

No. 647,449.

E. W. JOHNSTON.
MARINE TRAM.

(Application filed Nov. 28, 1899.)

Patented Apr. 10, 1900.

2 Sheets—Sheet 1.

(No Model.)

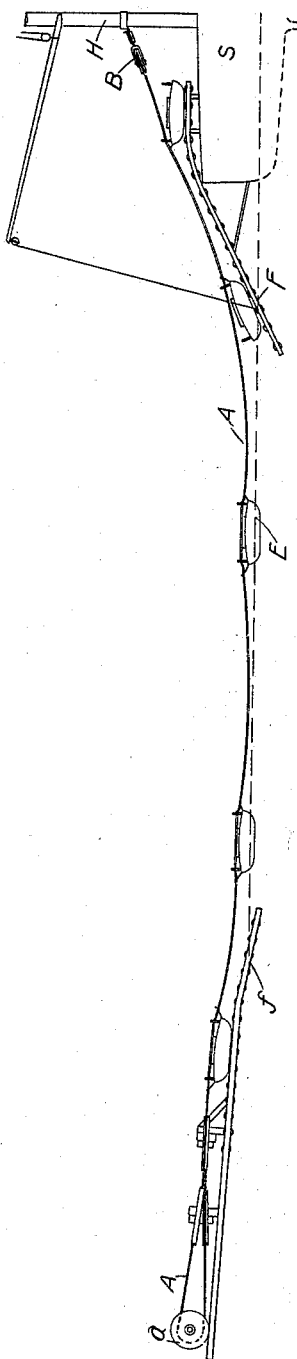


Fig- 1-

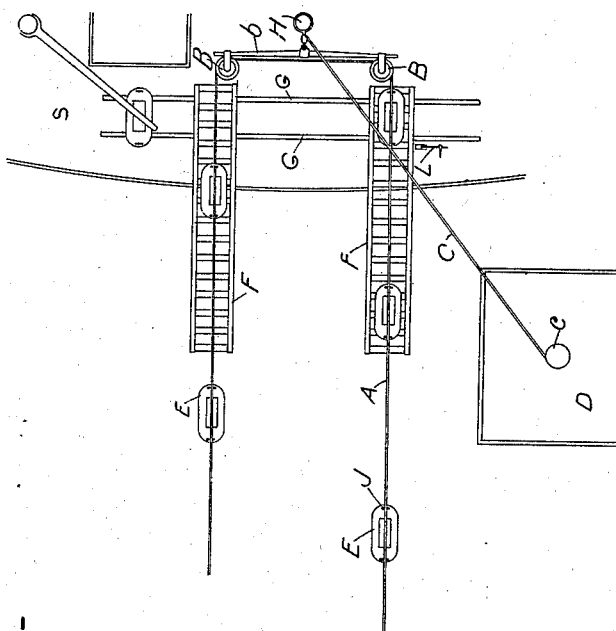
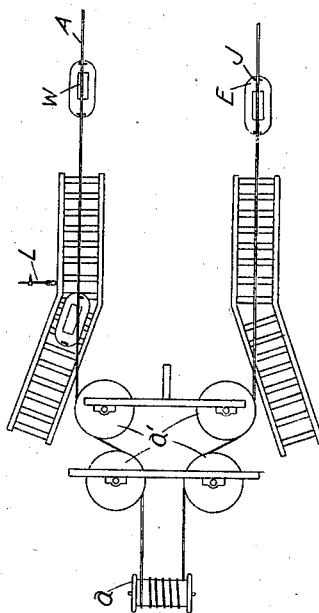


Fig- 2-



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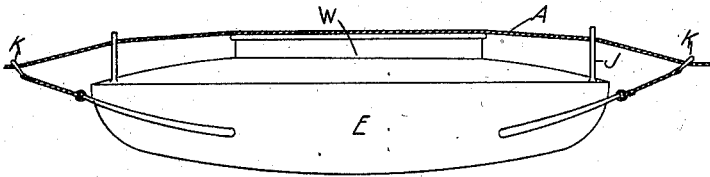


Fig. 3.

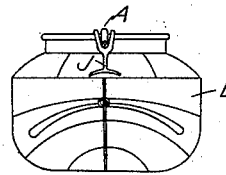


Fig. 4.

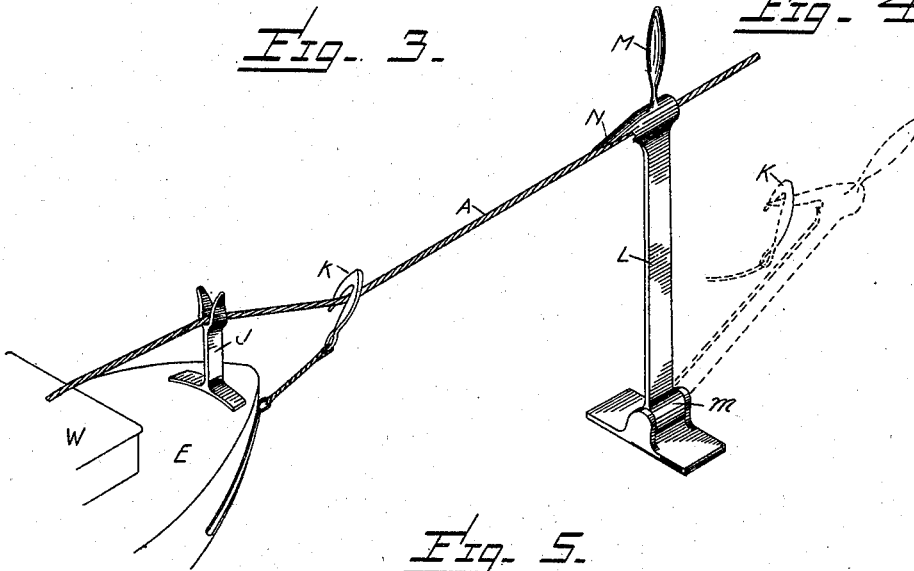


Fig. 5.

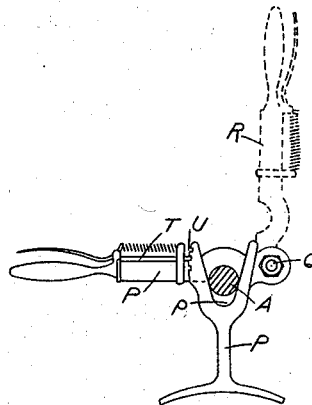


Fig. 6.

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UNITED STATES PATENT OFFICE.

ELIAS W. JOHNSTON, OF SEATTLE, WASHINGTON.

MARINE TRAM.

SPECIFICATION forming part of Letters Patent No. 647,449, dated April 10, 1900.

Application filed November 28, 1899. Serial No. 738,601. (No model.)

To all whom it may concern:

Be it known that I, ELIAS W. JOHNSTON, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Marine Trams, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to marine cargo-transfers; and its object is to provide convenient means for loading or discharging cargoes of vessels from ashore over a shallow beach which necessitates the vessel lying at a great distance from the shore.

Cargoes have heretofore under the above conditions been handled in smooth water by lighters lying alongside the vessel being operated upon and having the said lighters towed or hauled to and from the vessel. I am aware that cables carrying suspended buckets have been utilized, but, as will be readily apparent, the scope of operation, due to the sagging of said cable under loads, is limited to short distances, and to prevent the buckets striking the water the terminals are elevated to as high an altitude as possible, and in the raising of which terminals is detrimental from the fact that even slight rolling of the vessels induced by sea-swells causes the mast to which the cable is engaged to oscillate to a degree sufficient to interfere in the operating of such a system. My invention is designed to overcome these objectionable features by the use of an endless cable driven at a comparatively-slow speed and designed to haul to and from a vessel at short intervals pontoons which not only furnish means for conveying the cargo, but also support the said cable, and instead of having to load or discharge these pontoons alongside of the ship, as by the present lighterage system, they are hauled directly upon the deck of the vessel or upon the shore, as the case may be, and the cargo handled with no inconvenience to the stevedores.

My invention further consists in certain combinations and arrangements of parts, which will be hereinafter described, and pointed out in the claims.

The accompanying drawings, in which similar letters refer to like parts in the several views, clearly illustrate the manner of constructing and using my invention.

Figure 1 is a vertical side view, and Fig. 2 is a plan view, showing my improved manner of arranging transfer mechanism. Fig. 3 is a vertical side view, and Fig. 4 is a vertical end view of a cargo and cable carrying pontoon with cable connections thereon. Fig. 5 is an enlarged perspective view of the end of a pontoon with preferred form of cable-securing arrangement and also detaching device, and Fig. 6 is a vertical end view of another form of cable-securing arrangement.

In the drawings, A represents an endless cable led around the driving-drum *a* and fair-lead-ers *a'*, and from thence to pulleys B B, suspended from a mast H upon the vessel S and supported and kept at a distance apart by the spreader *b*, that the said pulleys B will lead the cable A over the apron-rollways F, hereinafter referred to.

The spreader *b*, to which the pulleys B are attached, is secured to the mast by hook or lashing, so as to be readily cast off when it is desired that the vessel weigh anchor, and I provide a connecting-line C, leading to windlass or capstan *c* on a large pontoon or float D, permanently moored near the ship anchorage, to haul the detached off-shore end of the gear to be stowed away upon float.

The cargo and cable carrying pontoons E (shown separately in Figs. 3 and 4) are made, preferably, as shown, with hatch-covers W to seal the same water-tight. These pontoons are attached to the cable A while it is in motion by throwing the cable within the jaws of the forked supports J, positioned near the extremities of said pontoons and at a height, preferably, that the lower part of forks will be in line even with or lower than the surface of said hatch-cover for the purpose of assisting in holding down the said hatch-cover, and after the cable is dropped into said forks hooks K are caught upon cable, deflecting it from a right line, causing a tension upon the forked supporting members and hauls the pontoon with said cable.

The pontoons E are uncoupled upon the shore and ship for loading or discharging purposes by a trip, (shown in Fig. 6,) consisting of an arm L, fulcrumed at *m*, with handle M, and a pin N, adapted to engage with the hook K when by a backward movement of arm to position indicated by broken lines K' the

hook is thrown from the cable, thus disconnecting the pontoon from the cable.

In Fig. 6 I show a form of gripping device that may be substituted for the above, in which the cable is forced down and held within the fork *p* of standard *P* by a lever *R*, fulcrumed at *Q* and having a spring-actuated lock-bolt *T* engaging in notch *U*. *R'* shows lever thrown back, thereby releasing the cable. *F F* are apron-rollways for conveying pontoons over the bulwarks of the vessel, and *ff* are rollways for taking pontoons from the water on shore. Between rollways *F F* and extended to either side thereof upon the deck of the vessel is a system of cross-rolls or skids *G* to transfer the pontoons *E* for loading or to the return portion of cable. The operation of these parts may be readily gathered from the foregoing description and is so obvious that a further explanation of it is deemed unnecessary.

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

1. In a device of the character described, a drum, an endless cable wound thereabout, means for spreading the cable to form an elongated loop said loop adapted to be secured to a vessel, pontoons capable of engaging the cable, and inclined apron-rolls near the ends of the loop to support the pontoons, substantially as described.

2. In a device of the character described, a drum, an endless cable wound thereabout, means for spreading the cable to form an elongated loop, the one end of said loop adapted

to be secured to a vessel, pontoons capable of removably engaging the cable, inclined apron-rolls near the ends of the loop to support the pontoons, and means for disengaging the pontoons from the cable, on arriving at the apron-rolls, substantially as described.

3. In a device of the character described, a drum, an endless cable wound thereabout, means for spreading the cable to form an elongated loop, the one of said loops adapted to be secured to a vessel, pontoons provided at both ends with means for engaging the cable, hatch-covers on the pontoons at a greater elevation than the engaging means, and adapted to have the cable bear thereon, substantially as described.

4. In a device of the character described, a pontoon, upright forks provided near the ends thereof, a hatch-cover of greater elevation than the forks, a cable passing through the forks and over the hatch-cover, and hooks on the ends of pontoon adapted to engage the cable, substantially as described.

5. In a device of the character described, a suitably-driven cable, a pontoon, a hook secured to the pontoon and engaging the cable in combination with a pivoted hand-lever and a pin on the hand-lever for disengaging the hook from the cable, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELIAS W. JOHNSTON.

Witnesses:

PIERRE BARNES,
ERNEST E. GILMER.