

(No Model.)

4 Sheets—Sheet 1.

F. H. BRIGGS.

TRANSPORTATION, STORAGE, AND DISCHARGING VESSEL.

No. 506,840.

Patented Oct. 17, 1893.

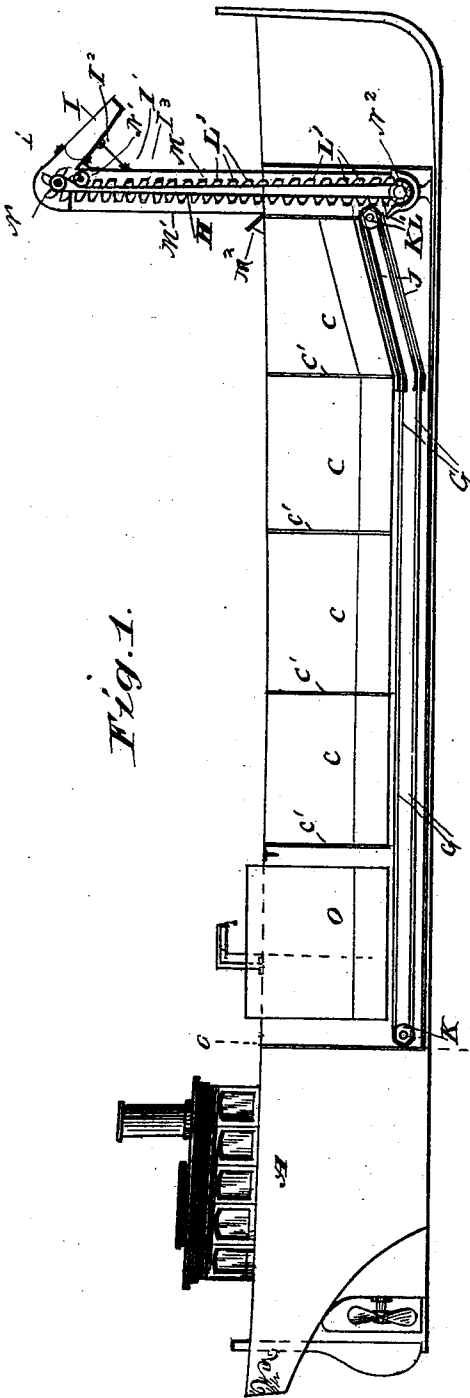
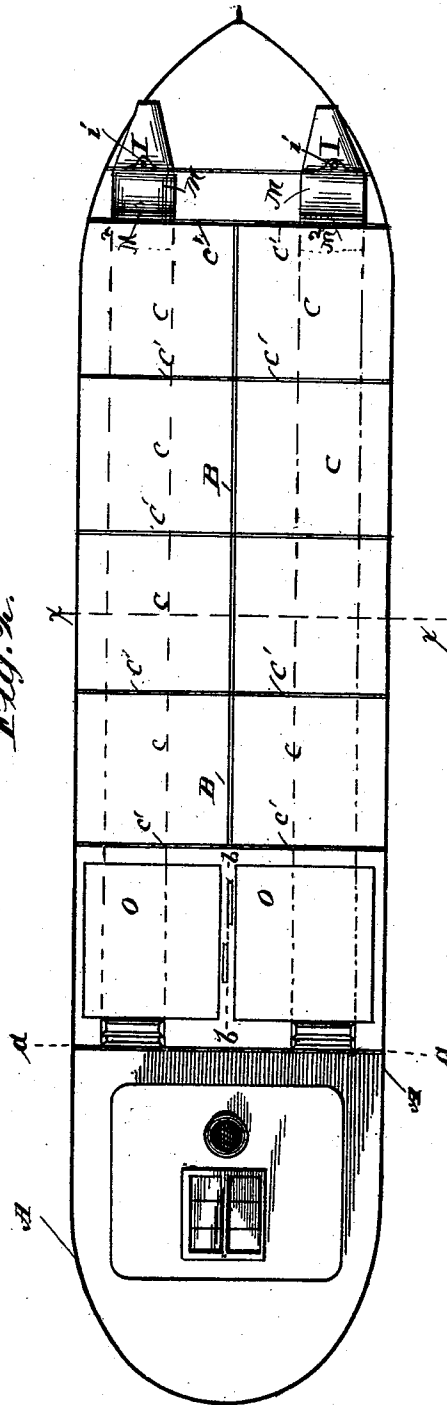


Fig. 1.

Fig. 2.



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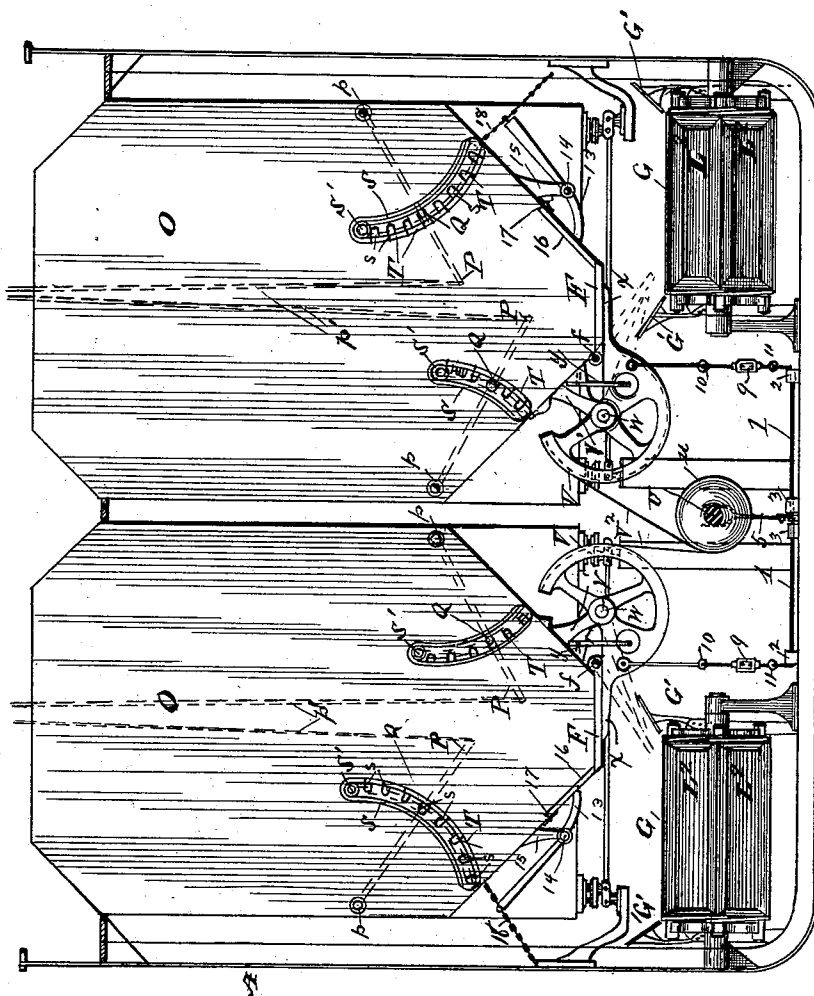
4 Sheets—Sheet 2.

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Fig. 10.

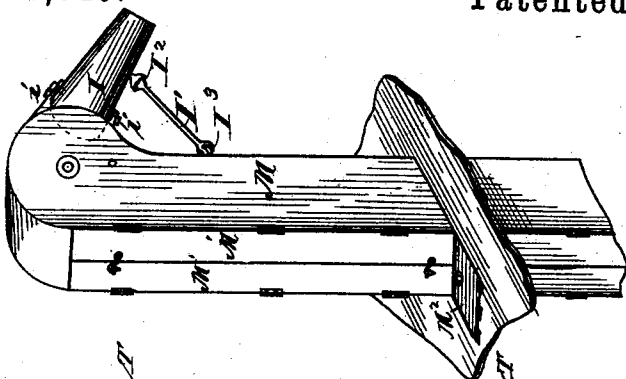


Fig. 5.

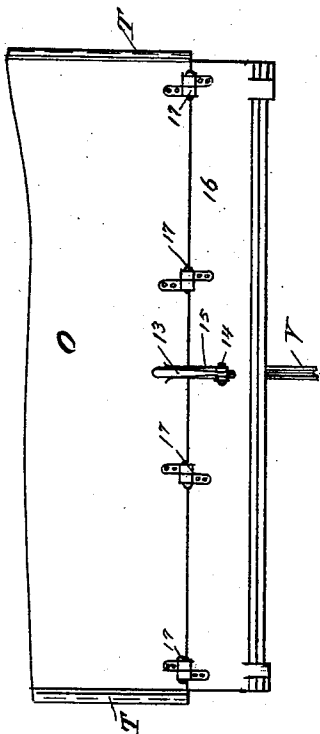


Fig. 4.

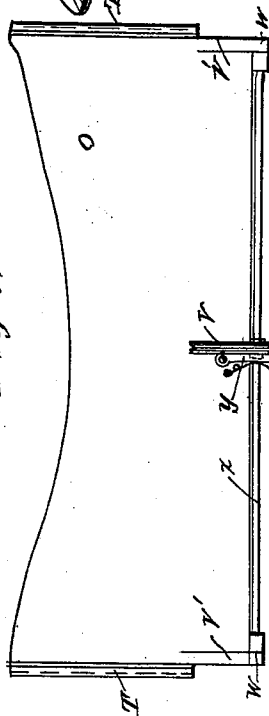
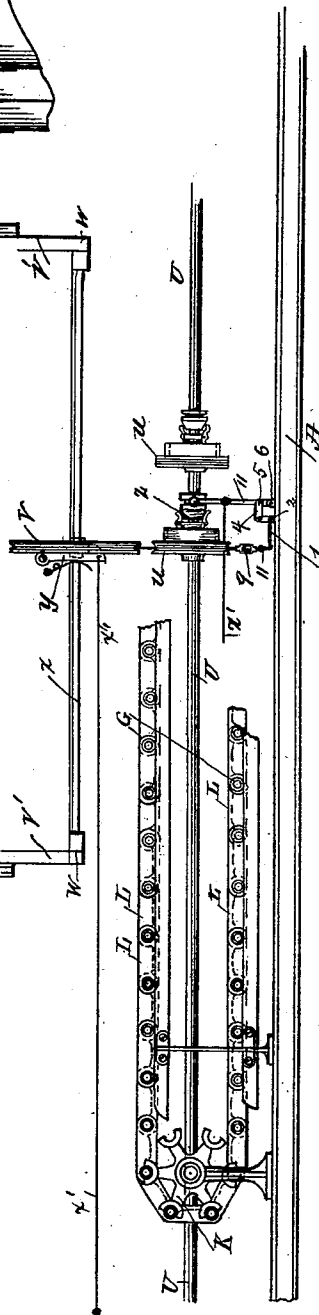


Fig. 7.



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Fig. 9.

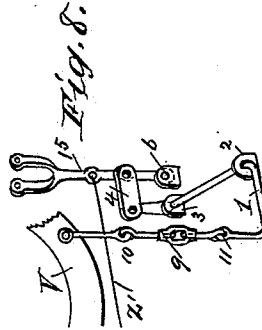
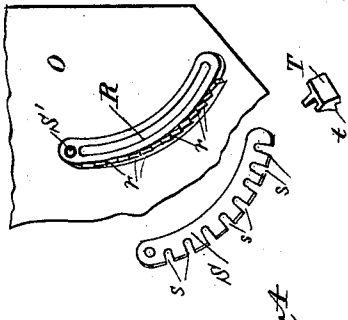
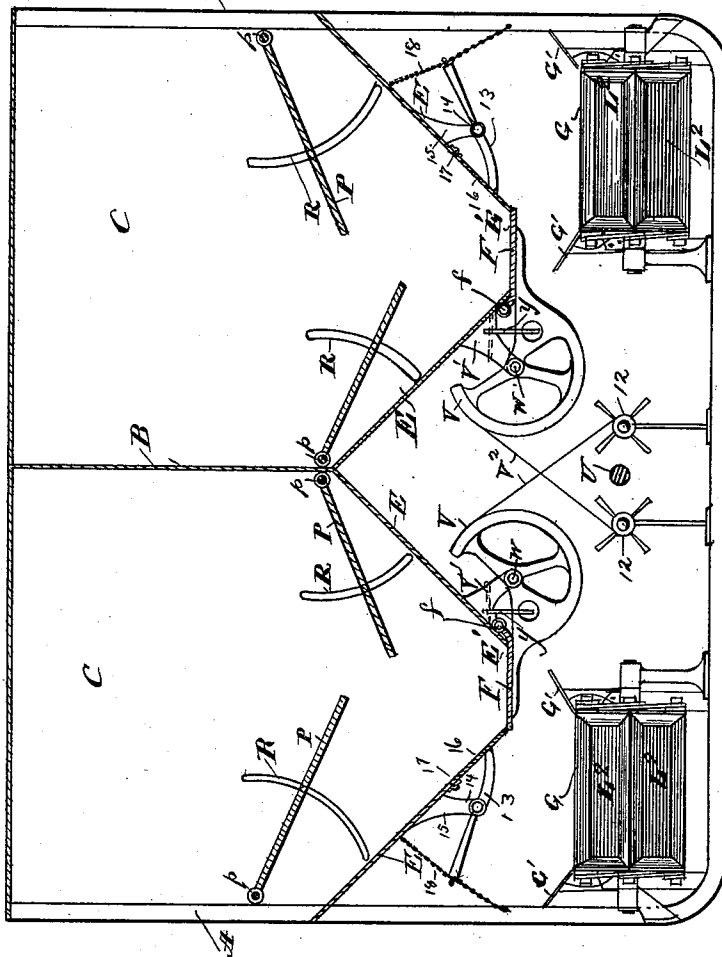


Fig. 6.



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UNITED STATES PATENT OFFICE.

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TRANSPORTATION, STORAGE, AND DISCHARGING VESSEL.

SPECIFICATION forming part of Letters Patent No. 506,840, dated October 17, 1893.

Application filed July 5, 1892. Serial No. 438,878. (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 Transportation and 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 and for transporting purposes, from which the material is to be delivered in known or variable quantities, with the object in view of accurately measuring material discharged and thus preventing doubt or dispute, and in saving time and in economy in discharge.

My invention consists, primarily, in a vessel hull provided with stationary receptacles filling any portion of the hull desired; and adapted to receive and discharge large portions of the cargo or the whole cargo, while a further feature of the invention is found in one or more independent receptacles attached to oscillating scale lever mechanism whereby small portions of the load may be discharged and accurately weighed.

My invention further consists in the improved mechanism for operating the discharge gates at the base of pockets and in the various details of construction and combination and arrangement of parts, as hereinafter described, shown in the accompanying drawings, and more specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a boat showing the carrying portion in vertical central section. Fig. 2 shows a plan of vessel carrying the improved forms of receptacles. Fig. 3 is a vertical transverse section of boat showing oscillating receptacles on line *a-a* Fig. 2. Fig. 4 is a side view of oscillating receptacle or compartment, showing gate operating mechanism, taken on center line Fig. 2. Fig. 5 is a view of the opposite lower side of one of the receptacles. Fig. 6 is a vertical transverse section of the boat on line *x-x* Fig. 2. Fig. 7 is a detail of catch. Fig. 8 is a detail view of floor lever; and Fig. 9 is a detail of the side of receptacle showing one of the slot covers

and detached lugs. Fig. 10 is a perspective view of the elevator box.

In the figures, A is the hull of the boat; B is a longitudinal partition passing through the center of the boat, and serving as a partition between the receptacles, C, C, formed by cross partitions *c'*. These partitions are integral with or securely fastened to the hull at the sides and to one another, but do not descend completely to the bottom of the hold, but form the sides and end of stationary receptacles, as shown in section in Fig. 6. The lower portions of receptacles are formed of sloping sides, E, inclosing between them tapering spaces terminating in openings E' provided with gates at F, through which the material can be discharged, subject to the mechanism shown. The bottoms may be flat if desired, on one or both sides. It will be seen that the partitions, both central and across the boat, tend greatly to stiffen the vessel with her weight of cargo.

Underneath the receptacles run the conveyers G, into which material from the receptacles falls when the gates are opened. These conveyers are actuated from any convenient source of power, as from the engine room and discharge in turn into the vertical elevators H, which discharge into swivels I, and thence are connected with the shore terminals, or discharge overboard, wherever desired.

G' are side boards to prevent spilling the load.

The horizontal and vertical conveyers complete a series from the receptacles.

The connection of the horizontal conveyers with the elevators is seen in Fig. 1.

In order to incline the forward end of the conveyer, guides J may be employed to secure the position of the conveyer. The supports for the conveyer may be attached to any convenient point desired.

K are sprocket wheels supporting the ends of the conveyer.

A hood L receives the conveyer's discharge.

M, is the tower or box in which the elevator travels, and the rear of the box opens by covers M' so that any clogging can be relieved.

M² is a door or small hatch in the deck, closed when the covers M' are closed.

N' is an additional guiding wheel which

permits the pans L' of the elevator to be thrown back so that all are completely dumped before passing the swivel spout I . This spout is swiveled at i and supported on the swing rod I' provided with joint I^2 , and hinge I^3 . N and N^2 are the upper and lower chain wheels.

The independent receptacles O are shown at the rear of the vessel next to the engine room and do not touch one another or the sides of the vessel but rest upon the scale lever mechanism as heretofore exhibited and described in my former application bearing Serial No. 405,555 and date of application of September 12, 1891. Hence do not require description here. These pockets or compartments are provided with one or more internal shelves or plates P hinged at the side at p . These shelves are used to adjust the speed of delivery and are supported upon pins Q projecting through circular slots R in the ends of the receptacles.

A swinging locking device is shown at S pivoted at S' adapted to receive the pins Q in recesses s at any point desired to give the shelves the proper inclination. Lugs T are employed to fill the space in the slots and prevent the escape of dust or ore. These lugs are provided with overhanging pawls t which engage the racks r and they assist to support the pins Q . The shelves are raised or lowered by ropes from above, shown in dotted lines at p' in Fig. 3. These ropes may be employed to support the shelves.

The mechanism for operating the gates is extremely simple and effective and is constructed as follows: U is a main shaft running centrally between the independent receptacles and rotated from the engine room in any convenient manner. On this shaft are sleeved the loose drums u from which cords V^2 connect with the drum levers V of any desired shape, pivoted on supports V' on the independent receptacles at W . These levers are provided with projecting arms x which support the gates F pivoted at f . When closed as in the normal condition the spring pawls y catch under the arms x and hold the gates F closed. Cords or rods x' connect with the engine or operator's room and serve to disconnect the pawls when it is desired to open the gate F . When a sufficient amount has been discharged from the receptacle the mechanism employed to return the gate consists in the clutch Z placed upon the shaft upon a spline and adapted to engage the drum u and impart to it the movement of the shaft, upon which the drum u will pull over the lever V and raise the attached arm and the gate which is pivoted at f upon the receptacle. The clutch Z is then thrown out of engagement with the drum u by means of the angular floor lever 1 , moving in the bearings 2 and 3 , and the link 4 pivoted to the clutch lever at 5 , a floor bearing 6 being provided for the lever. A detail of this is shown at Fig. 8. A turn-buckle 9

serves to adjust the length of the angular lever and joints 10 and 11 serve to loosen the vertical arm of the lever 1 when the lever V and arm X are revolved downward so as to give the lever V free movement. A rod Z' connects the clutch lever with the operating room. It will be seen that by means of this mechanism the gate may be opened and closed at the will of the operator.

In Fig. 6 is seen a similar arrangement for the stationary receptacles, which however are completely cleared of their contents and do not require the power mechanism to return the gates to the empty receptacle. In this instance hand reels or drums 12 are employed to close the gates which when released together with the pawls will permit the gates to open of their own accord from the weight upon them. It will be seen that by this method the larger bodies of coal or ore can be discharged at once from the fixed receptacles of known capacity, while the lesser amounts can be discharged from the independent receptacles. 13 are levers pivoted at 14 to supports 15 , on the receptacles and serve to oscillate the sides of the pockets 16 hinged at 17 . A chain or rope 18 prevents their being drawn down till released.

It will be seen that as a modified form of this invention the partitions forming the compartments can be supported on the bottom without touching the sides of the hull or may be attached to a hull lining. If the size of the boat requires, the number of longitudinal partitions may be increased to as many as the width of the boat will contain, and the number of the conveyers may be proportionally increased. Again in smaller vessels the central partition may be dispensed with and only one conveyer series will be required.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a vessel for transportation and storage purposes, the combination of receptacles located within the hull and provided with discharge gates underneath their bottoms, shelves in the receptacles adapted to lie at varying angles and a hinged side of the receptacle, substantially as and for the purpose set forth.

2. In combination with receptacles located within a storage or transportation vessel and provided with discharge gates in their bottoms, means for opening and closing the gates consisting of the drum levers V pivoted at W , and provided with projecting arms x , pawls y , provided with cords or rods, x' , drums 12 and cords v^2 , substantially as described.

3. In a transportation vessel the combination of stationary receptacles provided with gates and operating mechanism therefor, pivoted shelves within the receptacles, and means for operating the shelves consisting in lifting cords, pins at the extremity of the shelves, moving in circular slots in the sides of the re-

ceptacle, detachable locking and closing lugs, in the slots, and pivoted guards for the slots substantially as described.

4. In combination with the receptacles provided with sloping bottoms, shelves P within the receptacles, pivoted at P' and provided with pins Q projecting through circular slots in the sides of the receptacle, with means for securing the same at any angle consisting in lugs T provided with pawls t, adapted to engage the racks r and locking bar S, substantially as described.

5. In combination with a storage receptacle provided with a longitudinal discharge opening in its bottom, a gate hinged at one side of the opening adapted to open downwardly, levers, V pivoted on the receptacle at one side

of the opening and provided with projecting arms, on which the gate rests, and operating mechanism for the levers substantially as described.

6. In a storage vessel the combination of receptacles located within the hull thereof provided with gates hinged at the side of longitudinal openings, in their bottoms and pivoted levers V adapted to support said gates, with horizontal conveyers underneath said openings in said receptacles, and independent vertical elevators at the forward extremities of the horizontal conveyers.

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