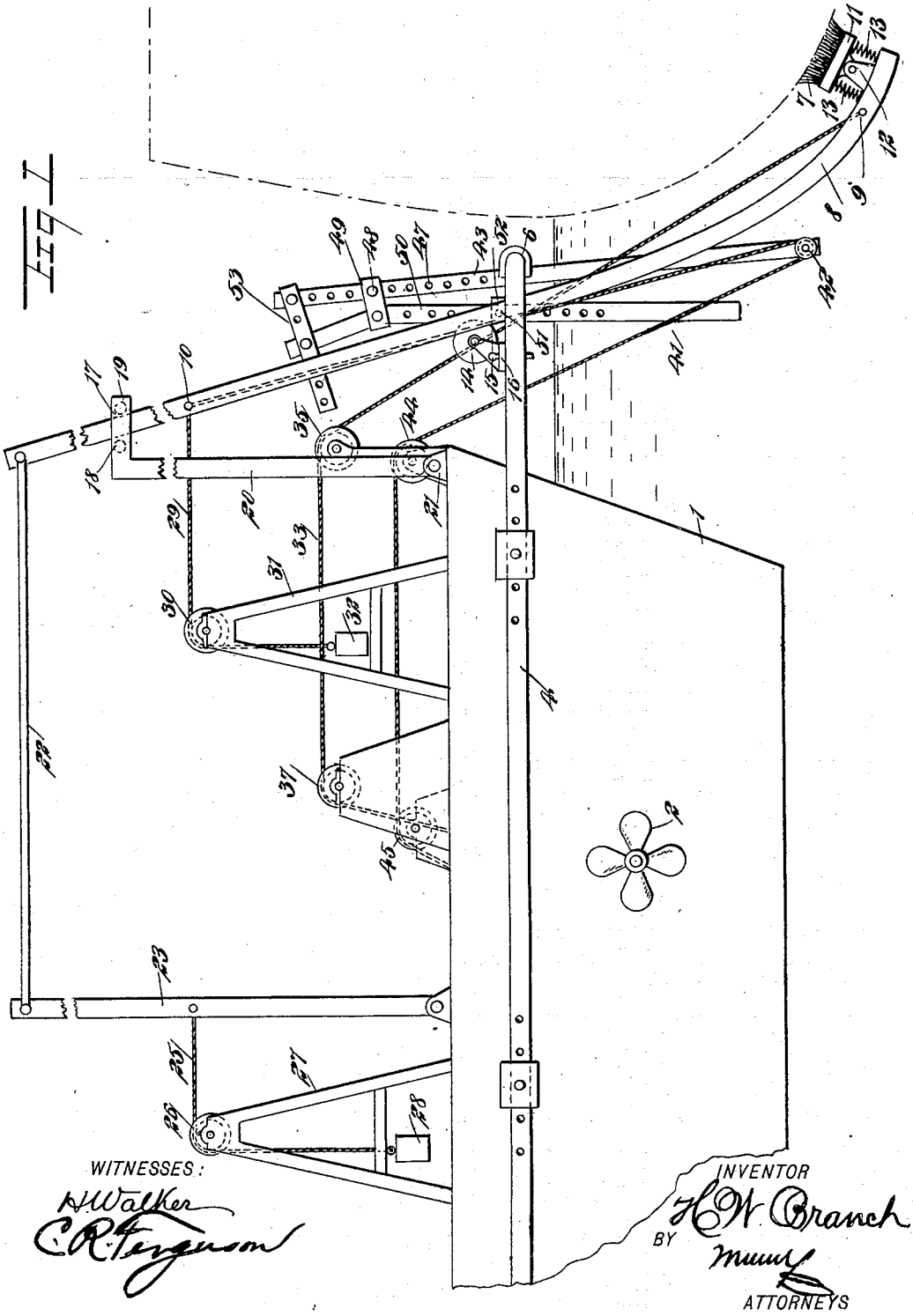
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H. W. BRANCH.

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(Application filed Aug. 26, 1899.)

(No Model.) 2 Sheets—Sheet 1.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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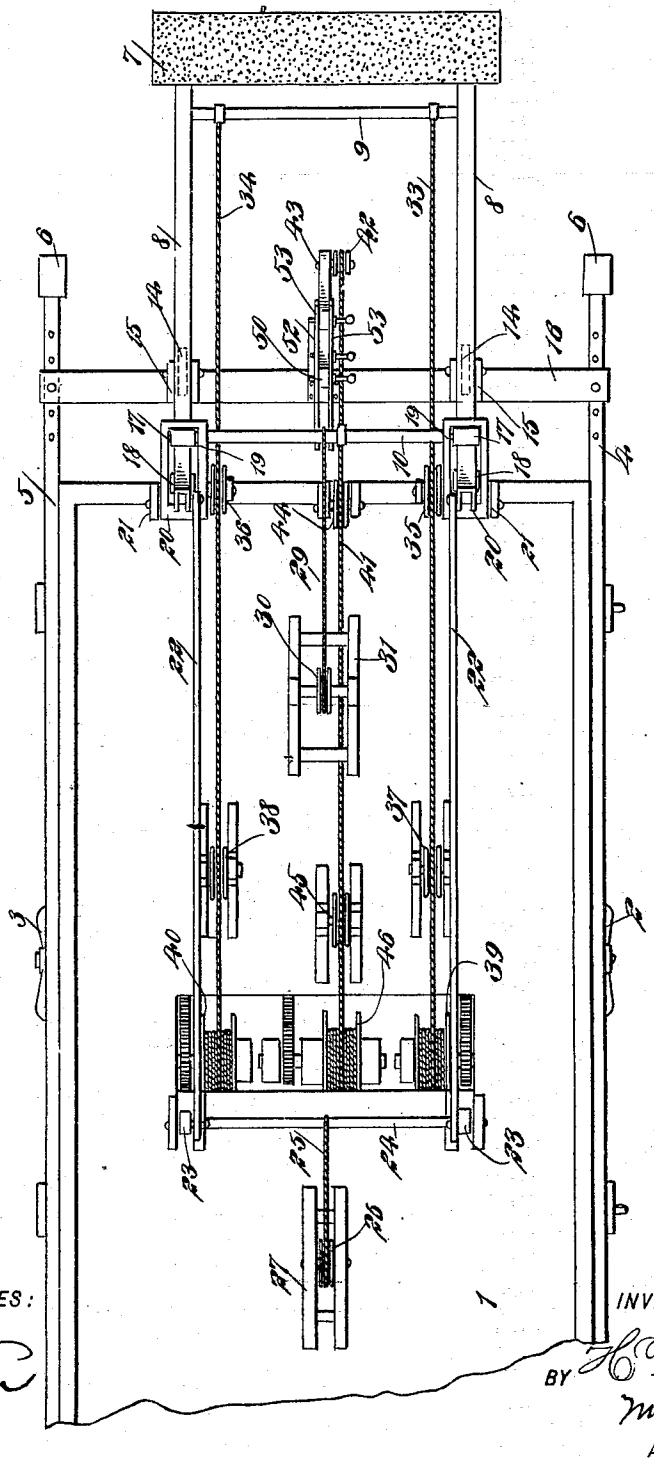
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(No Model.) 2 Sheets—Sheet 2.

Fig 2



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UNITED STATES PATENT OFFICE.

HAYDEN W. BRANCH, OF TAMPA, FLORIDA, ASSIGNOR OF ONE-HALF TO MASON S. MORENO, OF KEY WEST, FLORIDA.

APPARATUS FOR CLEANING HULLS AND KEELS OF SHIPS.

SPECIFICATION forming part of Letters Patent No. 637,702, dated November 21, 1899.

Application filed August 26, 1899. Serial No. 728,569. (No model.)

To all whom it may concern:

Be it known that I, HAYDEN W. BRANCH, of Tampa, in the county of Hillsborough and State of Florida, have invented a new and Improved Apparatus for Cleaning Hulls and Keels of Ships, of which the following is a full, clear, and exact description.

This invention relates to improvements in devices for cleaning the hulls and keels of vessels; and the object is to provide a device of this character by means of which the hull and keel of a vessel may be quickly cleaned of barnacles and other foul matter while the vessel is afloat, thus obviating the delay and expense of placing the vessel in dry-dock for the purpose of cleaning.

I will describe a mechanism for cleaning hulls of vessels embodying my invention, and then point out the novel features in the appended claims.

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

Figure 1 is a side elevation of a mechanism for cleaning hulls of vessels embodying my invention, and Fig. 2 is a plan view thereof.

Referring to the drawings, 1 designates a float or scow for carrying the cleaning mechanism. At its opposite sides are propeller-wheels 2 3, either one of which may be operated by an engine placed in the scow or float to move the scow lengthwise of a vessel in the water. Adjustable lengthwise on opposite sides of the float or scow are supporting-bars 4 5, having buffers 6 at their ends, consisting of rubber or like material, to prevent damage to the hull of a vessel should the buffers contact therewith.

A cleaning-brush 7 is supported on a frame consisting of side bars 8, formed of iron and connected near the bottom by a cross-rod 9 and near the top by a cross-rod 10. The brush-back 11 is pivoted on lugs 12, extended upward from the lower ends of the side bars 8, and springs 13 are arranged between said back 11 and the side bars at opposite sides of the pivotal point of the brush-back. These springs will serve to hold the brush with its whole surface against the hull of the vessel as the said brush is moved up and down. The side bars 8 ride upon pulleys 14, mounted in brackets 15, attached to a cross-bar 16, adjustably connected with the side bars 4. The upper portions of the side bars 8 of the brush-carrying frame move between rollers 17 18, mounted in horizontally-disposed portions 19 of swinging standards 20. These swinging standards have their lower ends pivoted in blocks 21, attached to the end of the float or scow. From the upper ends of the side bars 8 rods 22 extend to pivotal connections with swinging standards 23, connected by a cross-rod 24, from which a cable 25 extends over a pulley 26, mounted in a frame 27, and on the free end of this cable 25 is a weight 28. This weight through its connections with the brush-carrying frame is designed to hold the brush yieldingly against the side of the vessel as the brush is moved up and down. As a further means for holding the brush yieldingly against the vessel a cable 29 extends from the cross-bar 10 over a pulley 30, mounted in a frame 31, and the cable has a weight 32 at its free end.

Lifting-cables 33 34 are connected to the cross-bar 9 and extend upward and respectively over pulleys 35 36, thence over pulleys 37 38 to winding-drums 39 40, operated by the engine and having the usual clutch mechanism, which it is not deemed necessary to show. A drawing-down cable 41 is attached to the bar 10 and passes downward around a pulley 42, attached to the lower end of a bar 43, thence over a pulley 44 and a pulley 45 to a winding-drum 46, operated by the engine. The bar 43 is designed to be shifted or adjusted toward and from the vessel as occasion may require, and it is also adjustable vertically. It is therefore provided with a series of holes 47, through either one of which a pin 48 may be passed, the said pin passing through openings in plates 49, extended from a swinging bar 50, mounted to swing on a pin 51, supported in plates 52, extended forward from the cross-bar 16. This swinging bar 50 is provided with a series of holes, through either one of which the pin 51 may be passed, so as to adjust said bar vertically. Of course as the bar 50 swings the shifting bar 43 will swing with it.

The upper portion of the bar 50 above the plates 48 is inclined upward and rearward, and

metal straps 53 connect the upper end of said bar with the upper end of the shifting bar 43. The straps 53 are provided with holes, through which bolts may be passed to hold the bar 43 as adjusted angularly with relation to the bar 50.

In operation, assuming the brush 7 to be in its lowermost position, the drums 39 40 are to be set in motion to wind the cables, thus drawing the brush upward, which will be held in contact with the curved surface of the vessel by the means heretofore described. When the brush reaches the surface of the water, the drums 39 and 40 are to be released and the drum 46 is to be operated to wind the cable 41, thus moving the brush downward. During this operation, if desired, the float may be moved lengthwise of the vessel being cleaned.

As the side flanges of the side bars 8 of the brush-carrying frame engage against the sides of the pulleys 14 it is obvious that lateral movement of the frame will be prevented.

It is to be understood that a stern propeller-wheel will be used to keep the float in proper position against the vessel being cleaned.

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

1. In a mechanism for cleaning hulls of vessels, a brush, a frame upon which the brush is mounted, pulleys on which the side bars of the frame are movable, a float upon which the pulleys are mounted, swinging standards on the float, rollers carried by each of said standards and between which the side bars of the frame are movable, a weight having connection with the frame for holding the brush yieldingly against a vessel, a weight-controlled swinging standard having connection with the upper portion of the brush-frame, means for moving the frame upward, and means for moving the frame downward, substantially as specified.

2. In a mechanism for cleaning hulls of vessels, a float, side bars projecting forward from said float, rollers supported by said bars, a brush-carrying frame comprising side bars of angle-iron engaging with said rollers, a brush-having swinging connection with the lower portion of said frame, swinging standards on the float, two rollers carried by each of said standards between which the side bars of the frame move, a weight for holding the brush-carrying frame yieldingly toward the hull of a vessel, a cable extended from the lower end of the frame, over pulleys to a winding-drum, a cable extended from the upper portion of the frame to a winding-drum on the hull, a shifting bar, a swinging bar to which the shifting bar is adjustably connected, and a pulley on the lower end of said shifting bar and around which the last-named cable passes, substantially as specified.

3. In a mechanism for cleaning hulls of vessels, a float, side bars extended forward from said float, rollers carried by said side bars, a brush-carrying frame movable on said rollers, a brush carried by the frame, a rocking bar supported by bolts extended from a cross-bar connecting the side bars, a shifting bar having adjustable connection with the rocking bar, a pulley on the lower end of said shifting bar, a cable extended from the upper portion of the brush-carrying frame around said pulley and to a winding-drum carried by the float, a cable extended to the lower portion of the frame around pulleys and to a winding-drum carried by the float, swinging standards on the float, rollers in said standards between which the side bars of the frame are movable, swinging standards rearward of the first-named swinging standards, a rod connecting said standards with the upper ends of the bars of the brush-carrying frame, a weight, a cable connection between said weight and the last-named swinging standards, another weight, and a cable extended from said other weight to a connection with the frame, substantially as specified.

HAYDEN W. BRANCH.

Witnesses:
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