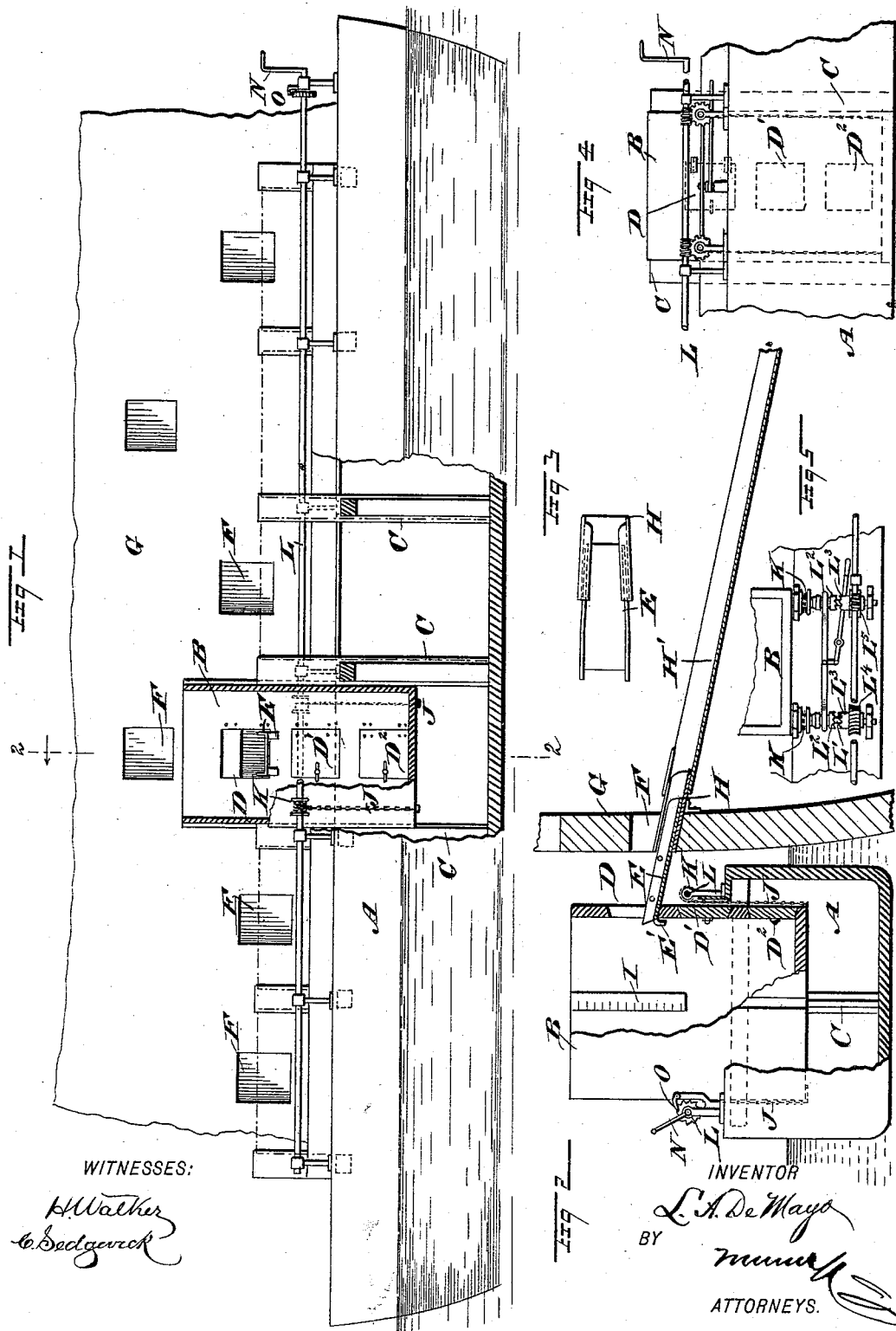


(No Model.)

L. A. DE MAYO.
LOADING DEVICE.

No. 493,986.

Patented Mar. 21, 1893.



WITNESSES:

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LOUIS A. DE MAYO, OF NEW YORK, N. Y.

LOADING DEVICE.

SPECIFICATION forming part of Letters Patent No. 493,986, dated March 21, 1893.

Application filed June 14, 1892. Serial No. 436,669. (No model.)

To all whom it may concern:

Be it known that I, LOUIS A. DE MAYO, of New York city, in the county and State of New York, have invented a new and Improved Loading Device, of which the following is a full, clear, and exact description.

The invention relates to devices for loading coal, grain, and other articles and substances into ships from barges and other vessels; and the object is to provide a new and improved loading device which is simple and durable in construction and permits of loading the ship in a very short time without requiring much labor.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied, and with parts in section; Fig. 2 is a transverse section of the same on the line 2—2 in Fig. 1. Fig. 3 is a plan view of the chute. Fig. 4 is a side elevation of a modified form of the hoisting device for the boxes; and Fig. 5 is a plan view of the same. The improved loading device is arranged on the barge A provided with a series of boxes B, mounted to slide vertically in suitable guideways C erected in the barge A. As illustrated in the drawings, the guideways C engage the ends of each box B, at or near the middle of the same, but they may be otherwise disposed if desired. Each of the boxes B is preferably of nearly the width of the barge A, as will be readily understood by reference to Fig. 2. In each side of a box B are formed a series of doors D, D', D², located one above the other and adapted to connect by a chute E with a port hole F, formed in the side of the ship G to be loaded with the articles contained in the boxes.

As shown in Fig. 2, each port hole F is provided with a fixed chute H engaged by the outer end of the chute E, which latter is hung in the bottom of the door opening, when the door is opened, by means of hooks or lugs E'. The free inner end of the chute E is loosely connected with the fixed chute H, so

that any sway of the barge or ship G does not disengage the two chutes while delivering the coal over the chute E. The inner end of the fixed chute H may be connected with a chute H' for delivering the coal to any desired place in the ship's hold.

In each of the boxes B is a scale for indicating the amount of coal stored in the respective box, the said scale extending from the top downward on one of the ends of the box, as shown in Fig. 2.

In arranging the boxes B on the barge A, I prefer to locate the boxes distances apart which correspond with the distance between two adjacent port holes, so that when the barge A is moved alongside the ship G then the several boxes B register with the corresponding port holes so that the boxes, when raised, can be directly connected with the several port holes by means of the chutes E, and the coal is permitted to run from the boxes over the chutes E, H and H' into the hold of the vessel.

The boxes B may be raised or lowered independently of one another or they may be raised collectively by suitable hoisting means. Preferably I connect the sides of each box B by chains J with drums K attached to shafts L arranged longitudinally and mounted to turn in suitable bearings on the sides of the barge A on the deck of the same. The end of each shaft L is provided with a suitable mechanism for turning the said shaft, such as a crank arm N, and each shaft is adapted to be locked in place by a suitable locking device O preferably a ratchet and pawl, as shown in the drawings.

In order to raise or lower the boxes B independently of one another, I prefer the arrangements shown in Figs. 4 and 5, in which the drums K are secured on transversely extending shafts L' each carrying a clutch L² adapted to engage a similar clutch L³ formed on a worm wheel L⁴ mounted to rotate loosely on the said shaft L' and in mesh with a worm L⁵ secured on the longitudinally extending shaft L. Now, when it is desired to raise one of the boxes or a number of the same, then the clutches L' of the corresponding box or boxes are thrown in mesh with the clutches L³, so that when the shaft L is now rotated, the worms L⁵ impart a rotary motion to the

worm wheels L⁴, whereby the shafts L' are rotated and the chains J are wound up on the drums K and the corresponding box or boxes B are raised. By turning the shafts L in an opposite direction, the boxes B slide downward by their own weight, as the chains J then slacken.

In loading a vessel with coal, for instance, the boxes B containing the coal are raised so that the uppermost door D is somewhat above the corresponding port hole F through which the coal is to be introduced into the ship's hold, as will be readily understood by reference to Figs. 1 and 2. As soon as the box or boxes B have been raised, then the operator opens the uppermost door D, places the chute E in position in the door, as described, so that the coal contained in the upper part of the boxes B runs over the chute E into the chute H, and from the latter over the extension H' to the desired part in the hold of the vessel. When the coal stops running of its own accord, then it is shoveled into the chute E and when the level of the coal is finally below the bottom of the door D, then the box B is again raised by turning the shafts L, as above described, so that the second door D' is somewhat above the corresponding port hole. The chute E is connected with the second door D' when open so that the coal is again transferred from the box B over the chutes E, H and H', as above described. When the coal gets low then the box B is again raised and the chute E is connected with the lowermost door D² until all the coal has been transferred from the box to the ship's hold in the manner above described. It will be seen that when the boxes B are arranged to correspond with the rows of port holes in the vessel, then the several boxes can be unloaded simultaneously

in the manner above described, but in case the boxes do not register with the several port holes, then each box B is emptied separately at the corresponding port hole, and then the barge A is shifted so as to bring the next following box into proper line with the desired port hole. In case all the material has to be loaded through one single port hole, then of course the boxes are raised independently and unloaded independently, the barge then being shifted to bring the successive boxes B into alignment with the corresponding port hole. As shown, doors D, D' and D² are arranged in both sides of each box B, so that the barge A can be moved alongside the vessel from either side to accomplish the unloading, as above described. By a loading device constructed in this manner, a ship can be very quickly loaded without requiring much manual labor. It is understood that after the boxes B have been emptied of their contents, they are loaded in the hold of the barge A. When the boxes B are in a lowermost position, as shown in the drawings, their upper ends may extend above the deck of the barge A.

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

The combination with a barge, of boxes mounted to slide vertically in the barge and each provided in its sides with doors one above the other, and means for raising the boxes separately or collectively, substantially as set forth.

LOUIS A. DE MAYO.

Witnesses:

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