permits the open bucket to drop into the coal, as at a' , in a position substantially concentric with the axis of oscillation of the turn-table 10. The operator now applies the friction to the closing-drum 28, whereby the bucket is closed, with a load of coal contained in it. The operator now applies the friction to the drum 23 and hoists the bucket up into the tower 11 above the turn-table. The operator now applies friction to the traction-drum 31, so that (all three drums moving in unison and being of substantially-equal dimensions) the carriage, with the loaded bucket hanging therefrom at about the elevation a^2 , is run out to any desired distance on the truss 12—as, for example, to b . The operator now releases the friction from drum 31 and applies the brake thereto and releases the friction from drums 23 and 28 in such manner as to permit the bucket to fall to the position a . He then applies the brake to drum 23, while drum 28 continues to pay out and permit the bucket to open and dump its load. Thereafter by the proper operation of the drums the bucket is raised, the carriage is run back to the position b' , and the operation before described is repeated.

When it is desired to load from the storage-heap onto cars 2 and 3, both the hopper c and the spouts d d' d^2 are moved to their operating positions (shown in full lines in Fig. 1) and the cars 2 and 3 are run into position under the spouts. The carriage being, for example, in the position b , the operator permits the open bucket to drop into the coal and closes it. He then hoists it to the level a^2 and runs the carriage back to the position b' , so that the bucket is in the position shown in dotted lines at a^3 , Fig. 2, directly over the hopper. The operator now releases the friction from drums 31 and 23 and applies the brakes thereto and releases the friction from drum 28, so that the bucket is permitted to open and its load falls into the hopper, whence it runs through the spouts d d' into the cars 2 and 3. The operator then runs the carriage back to the position b , and the operation is repeated until the cars are loaded.

The bucket is enabled to take coal from or deliver it to any point within a very large area without interfering with the operation above described or moving any part of the apparatus other than running the truck 14, carrying the tail-support, back or forth on the track 15, which may extend in a substantially-complete semicircle, so that the storage-pile covers substantially all of the space bounded by this semicircle and the track 4. Indeed, if desired, the track 15 may be extended across the tracks 4 and 5 and may form a corresponding semicircle on the opposite side of track 5, within which a corresponding pile of coal may be deposited.

By the apparatus above described a single

conveying mechanism is enabled to perform the whole work of storing the coal from the cars and reloading the cars from the storage with sufficient speed and facility of manipulation to satisfy the requirements of the business.

We claim—

1. In combination, a track 4, a pit 6, located in position to receive coal dumped from a car on said track, a tower above said pit and having a clear hoisting-opening above the pit, a pivotal support extending laterally from said tower, a trackway upon said support, a bucket-carriage upon said trackway, a bucket, and means whereby said bucket may be hoisted and lowered both within said tower and from said trackway, and means whereby said carriage may be propelled; substantially as described.

2. In a coal-storing apparatus, in combination, an oscillating tower 11 having a hoisting-opening within it, a pivotal support 12, connected with said tower, a trackway extending from substantially the center of oscillation of said tower out onto said support, a carriage on said trackway, a coal-bucket, a triple friction-drum engine upon said oscillating tower, a traction-rope connecting one drum with said carriage, and a hoisting-rope and closing-rope connecting said other drums, respectively, with said coal-bucket; substantially as described.

3. In a coal-storing apparatus, in combination, an oscillating tower 11 having an axial hoisting-opening extending through its base, a pivotal support 12, connected with said tower, a trackway extending from substantially the center of oscillation of said tower out onto said support, a carriage on said trackway, a coal-bucket, and means whereby said coal-bucket may be hoisted and lowered from said carriage substantially in the axis of oscillation of said tower, and also at other points on said trackway; substantially as described.

4. In a coal-conveying apparatus, in combination, a stationary tower 9, an oscillating tower 11, mounted thereon and having a central hoisting-opening, an interposed turn-table 10 having a corresponding hoisting-opening, a pivotal support 12 connected to swing with said oscillating tower as a pivot, a trackway on said pivotal support, extending above the opening through said turn-table, a hopper located within said turn-table, a spout cooperating with said hopper, a coal-bucket, and means whereby said bucket is operated to convey coal from the storage-heap beneath said pivotal support to said hopper; substantially as described.

5. In a device for handling and storing coal and similar materials, the combination with a tower mounted to turn upon a pivot and having a central hoisting and lowering opening, a receiving-bin beneath said opening and a carrier-support extending from said tower and movable with said tower as a pivot, of a hoisting and conveying apparatus mounted

upon said tower and carrier-support, and adapted to take material from, and to deposit it within both the bin and the space covered by said support at will.

5 6. In a device for handling and storing coal and similar materials, the combination with a pivoted tower having an axial hoisting-opening, a radial track connected with said tower and movable upon a common pivot therewith, 10 of a receiving-bin beneath said tower, and a hoisting and conveying apparatus comprising a carrier movable on said track, and a coal receiver and conveyer carried thereby and adapted to be lowered within the tower into 15 said bin.

7. In a device for handling and storing coal and similar materials, the combination with a tower mounted to turn upon a pivot and having a clear central hoisting-opening therein, 20 extending through its base, and a radial carriage-support adapted to swing with the tower, of a hoisting apparatus mounted upon said tower and radial carriage-support, and adapted to take or deliver material at will 25 either through the axis of the tower or from beneath said carriage-support.

8. In a device for handling and storing coal and similar materials, the combination with a tower mounted to turn upon a pivot and having a clear central hoisting-opening therein, 30 a radial arm adapted to swing with the tower and a traveling support for the outer end of said arm, of a hoisting and conveying apparatus mounted upon said tower and radial 35 arm and adapted to take or deliver material at will, either through the axis of the tower or from beneath said arm.

9. In a device for handling and storing coal and similar materials, the combination with 40 a tower mounted to turn upon a pivot and having a clear central hoisting-opening therein, a movable hopper and chute adapted to be placed centrally of said tower or to be removed to leave the opening free, a radial arm 45 adapted to swing with the tower and a traveling support for the outer end of said arm, of a hoisting and conveying apparatus mounted upon said tower and radial arm and adapted to take or deliver material at will, either 50 through the axis of the tower or from beneath said arm.

10. In a device for hoisting and storing coal and similar materials, the combination with a tower mounted to turn upon a pivot, and 55 having a clear central hoisting-opening therein, a movable hopper and chute adapted to be placed centrally of said tower or to be removed to leave the hoisting-opening free, and a radial carrier-support adapted to swing 60 with the tower, of a hoisting and conveying apparatus mounted upon said tower and radial carrier-support.

11. In a device for handling and storing coal and similar materials, the combination 65 with a tower mounted to turn upon a pivot and having a clear central hoisting-opening

therein, a hopper hinged to the tower to swing across said hoisting-opening or to one side thereof, and a radial arm adapted to swing with the tower, of a hoisting and conveying 70 apparatus mounted upon said tower and radial arm, and adapted to take or deliver material at will either through the axis of the tower or from beneath said arm.

12. In a device for handling and storing 75 coal or similar materials, the combination with a pivoted tower having a central hoisting-opening therein, a hopper hinged to the tower to swing across said hoisting-opening or to one side thereof, chutes slidably mounted 80 and adapted to be brought beneath the hopper-discharge, or moved to one side to leave the hoisting-opening clear, and a radial arm adapted to swing with the tower, of a hoisting and conveying apparatus mounted 85 upon said tower and radial arm and adapted to take or deliver material at will either through the axis of the tower or from beneath said arm.

13. In a device for handling and storing 90 coal and similar materials, the combination with a tower composed of a fixed base-section and an upper section mounted to turn upon the base, and a radial carrier-support extending from the said upper section and swinging 95 with it, a hopper carried by the upper section and having an axial discharge, and a chute carried by the fixed base and receiving the discharge from the hopper, of a hoisting and conveying apparatus mounted upon said 100 upper tower-section and swinging carrier-support, and adapted to take material from points beneath said carrier-support and deliver it to said hopper.

14. In a device for handling and storing 105 coal and similar materials, the combination with a tower composed of a fixed base-section and an upper section mounted to turn upon the base, and a radial carrier-support extending from the said upper section and swinging 110 with it, a movable hopper carried by the upper section and having an axial discharge and adapted to be moved to leave a free hoisting-opening within the tower, and a chute carried by the fixed base and adapted to be 115 moved to receive the discharge from the hopper, or to clear the hoisting-opening, of a hoisting and conveying apparatus mounted upon said upper tower-section and swinging carrier-support and adapted to take material 120 from and deliver it to either the tower center or points beneath said carrier-support.

15. In a device for handling and storing coal and similar material, the combination 125 of a tower comprising a fixed lower section and an upper section mounted to turn thereon, and each having a central bucket-hoisting opening extending to the bottom of the tower, a carrier-support connected with the 130 upper tower-section and extending radially therefrom to swing over the storage-floor, a trackway extending along said carrier-sup-

port and over the center of the tower, a carrier on said trackway, a bucket suspended from said carriage, and operating mechanisms for said carriage and bucket mounted
5 in the top of the pivoted tower-section.

16. In a device for handling and storing coal and similar materials, the combination of a tower comprising a fixed lower section and an upper section mounted to turn there-
10 on, both sections having a clear central hoisting-opening, a receiving-bin within the tower-base, a carrier-support connected with the upper tower-section and extending radi-
ally therefrom to swing over the storage-
15 floor, a trackway extending along said carrier-support and over the center of the tower, a carriage on said trackway, a bucket suspended from said carriage, and operating mechanisms for said carriage and bucket
20 mounted in the top of the pivoted tower-section and movable chutes adapted to receive material discharged within the tower.

17. A hoisting and conveying apparatus, comprising a movable tower having a side ex-
25 tending carrier-support, and a central hoisting-opening extending through its base, a trackway upon said support and extending over the tower center, a hoisting and conveying device movable on said trackway,

and actuating means therefor located in the 30 tower above the trackway.

18. A hoisting and conveying apparatus, comprising a tower consisting of a fixed base-section and an upper section mounted to turn
35 upon the base-section, both sections having a clear hoisting-opening within them, the upper or pivoted tower-section having a side extending carrier-support, a trackway upon
said support and extending over the tower center, a hoisting and conveying device mov- 40
able on said trackway and actuating means therefor located in the tower above the trackway.

19. A hoisting and conveying apparatus, comprising a movable tower having a side 45
extending carrier-support, a trackway upon said support and extending over the tower center, a hoisting and conveying device movable on said trackway, actuating means there-
50 for located in the tower above the trackway, a removable hopper and chute adapted in one position to receive the material discharged within the tower.

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