J. W. MITCHELL.

Reversible Dumping-Scow.

No. 214,433. Patented April 15, 1879.

Fig. 1

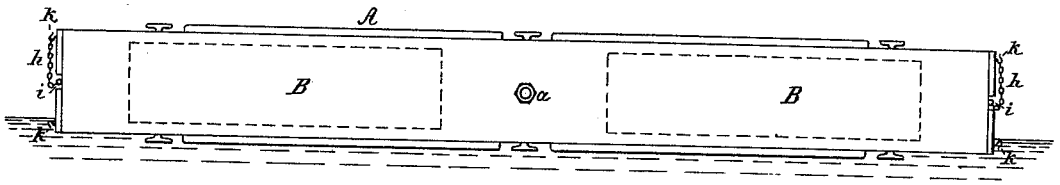


Fig. 2

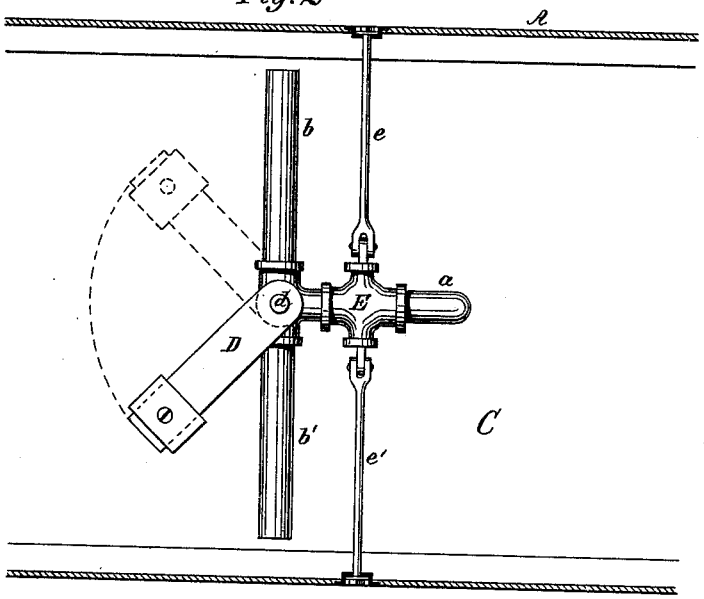
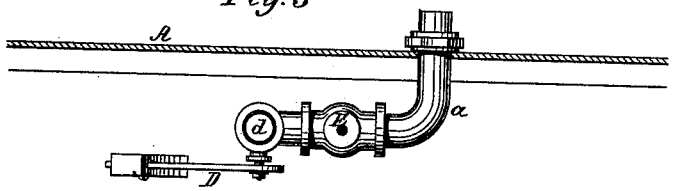


Fig. 3



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UNITED STATES PATENT OFFICE.

JOHN W. MITCHELL, OF BAYONNE, NEW JERSEY.

IMPROVEMENT IN REVERSIBLE DUMPING-SCOWS.

Specification forming part of Letters Patent No. **214,433**, dated April 15, 1879; application filed March 4, 1879.

To all whom it may concern:

Be it known that I, JOHN W. MITCHELL, of Bayonne city, county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Reversible Dumping-Scows; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a vertical section, showing the arrangement of the pipes and attachments; and Fig. 3, a horizontal section through the valve-chambers.

The principal object of my invention is to facilitate the dumping or unloading of transport-boats; and the invention consists, broadly, in constructing a water-tight hull in duplicate from its longitudinal horizontal central section, which will capsize and reverse its position when settled to its full displacement, discharging its deck-load, and maintaining itself in its reversed position.

In order to enable others to understand my invention, I will first proceed to describe a boat embodying the same, and then to point out in the claims its novel characteristics.

In the drawings, A represents the hull, constructed of the ordinary double-ender pattern, with water-tight flush decks that serve alternately as the carrying-deck and bottom, each being supplied with suitable guard-rails, that also serve as false keels, which, in a great measure, prevent rolling in a seaway, or drifting to leeward with a strong wind.

The interior contains one or more air-compartments, B B, which may be located near the respective ends of the hull, arranged centrally, as shown, so as to preserve an even keel, and should be of sufficient capacity to maintain the desired buoyancy. The surrounding space C is utilized as a water-chamber, the admission and removal of the water being regulated by a system of pipes and valves, hereinafter particularly described, whereby the position of the boat is reversed.

The water is admitted to and discharged from the interior through the same orifice, which is located in the side of the hull, about amid-ships, and on its central horizontal line. The pipe *a*, which serves as the induction and eduction pipe, projects a sufficient distance from the hull to form a connection with a hose leading to a suction-pump on board the accompanying towing-steamer, by means of which the water is discharged. This pipe *a* is connected directly with the vertical branch pipes *b b'*, arranged transversely thereto and extending in opposite directions nearly to the full depth of the water-chamber.

At the intersection of the main pipe *a* and the vertical branch pipes *b b'* a three-way cock, *d*, is placed, by which the water is directed through either branch to or from the interior. Upon the projecting spindle of the cock *d* a weighted arm, D, is rigidly connected, which automatically operates the valve to communicate only with the main pipe *a* and the branch pipe that projects downwardly, the weighted arm gravitating toward the bottom when the hull is reversed, causing a corresponding movement of the valve.

A stop-valve, E, is arranged upon the main pipe *a*, to regulate the admission and discharge of the water, provided with operating-spindles *e e* leading to the respective decks, as shown, so that the valves are capable of operation when the hull is in either position. These spindles *e e* pass through stuffing-boxes seated in the decks, and may be operated by a key, wrench, or other suitable means, and protected by a movable cap.

The water-space C is also provided with two air-valves having a communication with the atmosphere and located upon opposite sides of the hull, and near the upper part of said space when the hull is in either position, so that but one is submerged at the same time and kept closed, the uppermost valve permitting the escape or admission of air to the water-space, and equalizing the atmospheric pressure with the exterior.

Man-holes with plates are provided to give access to any part of the interior of the hull, which is also provided with the usual exterior fixtures common to this class of boats, except in the arrangement of the towing devices, which consist of a chain, *h*, connected to an eyebolt, *i*, secured to the center of the stem, and of sufficient length to engage with the towing-hooks *k k*. The chain *h* is provided at its free end with a towing-ring, which is linked

to the upper hook when the boat is under way, and when capsized the ring disengages itself from the hook, and is readily transferred to the opposite one.

Operation: The interior water-space is pumped dry and the deck loaded, which causes a greater or less displacement, according to the nature of the cargo transported, and submerges the inlet-orifice. In discharging the deck-load, the stop-valve E is opened, and water is admitted to the interior space, C, which rapidly fills until the hull has settled to its full displacement, and completely submerges itself, when it will instantly capsize, relieve itself of the deck-load, and rise in its reversed position with a displacement due to the weight of the water admitted, and with the discharge-orifice exposed above the water-line. The water is then discharged by pumping, and the boat ready to receive another load.

The interior space surrounding the air-compartments permits the water (which is let in to increase the displacement) to rush in the direction of the rotation of the boat in capsizing, and materially assists such action.

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

1. A boat for transporting deck-loads, consisting of a water-tight hull, with flush decks that serve alternately as the carrying-deck and bottom, provided with suitable devices for admitting water to the whole interior space, as described, whereby the hull is settled on an even keel to its full displacement, and then capsized by the preponderance of its deck-load, as set forth.

2. The pipe *a*, provided with a stop-valve, E, having duplicate spindles *e e*, whereby said valve may be operated from either deck, as set forth.

3. The pipe *a* and vertical branch pipes *b b'*, provided at their intersection with a three-way cock, *d*, having the weighted arm D, whereby the cock is automatically operated when the boat is capsized, as set forth.

4. The towing-hooks *k k* and intermediate connecting-chain *h*, whereby the towing-line is automatically disengaged from the submerged hook when the boat is capsized, as set forth.

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Witnesses:
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