(No Model.) 2 Sheets—Sheet 1.

F. H. BRIGGS.

CONVEYER BARGE STORAGE VESSEL.

No. 485,836. Patented Nov. 8, 1892.

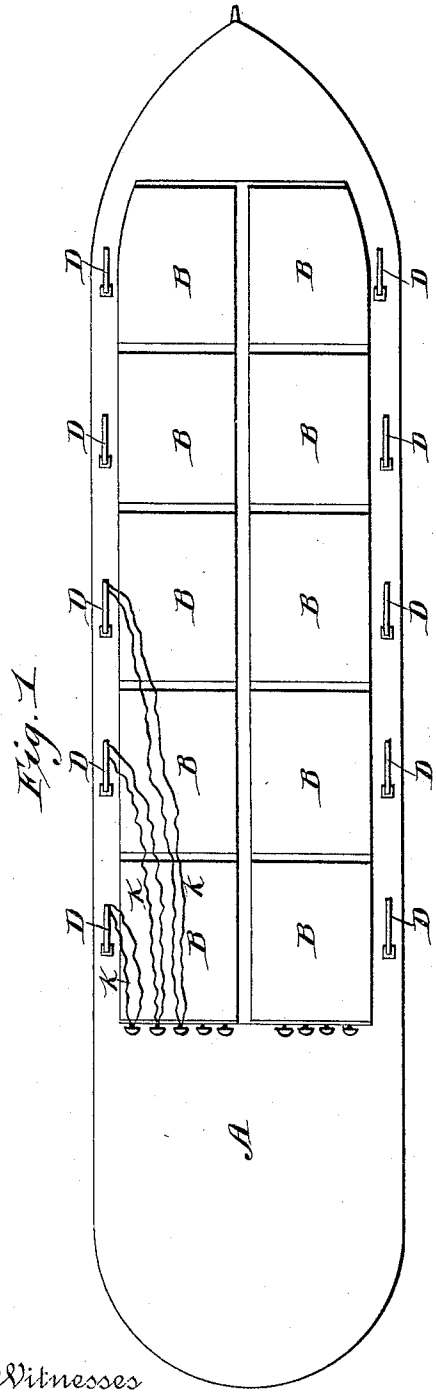

Fig. 1.

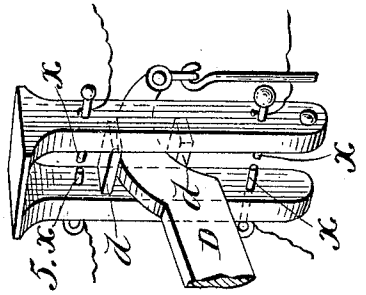

Fig. 3.

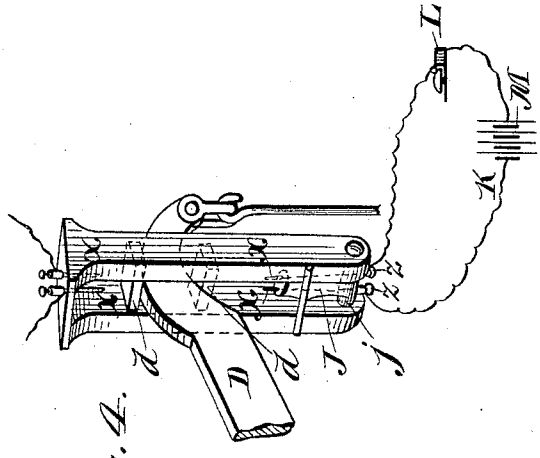

Fig. 4.

Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

F. H. BRIGGS.

CONVEYER BARGE STORAGE VESSEL.

No. 485,836. Patented Nov. 8, 1892.

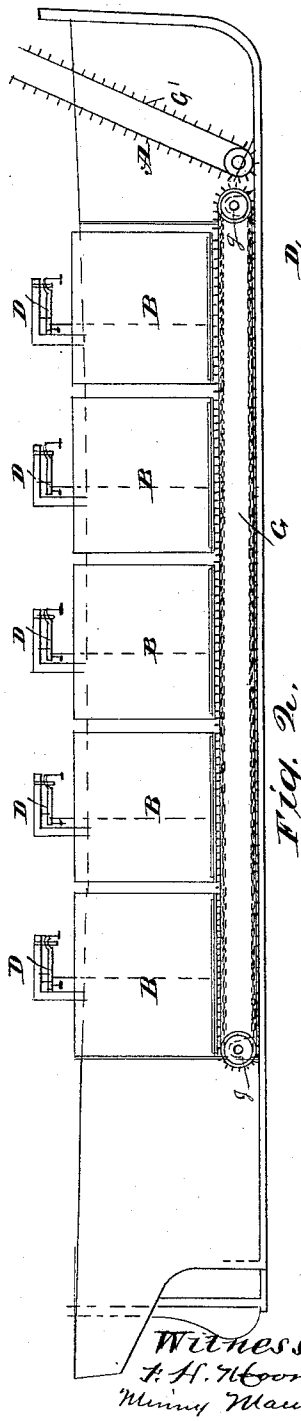

Fig. 1.

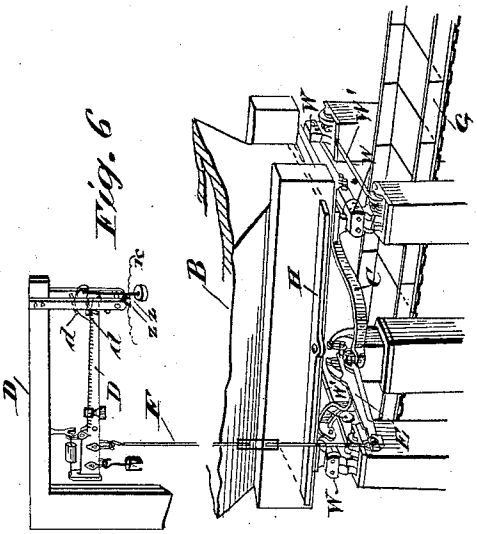

Fig. 2.

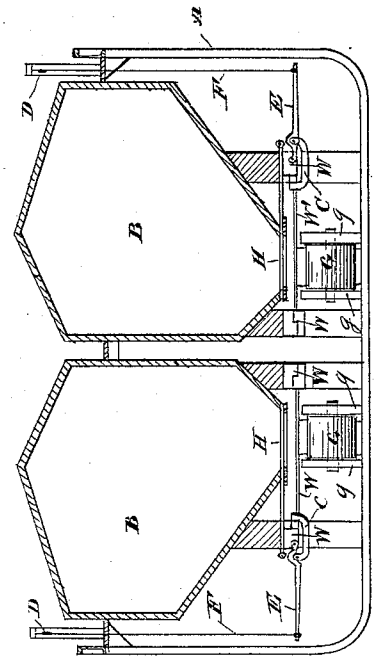

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

FRANK H. BRIGGS, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN WATER TRANSPORTATION COMPANY, OF CHICAGO, ILLINOIS.

CONVEYER-BARGE STORAGE-VESSEL.

SPECIFICATION forming part of Letters Patent No. 485,836, dated November 8, 1892.

Application filed September 12, 1891. Serial No. 405,555. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. BRIGGS, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Storage-Vessels of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in vessels for coaling or other storage purposes from which the material is to be delivered in variable quantities; and the object is to prevent all dispute in regard to quantities delivered by accurately weighing the material discharged.

My invention consists in a vessel provided with independent receptacles, filling as much as desired of the hull and vertically oscillating upon scale-lever mechanism in such a manner as to accurately weigh the load in each, with mechanism for automatically conveying material and for discharging the same overboard from the vessel, completing an electric circuit when the desired amount has been discharged from or into the receptacles.

My invention further consists in the combination and arrangement of parts, as hereinafter described in the specifications, shown herein, and more specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a vessel provided with independent receptacles combined with weighing-scales. Fig. 2 is a vertical longitudinal section of the vessel, receptacles, scale-levers, and conveyer; and Fig. 3 is a transverse section of the vessel and receptacles, showing position of attachment of weighing-levers. Figs. 4 and 5 show details of signaling apparatus. Fig. 6 shows in perspective, partly broken, the connection of the receptacles with the scale-beams.

In the drawings, A is the hull of a vessel, and B B, &c., are the receptacles, independently supported upon the lever mechanism, connected with a beam D of a weighing-scale by means of the levers C and E. The lever mechanism, as shown in Fig. 6 in perspective, consists in the eccentric bearings W, connected by rods W′, as commonly used for crushing weight, and do not specifically form my invention. This construction may be of any convenient form, as it is not of the spirit of this invention to claim any particular form of weighing apparatus. The lower extremities of the receptacle are partially tapering to discharge readily into a conveyer G on bearings *g*, which traverses the length of the vessel covered by the receptacles and discharges into a vertical conveyer G′ and overboard. When not in use, the openings are covered by gates H, which are withdrawn for discharge and returned when the required amount has been withdrawn, as shown by the action of the scale-beam. Any suitable mechanism (automatic or otherwise) may be employed for this purpose, and any well-known form of conveyer may answer the object in delivering material.

It will be seen that in use the scale-beam will be affected by the weight of material in the receptacle to which the scale is attached and will rise or fall as the material is increased or diminished in amount. In order to utilize the movement of the beam to indicate the amount discharged from or into the receptacles, the movable indicator on the scale-beam should be set at the difference in weight of the whole load and the amount desired, so that the beam will rise or fall at the proper time. A signal-bell or other device is then operated by the completion of the electric circuit containing the indicator. For example, if the contents of one receptacle are found to be one hundred tons and the operator is desirous of discharging from this receptacle sixty tons the indicator on the scale-beam is therefore placed at the difference between the whole amount and the amount to be discharged—namely, forty tons. The beam will then rise and assume a position at the top of the guides. The electric switch below the scale-beam is then brought into position, and when the sixty tons of material have been discharged by its own gravity the scale-beam will fall, completing the circuit and performing the object desired. Again, if the contents of one receptacle are found to contain zero or some known quantity and the operator is desirous of discharging into this re-

ceptacle sixty tons the indicator is therefore placed at the zero or known quantity plus the amount desired. The beam will then fall and assume a position at the bottom of the guide. The electric switch above the scale-beam is then brought into position, and when the sixty tons of material have been discharged into the receptacle the beam will naturally rise, completing the circuit as in its downward stroke and again performing the object desired.

Several varieties of electric-switch devices are shown in Figs. 4 and 5, in which D is the scale-beam, provided with contact-piece D, and immediately above or below the exposed extremities of a broken electric circuit. These extremities X X are placed near together, and the circuit is instantly completed through the contact-piece *d* and extremities *x x* when the movement of the beam D brings them into immediate contact. The construction is somewhat similar in all the figures.

X X are the electrodes.

J is a rod inclosing short sections of the circuit-wire and provided with a cross-piece J′, which is pivoted at either end in the vertical guides of the scale-beam. Binding-posts Z Z connect the broken sections with the circuit at K.

L is a signaling device shown as a bell in the drawings.

In Fig. 5 the sections X X are disconnected rods inserted through the sides of the guides in such a position that the fall or rise of the beam will connect the points in circuit, and they can be easily removed at pleasure. Any form of switch can be utilized for this purpose which can be operated by the scale-beam and may be removable, or a permanent switch may be inserted, if desired.

M is the generator, and is shown as a battery.

In Figs. 1 and 2 the circuits K are shown in one or two instances.

It will be seen that switch connections of any character attached in a similar manner, so as to connect with the beam on its upward or downward stroke, will indicate the amount of material discharged into or from any one of the receptacles, just as the contact devices shown herein will indicate the fall or rise of the beam by lessening or decreasing the load.

I believe myself to be the first to utilize a vessel in connection with vertically-oscillating receptacles combined with weighing-scales to carry and discharge material, but do not claim the specific details of all the parts or the use of a vessel provided with stationary pockets which are not provided with weighing mechanism to complete an electric circuit; but

What I claim, and desire to secure by Letters Patent, is—

1. The new form of conveyer barge or vessel, consisting of the combination of a hull of any desired form of sailing or steam vessel, a series of receptacles located within the hull longitudinally of the vessel, arranged independently of one another and of the hull and provided with discharge-openings in their bases, scale-bearings supporting the receptacles and mounted upon supports rigidly secured to the hull, scale levers and beams connected with said scale-bearings, the said beams located above the deck of the vessel, and conveyers mounted longitudinally of the vessel and series of receptacles and passing underneath the said receptacles, and discharge-openings therein, substantially as and for the purpose set forth.

2. The new form of conveyer barge or vessel, consisting of the combination of a hull of any desired form of sailing or steam vessel, a series of receptacles located within the hull longitudinally thereof, provided with discharge-openings in their bases and mounted independently of one another and of the hull upon scale-bearings attached to the said hull, scale levers and beams for co-operating with the said bearings, and a longitudinal conveyer passing underneath the series of receptacles and openings, the said conveyer being mounted upon bearings resting upon the bottom of the vessel, substantially as described.

FRANK H. BRIGGS.

Witnesses:
WM. M. MONROE,
F. H. MOORE.