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H. U. PALMER.

CONVEYING APPARATUS.

No. 382,052. Patented May 1, 1888.

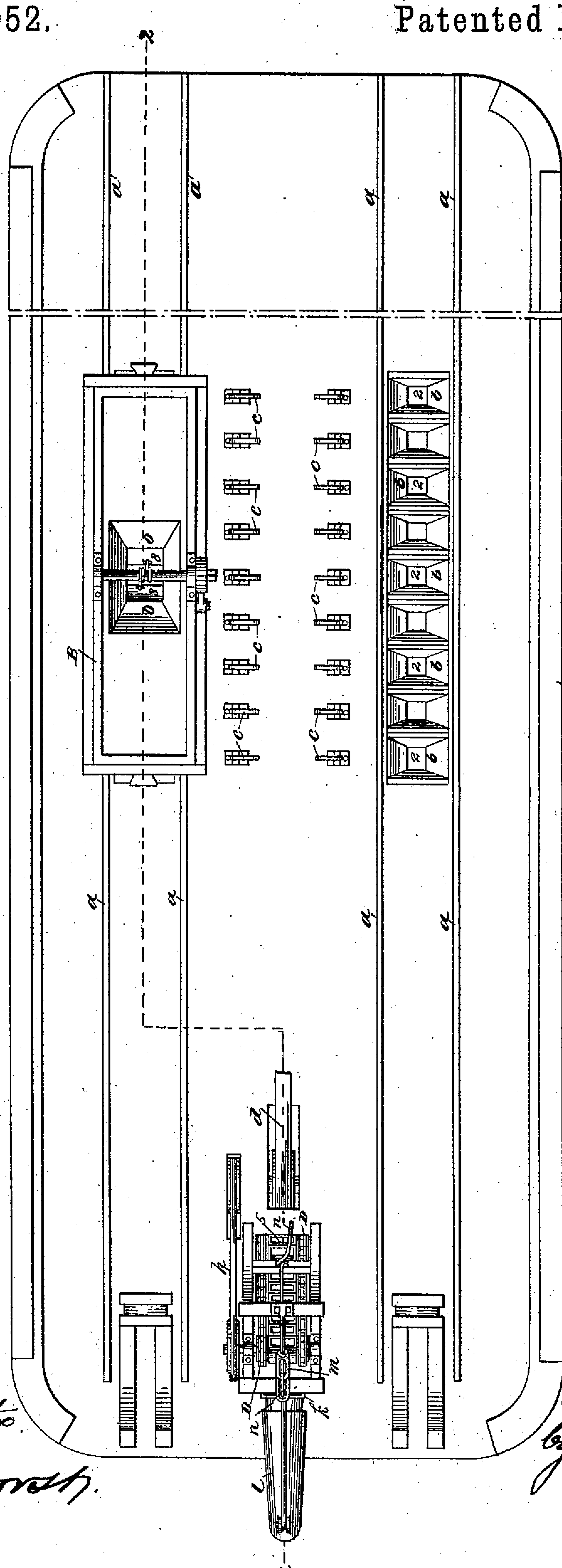

Fig. 1.

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CONVEYING APPARATUS.

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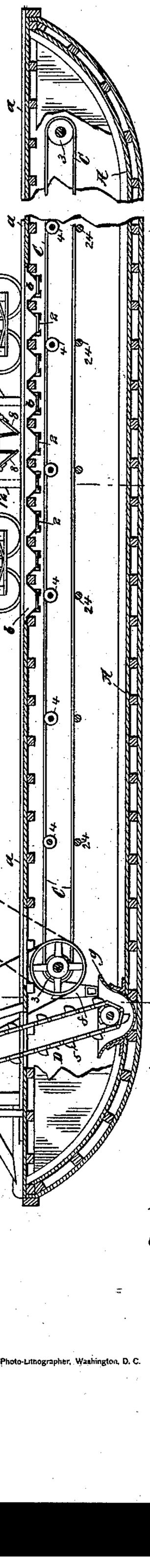

Fig. 2.

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CONVEYING APPARATUS.

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Fig. 3.

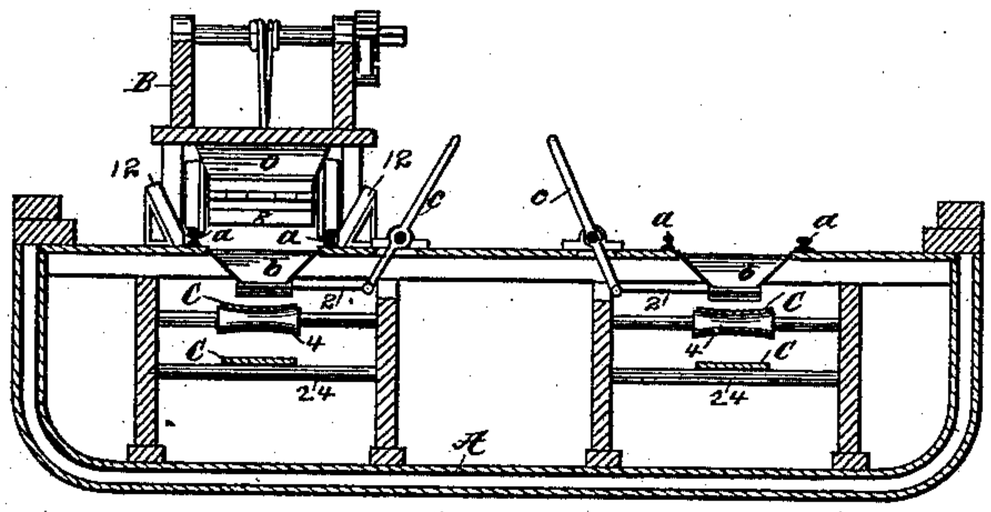

Fig. 4.

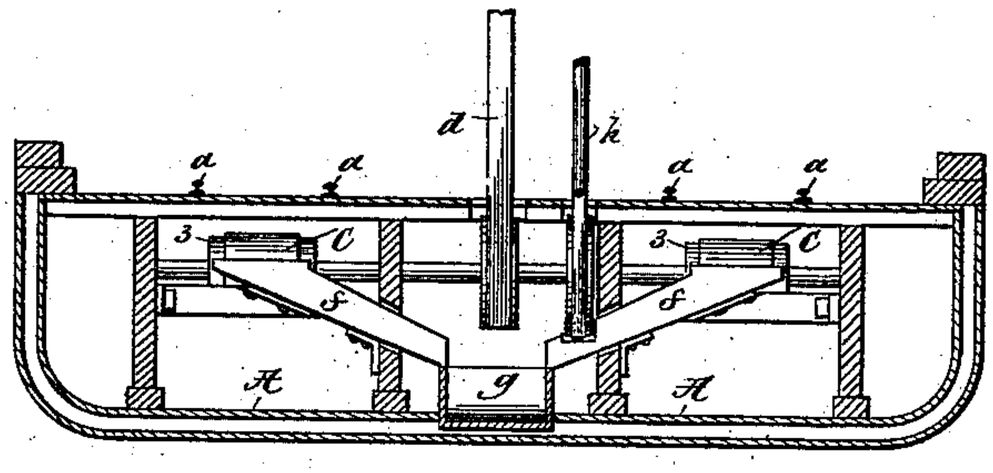

Fig. 8.

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CONVEYING APPARATUS.

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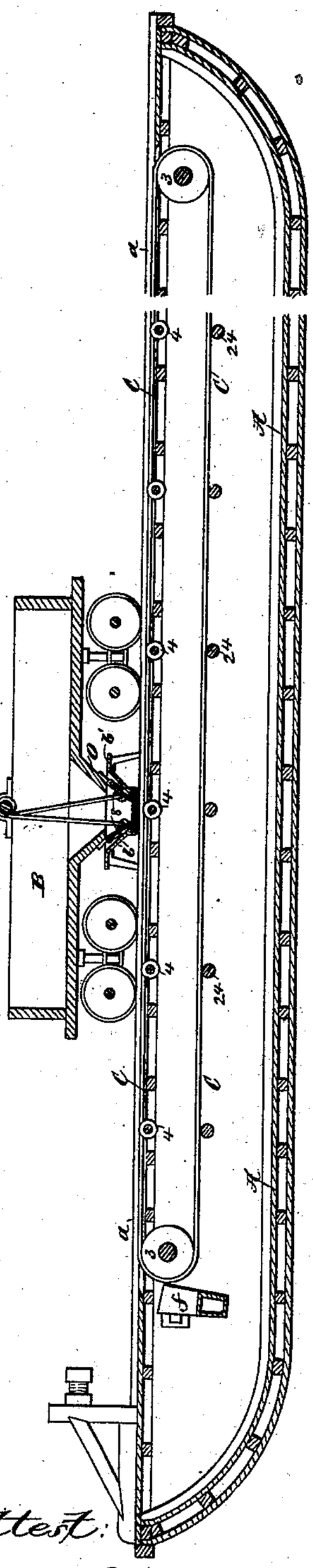

Fig. 5.

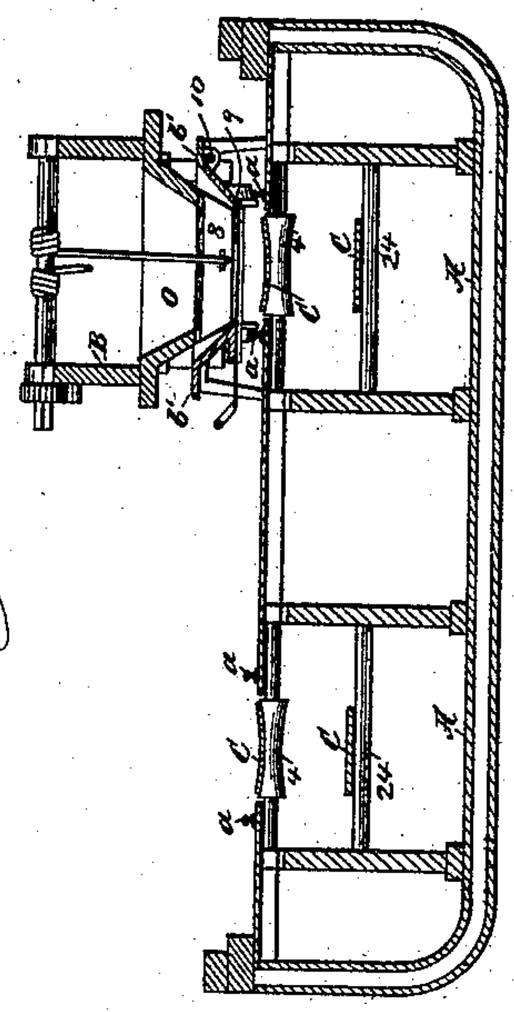

Fig. 6.

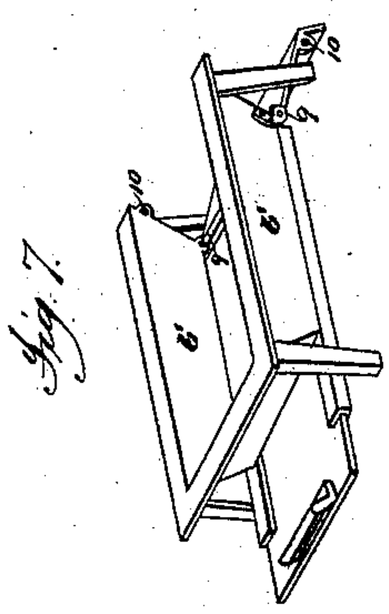

Fig. 7.

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UNITED STATES PATENT OFFICE.

HENRY U. PALMER, OF BROOKLYN, NEW YORK.

CONVEYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 382,052, dated May 1, 1888.

Application filed December 19, 1887. Serial No. 258,273. (No model.)

To all whom it may concern:

Be it known that I, HENRY U. PALMER, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Conveying Apparatus, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a floating conveyer and elevator which is designed and adapted for use in transferring coal from railway-cars to vessels or to other cars or to storage-bins, it being the object of the invention to facilitate the transfer and reduce the handling, and thereby decrease the labor and reduce the waste by breakage.

As a full understanding of the invention can be best given by an illustration and a detailed description of an organized apparatus embodying the same, all preliminary description will be omitted and a full description given, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a floating conveyer and elevator embodying the invention. Fig. 2 is a longitudinal section of the same, taken on substantially the line 2 2 of Fig. 1. Fig. 3 is a cross-section taken on the line 3 of Fig. 2. Fig. 4 is a similar view taken on the line 4 of Fig. 2, looking to the right. Figs. 5 and 6 are views similar to Figs. 2 and 3, illustrating a modified organization, which will be hereinafter explained. In these last figures the elevating mechanism is omitted. Figs. 7 and 8 are perspective views of details, which will be hereinafter referred to.

Referring now particularly to Figs. 1 to 4, it is to be understood that A represents a float, the deck of which is provided with tracks *a* to receive a number of coal-cars, B, which are run onto the float in the usual manner. The dimensions of the float may of course be varied within wide limits; but it will preferably be of sufficient width to contain two or more of the tracks *a* abreast, and of sufficient length to receive several cars on each track.

Arranged between the rails of each track *a* are a series of hoppers, *b*, which open downward through the deck of the float, and are provided at their bottoms with gates or valves 2, which are controlled by levers *c*, extending upward through the deck, or by other suitable means. Only a few of the hoppers *b* are shown in the drawings; but it is to be understood that they are distributed along the entire or nearly the entire length of the float in such positions that whenever a car is brought to rest in any suitable position upon the float for unloading there will be a hopper, *b*, in position beneath it to receive the coal as it is allowed to fall from the car.

Located beneath the series of hoppers, which are arranged between the rails of each track, and extending the entire length of the float which is available for receiving cars, is a broad endless traveling belt or carrier, C, which passes around rolls 3, located at or near the ends of the float, and is driven through a belt or other connection, *d*, from an engine or motor (not shown) located on the deck of the float. The carriers C are supported between the rolls 3 by means of supporting-rolls 4 and 24, over which the carrier passes. The rolls 4 are preferably made somewhat concave, as shown in Fig. 3, so as to give to the carrier a trough-like form, which will cause it to more readily hold the coal.

Located adjacent to the rolls 3, at the forward ends of the carriers, are a pair of chutes, *f*, which are arranged to receive the coal from the carriers and deliver it into a hopper, *g*, located in a plane below the carriers.

Located upon the forward end of the float is an elevating apparatus consisting of an endless carrier, D, provided with a series of buckets, 5, and arranged to take the coal from the hopper *g* and elevate it to any desired or necessary height. The carrier D is driven in any suitable manner—as, for example, by a belt, *h*, passing around a pulley upon the shaft which drives the carriers C. The elevating apparatus is provided with an elevated hopper, *k*, which is arranged to receive the coal as it is discharged from the buckets 5, and the outlet of the hopper *k* is provided with a chute, *l*, which operates to conduct the coal from the hopper to the desired point. The chute *l* is hinged, as shown at 6, so that it can be adjusted to any inclination, or can be allowed to hang vertically when not in use, and for the purpose of raising and lowering the chute there is provided a suitable block and tackle, *m n*, or other suitable means. The hopper *k* and

chute *l* are pivotally supported, as shown at 7, so that the chute can be turned to deliver the coal laterally as well as directly in front of the float.

The operation of the apparatus thus organized is as follows: The boat or float A having been brought into the slip or against the bridge, the cars B, loaded with coal, will be run onto the tracks *a* the same as is usual in transporting cars by means of floats. The float will then be towed to the point where it is wished to deliver the coal, or if the coal is to be transferred to a ship or barge the latter may be brought into position at the side or end of the float. The chute *l* having been adjusted to the proper position to deliver the coal at the desired point and the carriers C D set in motion, the gates 8 of the hoppers *o* upon the cars will be opened, so as to allow the coal to fall into the hoppers *b*. The valves 2 of the hoppers *b* will then be opened one after another, so as to allow the coal to fall gradually onto the carriers C, which carriers, being in motion, will convey the coal to the forward end of the float and deliver it into the chutes *f*, and thence into the hopper *g*. The coal, as fast as delivered into the hopper *g*, will be taken by the buckets of the carrier D and discharged into the hopper *k*, and pass thence into the chute *l*, and be delivered to the ship, barge, bin, or other place. The cars having been thus unloaded, the float will be returned to the point of starting and the cars disembarked.

In order to prevent the coal from falling laterally over the track-rails and spreading onto the deck, there will preferably be provided portable inclined guides 12, (see Fig. 8,) which can be set in position at the sides of the hoppers *o*, and thus act to direct all of the coal into the hoppers *b*.

The organized apparatus which has been described is especially adapted for use in coaling steamers and in delivering coal at different points around a harbor or along a water-course at short or comparatively short distances from the terminus of the railroad. In performing this work it has heretofore been customary to transfer the coal from the cars to a barge, tow the barge to the destination, and then transfer the coal from the barge to the vessel or bin. This made it necessary to handle the coal twice, which entailed extra labor and waste by breakage. By the use of the apparatus which has been described the coal is transferred directly from the cars to the vessel or bin, and with very little manual labor, thus avoiding extra handling and its attendant labor and waste.

The apparatus may be modified as to many of its details without departing from its essential features or losing its advantages. One of the many changes which may be made is illustrated in Figs. 5 and 6. In this case the carriers C, instead of being below the level of the deck of the float, are arranged to be on or substantially on a level with the deck, and instead of having the hoppers set into the deck the hoppers *b'* are raised above the deck and are made portable, (see Fig. 7,) so that they can be introduced beneath a car after it is in position upon the float and removed after it is unloaded. To permit of the ready introduction and removal of the hopper *b'*, one of its sides is hinged, as shown at 9, so that it can be swung downward to clear the hopper upon the car. The hinged side of the hopper is supported in its raised position by means of a rod, 10, or by other suitable means.

What I claim is—

1. The combination, with a float provided with a track for receiving loaded coal-cars, of an endless horizontal carrier extending beneath said cars, a hopper or hoppers arranged between the track-rails for directing the coal onto said carrier as it falls from the car, and an elevating apparatus for receiving the coal from the carrier and delivering it at a suitable height, substantially as described.

2. The combination, with a float provided with a plurality of tracks for receiving loaded coal-cars, of endless horizontal carriers extending beneath said cars, hoppers arranged between the track-rails for directing the coal onto said carriers as it falls from the cars, chutes *f*, for receiving the coal from the carrier and delivering it to an elevating apparatus, and an elevating apparatus for receiving the coal from said chutes and delivering it at a suitable height, substantially as described.

3. The combination, with the float provided with a track for receiving cars, of an endless horizontal carrier arranged to receive the coal from the cars, an elevating apparatus arranged to receive the coal from the carrier, and the hopper *k*, and a chute, *l*, arranged to receive the coal from the elevating apparatus and pivoted to turn horizontally, whereby the coal can be delivered in different directions, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY U. PALMER.

Witnesses:
J. J. KENNEDY,
G. M. BORST.