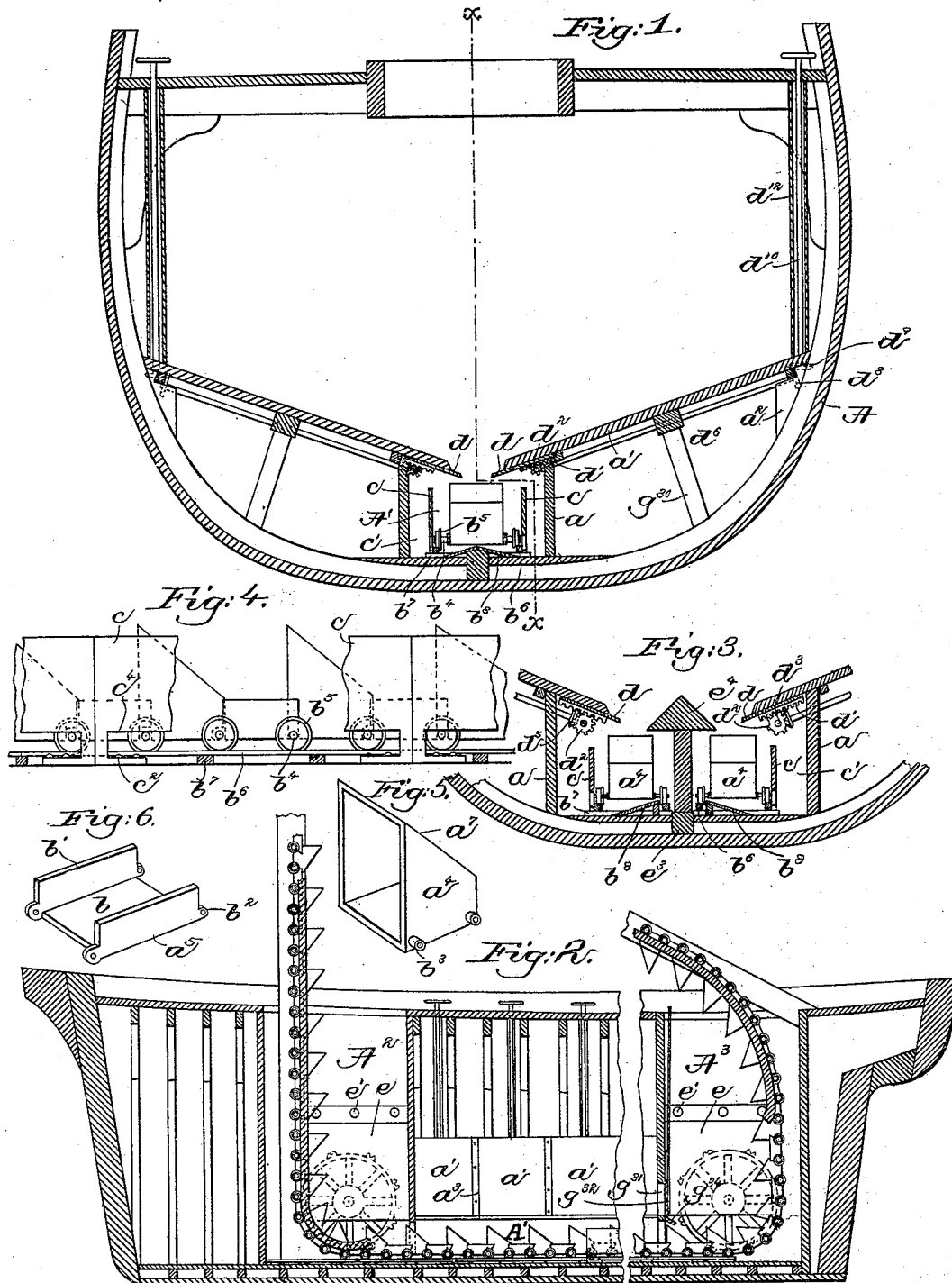


J. CHASE.
COAL BARGE.

No. 494,122.

Patented Mar. 28, 1893.



Witnesses.
Howard F. Eaton.
Maurice H. Emery.

Inventor
Jonathan Chase,
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Attys

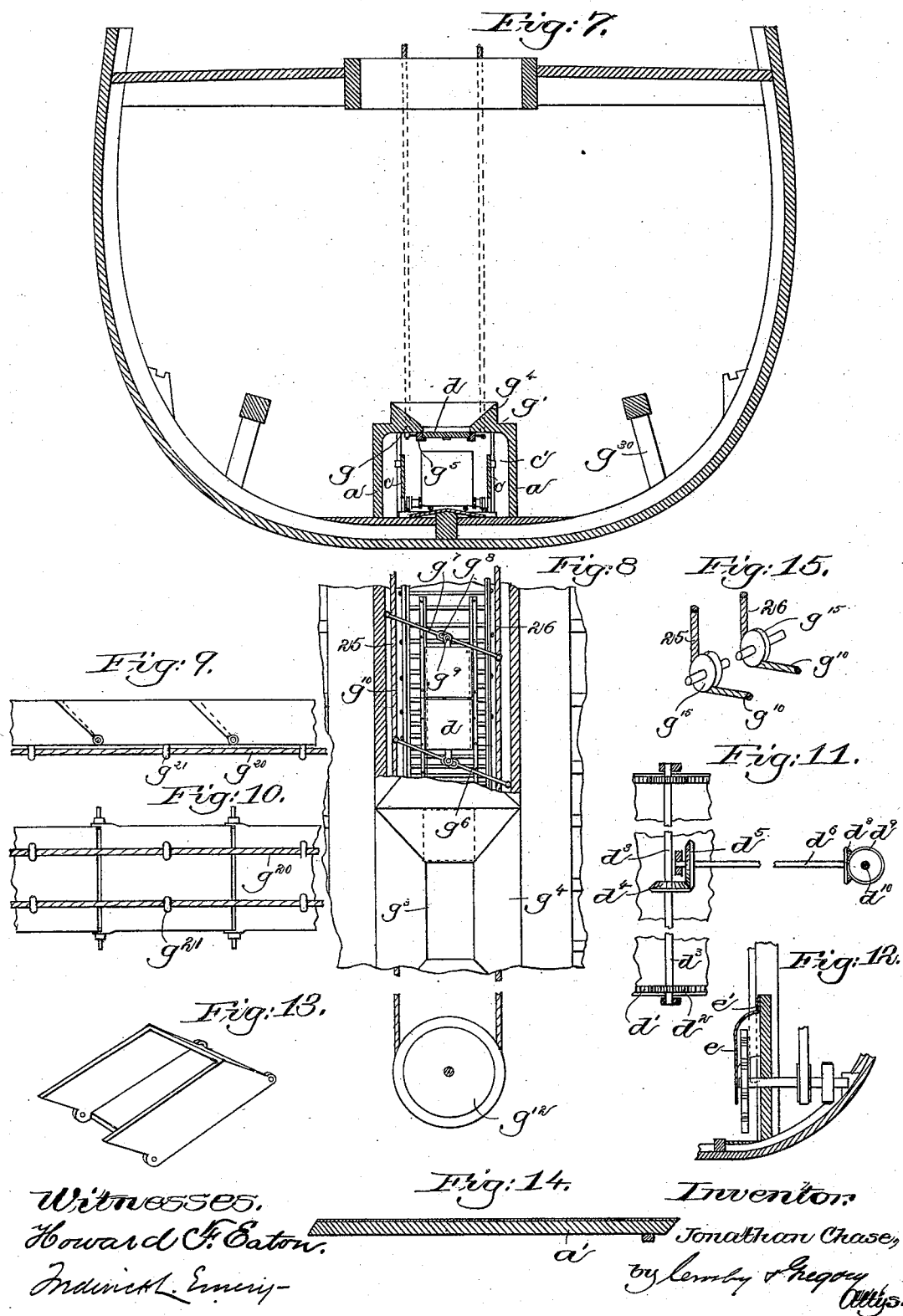
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JONATHAN CHASE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HENRY KELLOGG, JR., OF SAME PLACE.

COAL-BARGE.

SPECIFICATION forming part of Letters Patent No. 494,122, dated March 28, 1893.

Application filed May 28, 1889. Serial No. 312,436. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN CHASE, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Coal-Barges, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to barges or vessels especially adapted for the transportation of coal and other granular material, and is an improvement upon the barge or vessel shown and described in another application, Serial No. 282,838, filed by me August 16, 1888.

The barge or vessel is provided with a longitudinal passage-way preferably communicating with an elevator well at its opposite ends, in which are located sprocket wheels over which an endless chain of inverted buckets are revolved, the said endless chain of buckets traveling on a track in the said passage-way and being passed about a sprocket wheel supported above the deck of the vessel by a suitable upright frame, substantially as in the application referred to.

One feature of my present invention consists in providing the longitudinal passage-way with side walls, which support one end of removable sections having their other ends suitably supported from the side of the vessel, the said sections when placed in position forming a false bottom for the barge or vessel. The longitudinal passage-way is normally closed by movable knives constituting doors, the said knives being operated preferably from the deck of the vessel, as will be described. The rails of the track referred to are located a dirt deflector or shed inclined from near the center of the track toward the rails, so that the dirt accumulated below the buckets falls down the inclined shed between the ties, where it can be readily removed, preferably through openings at the bottom of guards preferably made in sections, the said guards forming alleys or passages with the side walls of the passage-way, through which a man may pass.

Another feature of my invention consists in a novel form of bucket.

Another feature of my invention consists in

providing one wall of one elevator well with a valve, preferably a sliding door, through which the coal or other material may be discharged into the buckets when the barge is loaded.

The particular features in which my invention consists will be pointed out in the claims at the end of this specification.

Figure 1, is a transverse section of a barge or vessel embodying my invention; Fig. 2, a longitudinal section on line $x-x$ of the barge shown in Fig. 1, on a smaller scale, it being broken out to save space in the drawings; Fig. 3, a transverse section of a modified form of barge; Fig. 4, a detail to more clearly show the side guards; Figs. 5 and 6, details of the bucket and receiver; Fig. 7, a transverse section of another modified form of barge; Fig. 8, a detail showing a modified arrangement of doors; Fig. 9, a side elevation of a modified form of bucket; Fig. 10, an underside view of the buckets shown in Fig. 9; Fig. 11, a detail of the mechanism for operating the knives shown in Fig. 1; Fig. 12, a detail to more clearly show the side guards; Fig. 13, a detail in perspective of the form of bucket shown in Fig. 9; Fig. 14, a side elevation of one of the removable sections forming the false bottom, and Fig. 15, a detail to be referred to.

The barge or vessel A of any usual or well known construction is provided with a longitudinal passage-way A' preferably communicating at its opposite ends with elevator wells A^2 , A^3 , substantially as in the application referred to. The passage-way A' is provided with side walls a adapted to support one end of removable sections a' , as shown in Fig. 1, having their other ends supported as herein shown by a bracket a^2 secured to the side of the barge. Each removable section a' is preferably provided with a projecting strip a^3 , see Fig. 2, which overlaps the point or seam between two adjacent sections, the said removable sections when laid in place, forming a false bottom for the barge or vessel upon which the coal or other granular material may be supported.

The barge or vessel A is provided with an endless chain of inverted buckets a^4 , and preferably of receivers a^5 interposed between

said buckets. The inverted buckets a^4 may be made as shown in Figs. 4 and 6 with their tops or roof a^7 made inclined from the front toward the rear end, so that the material falling upon the said bucket is deflected into the receiver a^5 between adjacent buckets, the said receiver being composed of a bottom b and sides b' , having ears b^2 which are fitted on lugs b^3 on the outside of the buckets, the said lugs forming bearings for the axles b^4 of the wheels b^5 . The wheels b^5 run upon a track located in the longitudinal passage-way, and the rails b^6 of the said track are supported upon ties b^7 .

Between the rails b^6 is located a deflector or shed b^8 inclined from near the center of the track toward the rails, so that coal dust or other material falling below the buckets will be deflected toward the rails where it can be readily removed by a shovel, the said coal dust falling from the deflector or shed between the ties b^7 .

The passage-way A' is provided on opposite sides of the track with side guards c forming with the side walls a alleys or passages c' through which a man may pass to remove the accumulated dust &c. The side guards c are preferably made in sections which are secured to the bottom of the vessel as by bolts or screws c^2 , as shown in Fig. 4, and each side guard is preferably cut away at its bottom, as at c^4 , to permit the operator to remove the accumulated dust &c.

The longitudinal passage-way may be closed preferably by a series of knives d , shown in Fig. 1 as on each side of the passage-way, the said knives being movable in suitable guides preferably on the underside of the false bottom. Each knife, as shown in Figs. 1, 3 and 11, is provided with rack bars d' with which mesh pinions d^2 on a shaft d^3 , see Fig. 11, the said shaft having mounted on it a bevel pinion d^4 in mesh with a bevel pinion d^5 on a shaft d^6 , having bearings, as shown in the wall a and bracket a^2 . The shaft d^6 has mounted on it a bevel pinion d^8 in mesh with a bevel pinion d^9 on an upright shaft d^{10} , extended above the deck of the vessel and as herein shown through a tube or pipe d^{12} to protect the shaft from the binding or wedging action of the coal. The shaft d^{10} is preferably provided above the deck with a hand wheel, by which the knife connected therewith may be moved forward to close the passage-way A' and cut off the supply of coal, or the said wheel may be turned to withdraw the knife and open the passage-way for the passage of coal to the buckets.

To prevent the sprocket wheels from becoming clogged with the material, as coal, a shield e is provided, the said shield being secured to the wall of the elevator well as by bolts or screws e' , see Fig. 12.

The barge or vessel is provided with a single line of buckets, as shown in Fig. 1, located substantially in the center of the barge, but if desired two rows or lines of buckets may be

employed as shown in Fig. 3, there being a line of buckets on opposite sides of the keelson e^3 , the latter being provided, as shown, with a Λ -shaped top or cap e^4 having its sides extended over the buckets, and with which the knives d co-operate to close the passage-way on one or both sides of the keelson.

With the arrangement shown in Fig. 3, the deflector or shed b^8 is made in two parts or halves, one on each side of the keelson.

I have herein shown two knives by which to close the passage-way A' , but it is evident I may dispense with one and provide on one side of the said passage-way substantially the Λ -shaped top or cap e^4 , shown in Fig. 3.

By means of the knives d the supply of coal to the buckets may be cut off, so that any desired part of the cargo of coal or other granular material may be discharged at one point or station, and the remainder or a part thereof may be discharged at another station.

As shown in Fig. 1, the removable sections a' extend over the passage-way A' , but if desired the side walls a may be connected by a roof g , see Fig. 7, having a shoulder g' upon which one end of the said removable section may rest.

The roof g is provided at suitable intervals with openings g^3 , see Fig. 8, preferably having upwardly inclined sides g^4 which serve to direct the material toward the opening g^3 . Each opening g^3 , as shown in Fig. 7, is normally closed by two knives d , which in this case are supported by guide rails g^5 and are made to move in opposite directions to uncover the opening, preferably by levers g^6, g^7 , the said levers being provided, as herein shown, with a central elongated eye g^8 into which is extended a pin g^9 connecting each knife to one of the said levers. The lever g^6 has one end connected to a rope or chain g^{10} on one side of the longitudinal passage-way, and has its opposite end pivotally secured to the opposite side of the longitudinal passage, and the lever g^7 is pivoted to the side of the said passage opposite to the side to which the lever g^6 is pivoted, and is connected to the rope or chain g^{10} after the latter has been passed about a sheave g^{12} , so that when one part or end of the rope or chain is pulled upon, as for instance the end marked 25, Fig. 8, the knives are brought together to close the opening g^3 , and when the end marked 26 is drawn upon, the knives are moved away from each other, and the opening g^3 is uncovered to permit the material to pass through into the buckets. The ends of the rope or chain g^{10} will preferably be passed about pulleys g^{15} , see Fig. 15, located in one of the elevator wells, the said ends being extended up to the deck, where they may be secured to a windlass or other mechanism by which they can be readily moved.

Instead of the particular form of inverted bucket shown in Figs. 2 and 5, I may use any other desired form, as for instance such as shown in Figs. 9 and 13; and to maintain the

endless chain of buckets intact, in case the buckets become separated by the breaking of the pivotal connection of hinge of the said buckets, they are preferably connected together on their underside by ropes or chains g^{20} passed through bolteyes g^{21} secured to the buckets.

The vessel will preferably be provided with stanchions g^{30} to support the removable sections at or near their center.

To facilitate the discharge of material when the barge is loaded, I have provided one wall or bulk-head of one elevator well as A^3 , with an opening or outlet g^{31} normally closed by a slide valve or door g^{32} , which may be operated in any suitable manner from the deck or from within the said well. The bulk-head referred to has preferably secured to it below the opening g^{31} a chute or guide g^{34} .

When the barge is loaded the buckets may be loaded by opening the valve g^{32} , thus permitting the coal or other material to descend into the buckets. After the material has been removed from the bulk-head so that it will no longer run out of the opening g^{31} , the first section of the knives are operated to uncover the opening nearest the bulk-head, and an operator may gain admission to the hold of the vessel through the opening g^{31} and guide the material through the uncovered opening leading to the buckets.

I prefer to operate the knives as herein shown, but I do not desire to limit my invention to the particular manner shown, as other equivalent means may be employed.

The false bottom is preferably made of removable sections to enable the said sections to be taken down or removed, so that the barge may be used for transporting miscellaneous merchandise. Each removable section when made of wood will preferably be sheathed or covered on its upper side with iron, or the said sections may be made of iron, so that the material will slip toward the passage-way, on a less pitch.

I claim—

1. The combination with a barge or vessel provided with a longitudinal passage-way, communicating with the deck of the vessel, and an upright frame supported by the said vessel, of an endless chain of inverted buckets located in said passage-way and passed about said frame, a knife to close the said passage-way and means to operate said knife, substantially as described.

2. The combination with a barge or vessel provided with a longitudinal passage-way having side walls a , of a false bottom composed of detachable sections having one end supported by said walls, an endless chain of inverted buckets in said passage-way, a series of knives to close said passage-way, and means to move the said knives, substantially as described.

3. The combination with a barge or vessel provided with a longitudinal passage-way, a track located therein, and an endless chain of

buckets provided with wheels to run on said track, of a dirt deflector or shed located below the said buckets between the rails of the track, substantially as described.

4. The combination with a barge or vessel provided with a longitudinal passage-way having side walls, a track located therein, and an endless chain of buckets provided with wheels to run on said track, of a dirt deflector or shed located below the said buckets between the rails of the track, and side guards between the rails and walls of the passage-way, substantially as described.

5. The combination, with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, a dirt deflector or shed located below the said buckets between said track, and knives to close said passage-way, and means to operate said knives, substantially as described.

6. The combination, with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, and knives to close said passage-way, and means to operate said knives, substantially as described.

7. The combination of a barge or vessel provided with a longitudinal passage-way having side walls, a track located therein, and an endless chain of buckets provided with wheels to run on said track, and side guards between said rails and walls of the passage-way, substantially as described.

8. The combination with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, an opening g^{31} in one of the elevator wells, and a door to close said opening, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, and knives to close said passage-way, and means to operate said knives, substantially as described.

9. The combination of a barge or vessel provided with a longitudinal passage-way, and an endless chain of independent inverted buckets located in said passage-way and provided on their underside with eyes, and ropes or chains engaging said eyes to connect said buckets and preserve the integrity of the endless chain, substantially as specified.

10. The combination, with a barge or vessel

provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, an opening \mathcal{G}^{81} in one of the said elevator
5 wells, and a door to close said opening, of a track located in said passage-way, sprocket wheels located in said elevator wells, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels,
10 substantially as described.

11. The combination, with a barge or vessel provided with a longitudinal passage-way, communicating with the deck of the vessel,

and an upright frame supported by the said deck, of an endless chain of inverted buckets 15 extended through said passage-way, and over said frame, and a series of independent knives to close said passage-way, and means to move said knives, substantially as described.

In testimony whereof I have signed my 20 name to this specification in the presence of two subscribing witnesses.

JONATHAN CHASE.

Witnesses:

JAS. H. CHURCHILL,
HOWARD F. EATON.