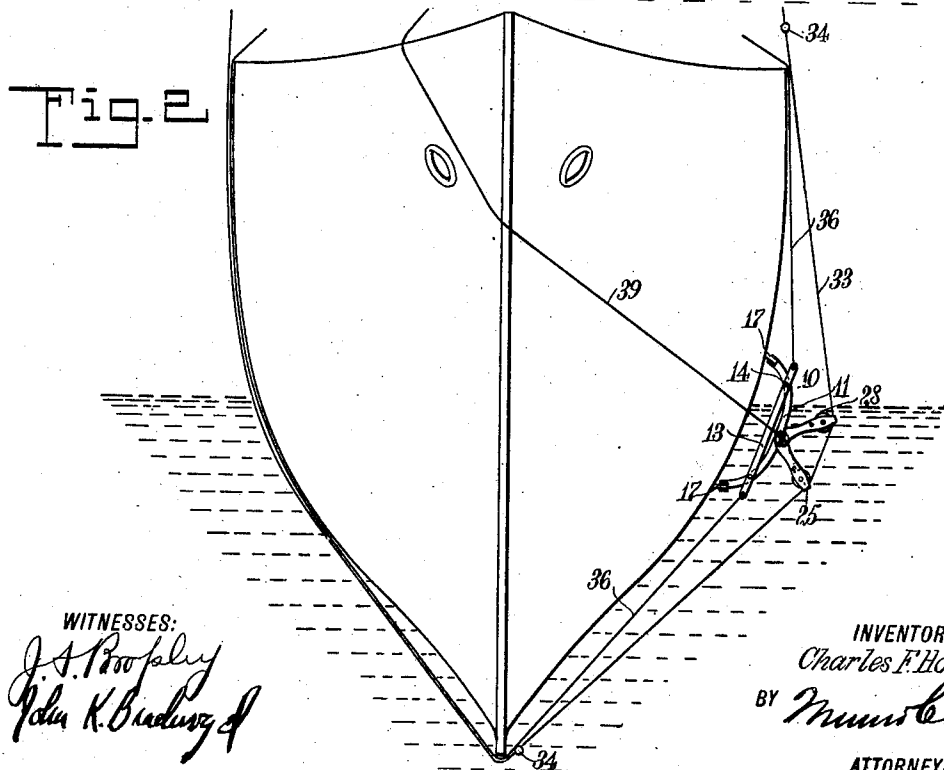
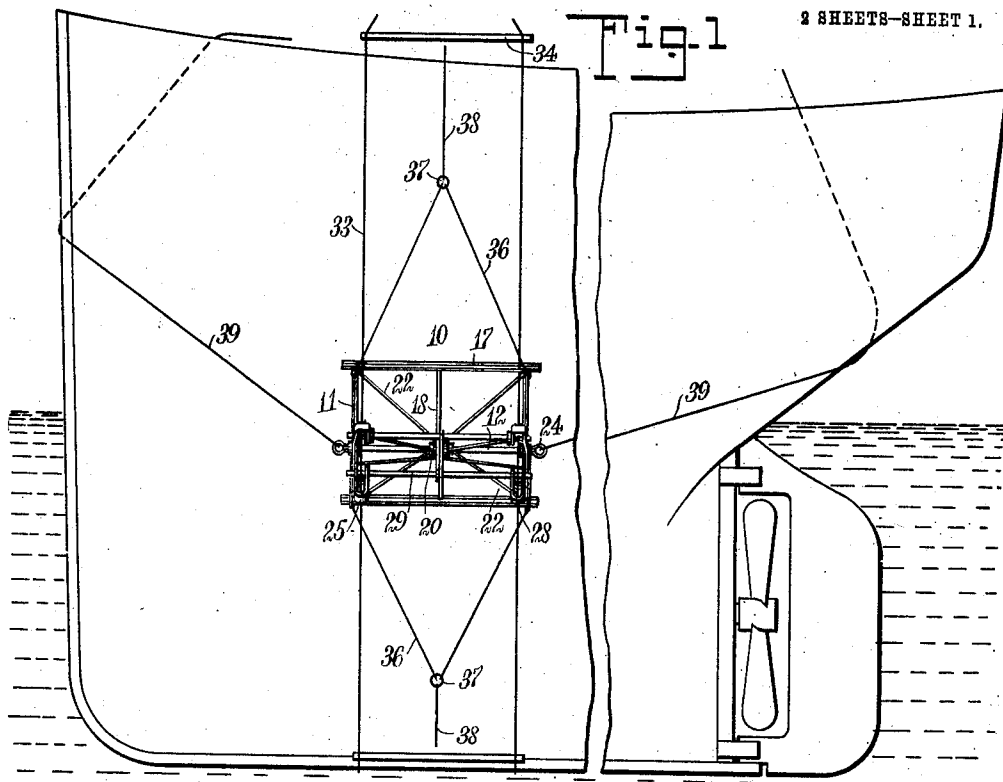


C. F. HOLLAND.
SHIP CLEANING DEVICE.
APPLICATION FILED AUG. 17, 1910.

991,308.

Patented May 2, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

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John K. Brindley

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Charles F. Holland

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Munroe

ATTORNEYS

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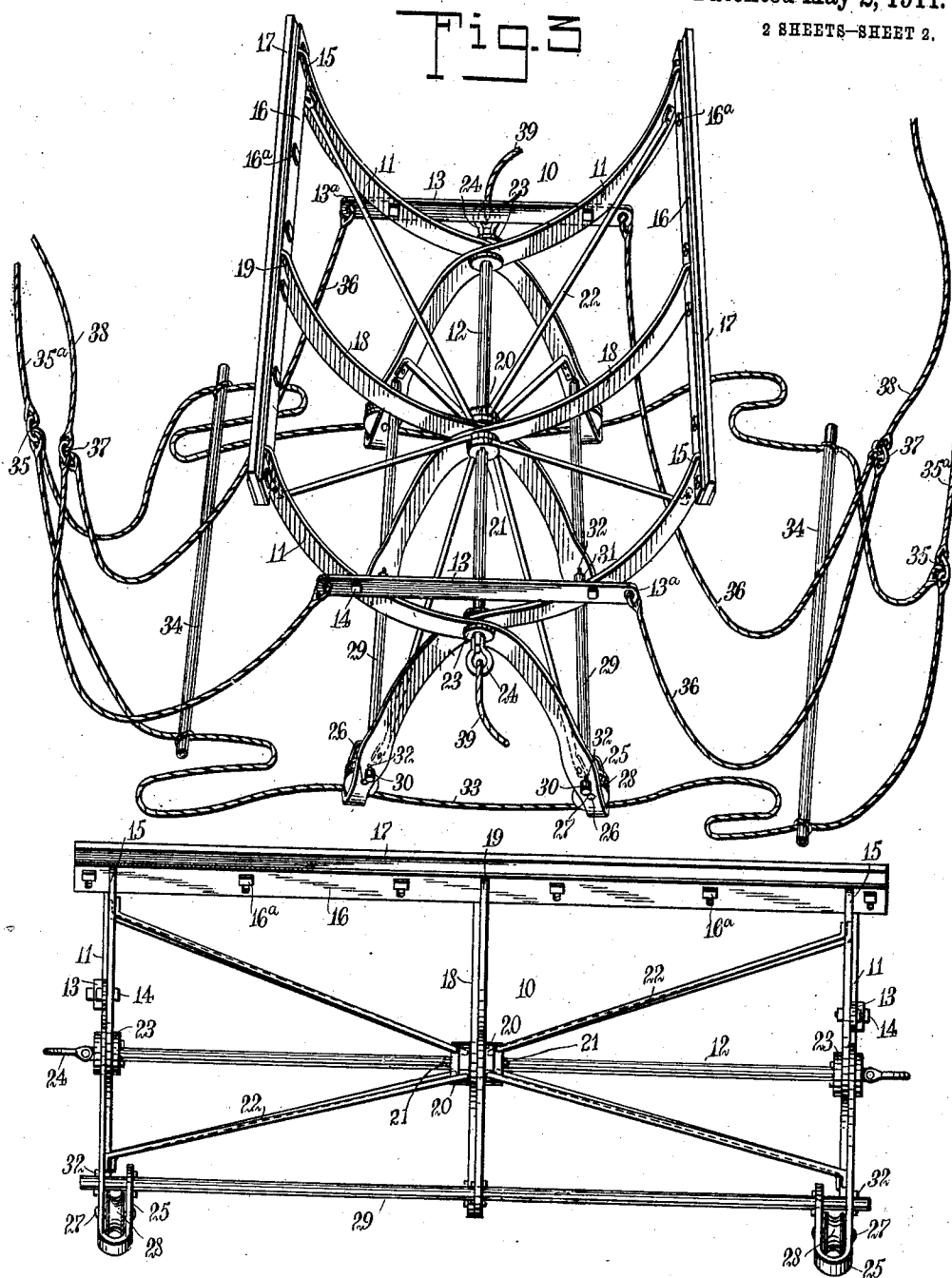


Fig. 4

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UNITED STATES PATENT OFFICE.

CHARLES FREDRICK HOLLAND, OF ELKO, NEVADA.

SHIP-CLEANING DEVICE.

991,308.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed August 17, 1910. Serial No. 577,622.

To all whom it may concern:

Be it known that I, CHARLES F. HOLLAND, a citizen of the United States, and a resident of Elko, in the county of Elko and State of Nevada, have invented a new and Improved Ship-Cleaning Device, of which the following is a full, clear, and exact description.

This invention relates to devices for cleaning the hulls of ships and other vessels, by a process of scraping, to remove barnacles and other marine growths and the like, and has reference more particularly to a device of this class comprising a foldable frame, a scraper carried thereby, and means for moving the frame in juxtaposition with the ship's hull.

The object of the invention is to provide a simple and efficient device for cleaning the hulls of ships and other vessels, by freeing them from barnacles, weeds, and other adhering matter, which can be easily manipulated, which necessitates little power in its operation, which can be used while the ship is in motion, which does not require that the vessel be placed in a dry dock or otherwise taken out of the water, and which, when not in use, can be folded into compact form, so that it will require little room when shipped or stored.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the 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 all the views, and in which—

Figure 1 is a side elevation of portions of a ship's hull, showing an embodiment of my invention applied thereto; Fig. 2 is a view of a part of the ship, showing the cleaning device in operation; Fig. 3 is an enlarged, perspective view of the device; and Fig. 4 is a side elevation of the device.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood that the device has a scraping action, which removes all barnacles or other marine growths clinging to the vessel, the frame of the cleaning device being provided with scraping blades which are in contact with the hull and are so maintained while the device is in operation. These blades may be of any suitable material, though I prefer to employ fairly heavy rub-

ber or like material, which has efficient scraping action and does not tend to injure the paint of the vessel or the hull itself. I have shown for example in the drawings herewith, ordinary ropes used to operate the device. Needless to say, any other flexible members such as chains or wires can be employed. These and others of the details of construction shown for example herewith form no part of the invention, and can be varied in accordance with individual preference and special conditions, without departing from the underlying spirit of the invention.

Referring more particularly to the drawings, I employ a frame 10, consisting of pairs of pivoted members 11 which are fashioned from flat metal or any other suitable material, and are of somewhat curved form, being mounted upon a central shaft 12, and having bearing openings to receive the shaft. The members 11 are movable relatively to one another and are normally held fixed by means of stop bars 13, extending transversely across the members and removably secured thereto by means of bolts or screws 14, so that the members are held with their ends spaced or spread. The members have bifurcated ends 15, in which are mounted clamping rods or bars 16, holding therebetween the scraping blades 17.

An intermediate pair of members 18, is pivotally mounted upon the shaft 12 and each has a bifurcated end 19, receiving the clamping bars 16 and the blades 17. At each side of the intermediate members 18, the shaft has mounted thereon collars 20, held in place by pins 21 and having secured thereto guy rods 22, which are diagonally disposed relative to the frame and have the ends riveted or otherwise secured near the ends of the members 11, to brace the frame. At the ends, the shaft 12 has collars 23 at both sides of the pairs of members 11. The shaft terminates in eyes 24 for a purpose to appear hereinafter. The ends of the stop bars 13 are also provided with openings constituting eyes, the purpose of which will appear below. The ends of the members 11, remote from the scraper blades, are rearwardly disposed to form brackets 25, having the sides spaced and provided with bearing openings 26, in which are journaled spindles 27, having grooved pulleys 28. Rods 29 are mounted in openings 30 of the members 11, and registering openings 31

of the members 18. They extend across the brackets and have transverse keeper pins 32, which prevent their accidental displacement. They serve to space and hold the ends of the frame members. Guide and holding lines 33 pass through the brackets in engagement with the grooved guide pulleys. They pass under the hull of the vessel, as shown in Figs. 1 and 2, from one side to the other, and serve to hold the frame against the side of the vessel, while permitting it to move freely up and down. The lines 33, near their ends, are connected by spreaders 34, consisting of rods or bars, which serve to hold the lines apart a distance corresponding to the width of the frame between the pulleys. The ends of the lines are connected by means of rings 35, with single lines 35^a, by means of which they are secured. Operating lines 36, fastened by means of rings 37, to single lines 38, are secured at the openings 13^a formed in the stop bars 13. They serve for raising and lowering the scraper, and one set of these lines passes under the hull and up the other side of the same. They are operated by means of a winch or in any other suitable manner, and if so desired, can be manually controlled. Adjusting lines 39 are secured at the eyes 24, at the ends of the shaft 12 and are run fore and aft with respect to the vessel, passing respectively around the bow and the stern to the deck, as is shown in Fig. 1, where they can be fastened and controlled. They serve for moving the scraper in a fore and aft direction.

When the device is operated, the guide and holding lines are secured so that the frame is held against the side of the vessel, at any desired point. The operating lines are then employed to move the frame up and down in engagement with the hull. This will scrape clean a vertical strip under the hull, equal in width to that of the frame. When this strip has been cleaned the adjusting lines are employed to move the frame backward or forward a distance substantially equal to its width, so that it can be used to clean the next strip adjacent to the one last completed. The guide and holding lines are adjusted in a fore and aft direction, and after the adjusting lines have been fastened, the operating lines are again used to move the frame vertically with respect to the hull.

It will be understood that the stop bars 13, hold the members of the frame rigidly in position with respect to one another. When the device is not in use, the stop bars are disconnected and then the frame members 11 and 18 can be folded together so that the device assumes a compact form, and requires little room. When the scraper blades are worn, they can be projected farther from the clamping bars 16, by loosening

the bolts 16^a which hold the latter together and secure the blades in position.

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

1. A device of the class described comprising a frame consisting of pairs of pivoted members, stop bars for holding said members of each of said pairs rigid relatively to one another, scraper blades carried by said frame, said frame having guide pulleys, a guide line in engagement with said pulleys and serving to hold said frame movably in engagement with a ship's hull, and an operating line for moving said frame in engagement with the ship's hull.

2. A device of the class described, comprising a frame, clamping bars carried thereby, a scraper blade mounted between said clamping bars, means for movably holding said frame in engagement with a ship's hull, and means for moving said frame in engagement with the ship's hull.

3. A device of the class described, comprising a frame consisting of pairs of pivoted members, stop bars for holding said members of each of said pairs rigid relative to one another, clamping bars carried by said members, scraper blades mounted between said bars, guy rods secured to said members, said members having brackets, pulleys journaled in said brackets, guide lines passing through said brackets in engagement with said pulleys, and serving to hold said frame in engagement with a ship's hull, and means for moving said frame in engagement with a ship's hull.

4. A device of the class described, comprising a frame consisting of pairs of pivoted members, stop bars for holding said members of each of said pairs rigid relative to one another, clamping bars carried by said members, scraper blades mounted between said bars, guy rods secured to said members, said members having brackets, pulleys journaled in said brackets, guide lines passing through said brackets in engagement with said pulleys, spreaders connecting said guide lines, adjusting lines secured to said frame and serving to move the same in the direction of the length of the ship's hull, and operating lines secured to said frame and serving to move the same in an up and down direction relative to the ship's hull.

5. A device of the class described, having a frame consisting of a shaft, pairs of members pivotally mounted upon said shaft, near the ends thereof, a pair of intermediate members pivotally mounted upon said shaft, said members having bifurcated ends, clamping bars mounted in said bifurcated ends, scraper blades carried between said bars, guy rods secured to said shaft and to said members, and stop bars removably con-

necting said members of said first-mentioned pairs, and holding the same rigid with respect to one another.

5 6. A device of the class described, comprising a frame consisting of a shaft, pairs of members pivotally mounted upon said shaft near the ends thereof, a pair of intermediate members pivotally mounted upon
10 said shaft, said members having bifurcated ends, clamping bars mounted in said bifurcated ends, scraper blades carried between said bars, guy rods secured to said shaft and to said members, stop bars removably connecting said members of said first-mentioned pairs, and holding the same rigid
15 with respect to one another, said first-mentioned members having brackets at the ends

remote from said blades, pulleys journaled in said brackets, said frame having bars connecting the ends of said members remote
20 from said blades, guide lines passing through said brackets in engagement with said pulleys and serving to hold said frame in engagement with a ship's hull, adjusting
25 lines secured to said frame, and operating lines secured to said frame.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES FREDRICK HOLLAND.

Witnesses:

R. H. MALLETT,
W. O. VORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
