

14

No. 817,229.

PATENTED APR. 10, 1906.

J. P. DOYLE.
VESSEL TRIMMER.

APPLICATION FILED NOV. 16, 1904.

2 SHEETS—SHEET 1.

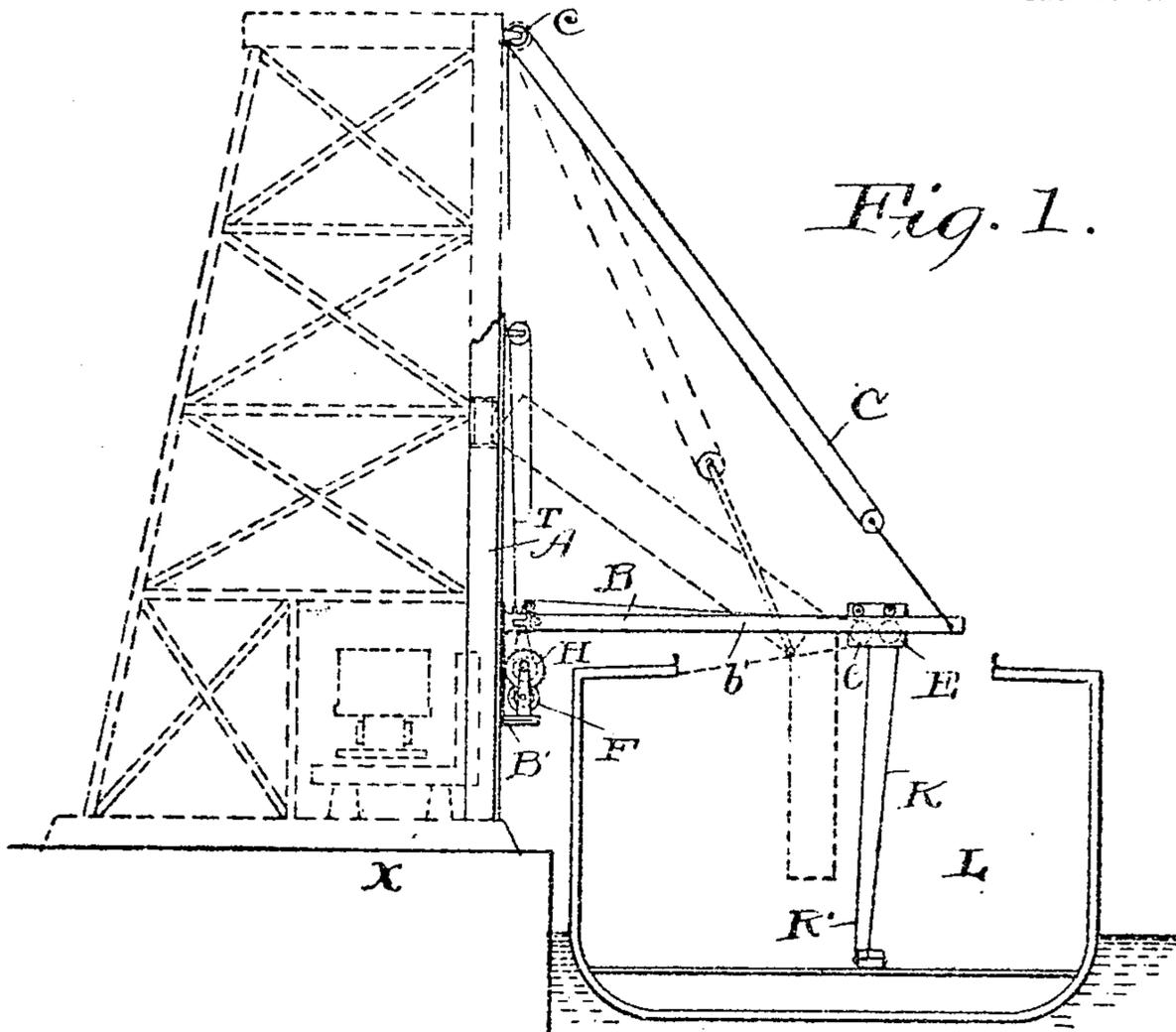


Fig. 1.

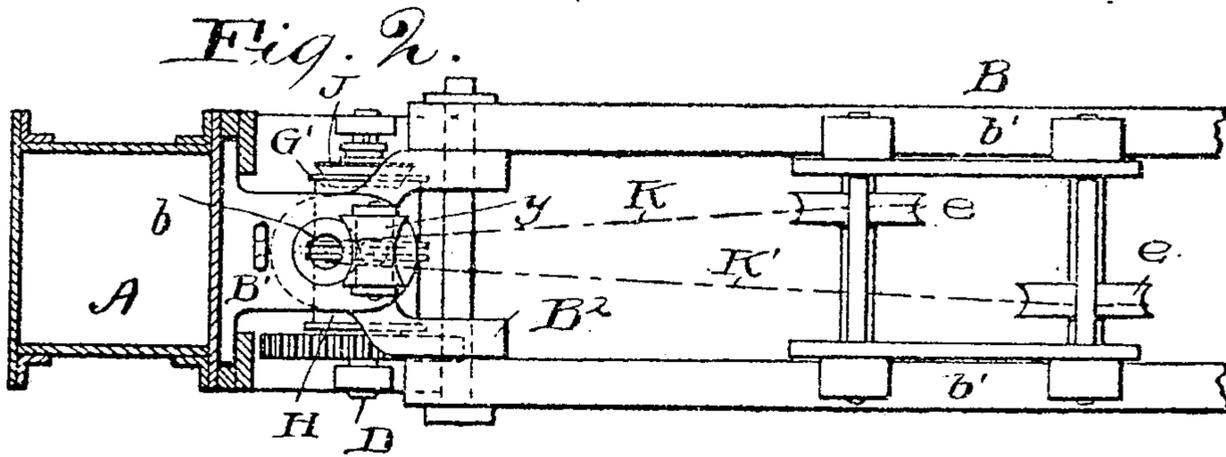


Fig. 2.

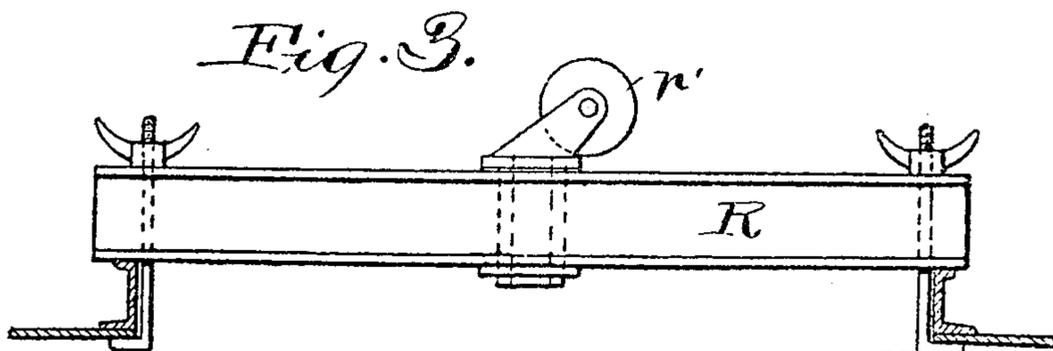


Fig. 3.

Witnesses.
E. B. Gilchrist
N. L. Brewster.

Inventor:
Joseph P. Doyle,
By his Attorneys,
Thurston & Bates.

14

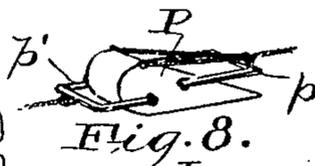
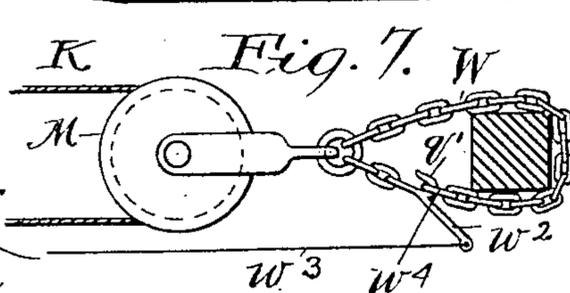
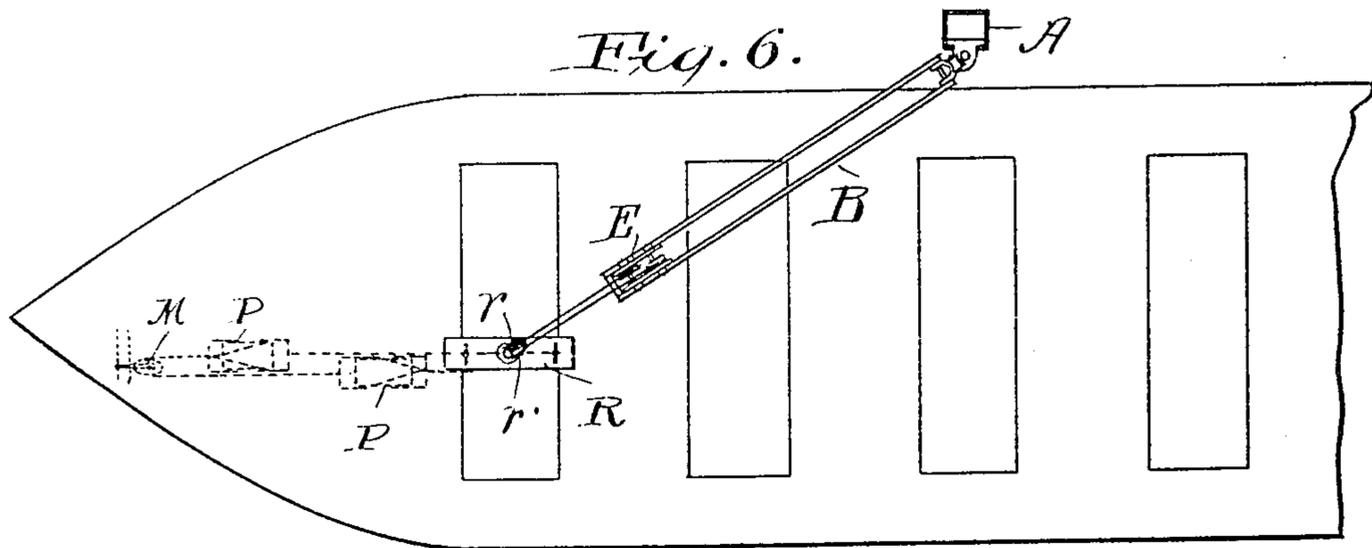
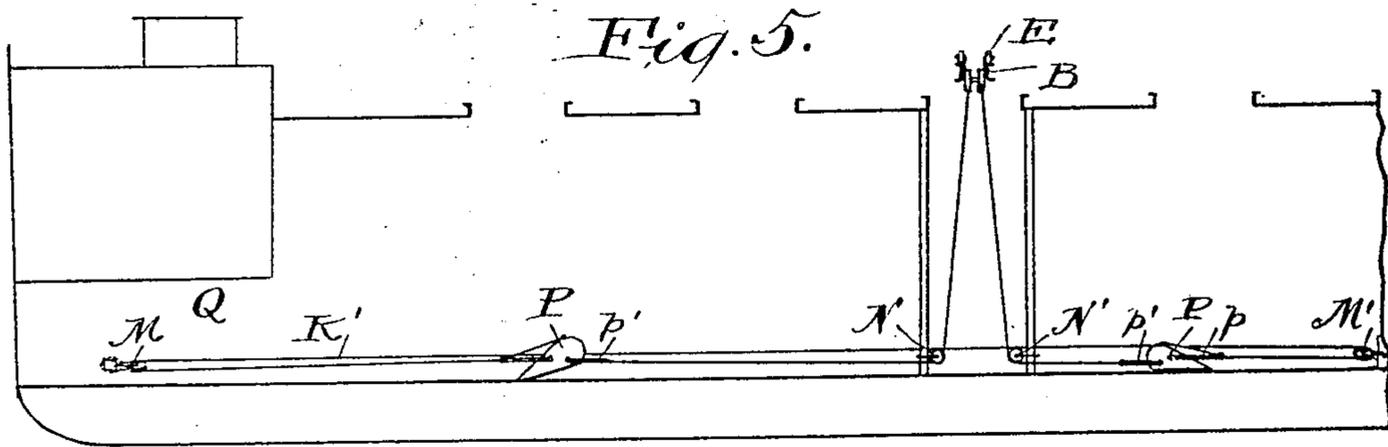
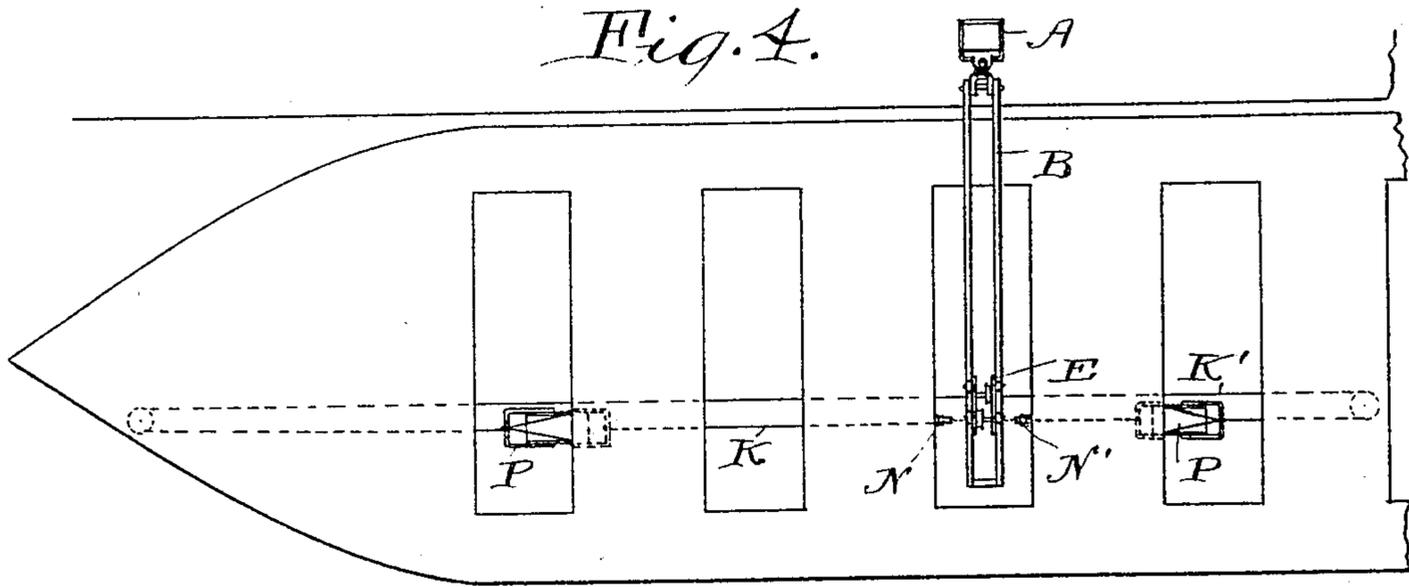
No. 817,229.

PATENTED APR. 10, 1906.

J. P. DOYLE.
VESSEL TRIMMER.

APPLICATION FILED NOV. 16, 1904.

2 SHEETS—SHEET 2.



Witnesses.
E. B. Gilchid
N. L. Brennan

Inventor
Joseph P. Doyle,
By his Attorneys,
Thurston & Bates.

UNITED STATES PATENT OFFICE.

JOSEPH P. DOYLE, OF CLEVELAND, OHIO.

VESSEL-TRIMMER.

No. 817,229.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed November 16, 1904. Serial No. 232,941.

To all whom it may concern:

Be it known that I, JOSEPH P. DOYLE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in a Vessel-Trimmer, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention is generically a vessel-trimming apparatus, but is especially constructed for use in connection with the loading of coal onto such vessels as sail on the Great Lakes. The docks where such vessels are loaded are usually provided with car-dumping machines which lift a loaded coal-car to a suitable height and then tip it over, so as to dump out the load onto an inclined apron. The coal slides down this apron into a vertical tube attached thereto and extends down into the hold of the vessel. In such vessels there is a large space in the bow underneath the cabins, which has not heretofore been utilized for carrying coal. It is to level or trim the coal so loaded into the hold that the present invention is designed; but it is particularly adapted for dragging such coal into a space in the bow beneath the cabins which has not heretofore been utilized. It is also useful for breasting a vessel out from the dock to get it into suitable position for effectively loading it with the appliances on the dock provided for that purpose.

In the drawings, Figure 1 is a side elevation of my improved apparatus and a sectional view of a vessel with which it is being used. The view also shows in dotted lines and more or less diagrammatically a car-dumping machine, one of the posts of this machine being utilized as a support for the boom which forms parts of the present invention. Fig. 2 is an enlarged plan view of the dock end of said boom and a horizontal sectional view of the supporting-post. Fig. 3 is a sectional side view of a beam clamped upon the hatch-coaming of a vessel and carrying lead-sheaves for the purpose hereinafter described. Fig. 4 is a plan view of a forward end of a vessel and of my apparatus in operative relation thereto. Fig. 5 is a vertical longitudinal sectional view of the parts shown in Fig. 4. Fig. 6 is a view similar to Fig. 4, but showing the boom in a different position. Fig. 7 is a detached view of one of the fore-and-aft lead-blocks, showing the means for detachably connecting it to a stanchion or some other beam in the

hold of the vessel; and Fig. 8 is a small perspective view of one of the scrapers which may be used.

The invention, as shown, includes a boom hinged to a supporting-post on the dock, which post is preferably one of the corner-posts of a car-dumping apparatus, said boom being adapted to overhang the deck of a vessel, cables for sustaining the outer end of said boom in the required position, a trolley movable upon said boom and adapted to be fixed thereto at a suitable point, sheaves upon said trolley, a reversible motor and winding-drums supported on the dock (in contradistinction to being supported on the vessel) lead-blocks for attachment in the hold of the vessel at points below said trolley and at two points which are respectively forward and aft said points, cables secured to said drums and passing over said sheaves and through said lead-blocks, and scrapers attached to the cable between the fore-and-aft lead-blocks referred to.

The invention consists in such combinations of the parts above referred to as definitely pointed out in the claims.

Referring to the parts by letters, A represents a substantial post on the dock X. This post is preferably one of the posts of a car-dumping machine or of some other apparatus which is useful in the loading of a vessel.

B represents a boom which is connected with said post by means which may be raised and lowered in accordance with the height of the vessel and which permits the boom to swing both vertically and laterally. In the construction shown a vertically-movable slide B' is mounted in grooves on the front of the post and is supported and raised and lowered by a cable T. A piece B² is pivoted to said slide on a hollow vertical pivot *b*, and the boom is pivoted to this piece B² on a horizontal pivot. The outer end of the boom is sustained by a cable C, which cable extends over the sheave *c* on top of the post and down to suitable mechanism (not shown) for taking it in and paying it out.

The boom consists of two parallel beams *b' b'*, which serve as tracks for a trolley E, on which the guide-sheaves *e e* are mounted. This trolley is movable on the boom; but when it has been moved to the desired position it must be secured thereto against further movement during the operation of the device. Any suitable means may be employed for so securing the trolley to the boom.

A motor F and a reversible shaft D, driven

thereby, must be provided and must be supported on the dock either directly or through the intervention of some device which is supported upon the dock. By preference these parts are supported on the slide B', as shown in the drawings; but it will be understood that this is not essential. On shaft D are two drums H G', one of which should be connected with said shaft by a clutch J. When in use, operating the scraper backward and forward, both drums are fixed to the shaft; but when it is desired to lengthen or shorten the cables K K' it is necessary to be able to disconnect one drum from the shaft.

The ends of the cables K K' are attached to said drums, respectively, and are wound thereon in opposite directions. The cables pass up through the hollow pivot *b*, over a roller *y*, mounted on piece B', and over the sheaves *e e* on the trolley and down into the hold of the vessel L. In the hold and at points approximately beneath the trolley E two lead-blocks N N' are secured. Two other lead-blocks M M' are fixed in the hold, one being forward and the other aft of the lead-blocks N N'. One cable goes from block N to and around one of these blocks M, and the other goes from block N' to and around the other block M', and a scraper P is attached to both cables between the two blocks N and N'. By winding up one cable the scraper will be drawn in one direction, and by winding up the other cable the scraper will be drawn in the other direction. The coal will be scraped in that direction in which the nose of the scraper is turned and carried as far as desired.

The scraper employed should be one which when drawn backward will tip sufficiently to dump its load. This result may be attained by employing a scraper substantially as is shown and connecting it in the manner shown to the cables. This scraper has upwardly-extended sides, to which is attached the forwardly-extended bail *p*, which is connected with said sides a substantial distance above the bottom. Another bail *p'* extends rearward from the scraper and is connected therewith close to the bottom. The cables K K' are connected with these two bails. When the scraper is pulled by the rear bail, the rear end of the scraper will be raised until the points at which both bails are connected are in the same horizontal plane, and this lifting of the rear end of the scraper is enough to cause the load to run out. A flexible connection may also be made between front bail *p* and the top of the scraper. The cable K will draw the scraper forward in a suitable position for doing effective work.

By changing the position of the trolley on the boom and of the lead-blocks in the hold the range of the scraper may be extended entirely across the vessel from side to side. The lead-blocks may be secured at any position in

the holds—as, for example, they may be secured at the front end of that space Q beneath the cabins which it is desired to fill with coal.

The lead-blocks M M' or one of them will be covered with coal, and therefore inaccessible when the apparatus has done its work. It is, however, necessary to remove this, and for this purpose they are each connected with a chain W, on one end of which is a hook *q'*, having a lever-arm *w*², to which a cable *w*³ is attached. The chain is passed around a stanchion or horizontal beam, and the hook is made to engage with a link *w*⁴. A cable *w*³ is connected with the lever-arm *w*² and is carried to a point where it will always be accessible. When it is desired to remove the described block, the cable *w*³ is pulled upon until the hook is in such position that it will disengage itself from the hook.

The capacity of the boom to swing sidewise is of advantage for two reasons—viz., it may be drawn out of the way of the upper works of a vessel about to be docked. It also adapts the cables to work through three or more hatchways without moving the vessel. For example, as shown in Fig. 6, the boom extends over the vessel at an angle of about thirty degrees to the dock-front. As shown, the boom is not long enough for the cables to come straight down therefrom through the hatches. Under such conditions a beam R may be clamped on the hatch-coaming and may carry lead-sheaves *r r'*, over which the cables run.

In the loading of vessels with the kind of machinery to be found on the docks for this purpose it is generally necessary to breast the vessel away from the dock, so as to distribute the inflowing cargo more evenly. This is usually accomplished by means of wedges drawn in between the dock and the vessel. The described mechanism, however, may be employed for this purpose and will move the vessel out from the dock in a very much shorter time than any mechanism heretofore employed. To use it for this purpose, one of the cables is drawn up from the hold and is then connected with the dock side of the vessel, said cable passing from this point up to the sheave *e* on the trolley, as indicated by dotted lines in Fig. 1. By winding up this cable the vessel will be breasted out from the dock to any extent required.

I claim—

1. In a vessel-trimmer, the combination of a dock, a boom hinged to a device secured to the dock, means for sustaining the outer end of said boom, a motor, and a reversible shaft driven thereby, both of which are mounted upon some device which is supported upon the dock, two drums secured to said shaft, a trolley movable upon said boom, lead-blocks mounted on said trolley, two lead-blocks secured in the hold of a vessel below one of the

hatchways, other lead-blocks secured in the hold of the vessel and located respectively forward and aft of the lead-blocks first mentioned, cables whose ends are wound in opposite directions upon said drums and which extend over the said lead-sheaves and around the blocks below the hatch, and which extend respectively around the forward lead-block and the aft lead-block, and a scraper connected with said cables, between said fore-and-aft lead-blocks.

2. In a vessel-trimmer, the combination of a dock, a post fixed to the dock, a vertically-movable slide having a guided connection with said post, a boom, and an intermediate piece pivoted both to the slide and to the boom by means of pivots of which one is horizontal and the other vertical, means for sustaining the outer end of said boom, a pair of reversible drums and their motor which are mounted upon some device which is supported from the dock, lead-sheaves carried by the boom, two lead-blocks secured in the hold of the vessel below one of the hatchways, other lead-blocks secured in the hold of the vessel and located respectively forward and aft of the lead-blocks first mentioned, cables whose ends

are wound in opposite directions upon said drums and which extend over the said lead-sheaves and around the blocks below the hatch and then respectively to forward lead-block and to the aft lead-block, and a scraper connected with said cable between said fore-and-aft lead-blocks.

3. In a vessel-trimmer, the combination of a dock, a post fixed to the dock, a vertically-movable slide having a guided connection with said post, a boom, and an intermediate piece pivoted both to the slide and to the boom by means of pivots of which one is horizontal and the other vertical, means for sustaining the outer end of said boom, a trolley movable lengthwise of said boom, a sheave mounted on said trolley, a winding-drum and its operating mechanism supported from the dock, and a cable wound upon said drum and extended out around the sheave upon the trolley.

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

JOSEPH P. DOYLE.

Witnesses:

E. L. THURSTON,
B. W. BROCKETT.