

No. 693,242.

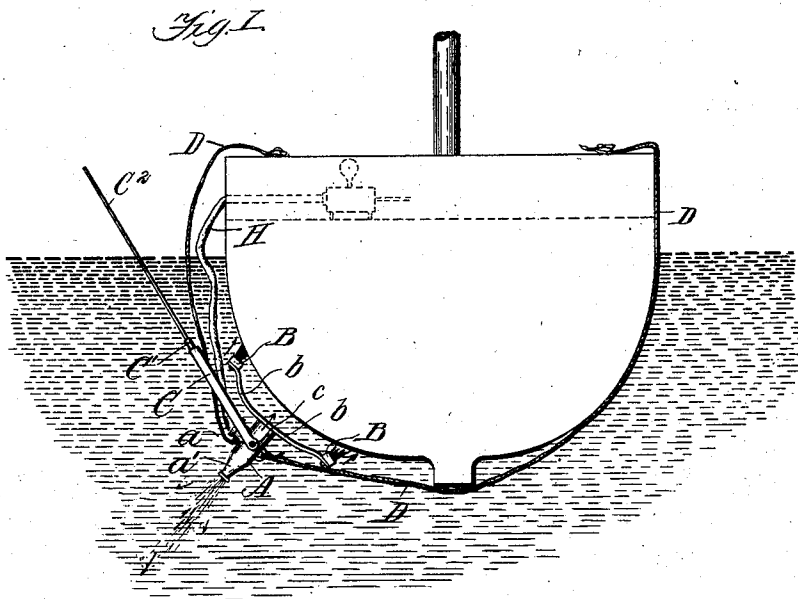
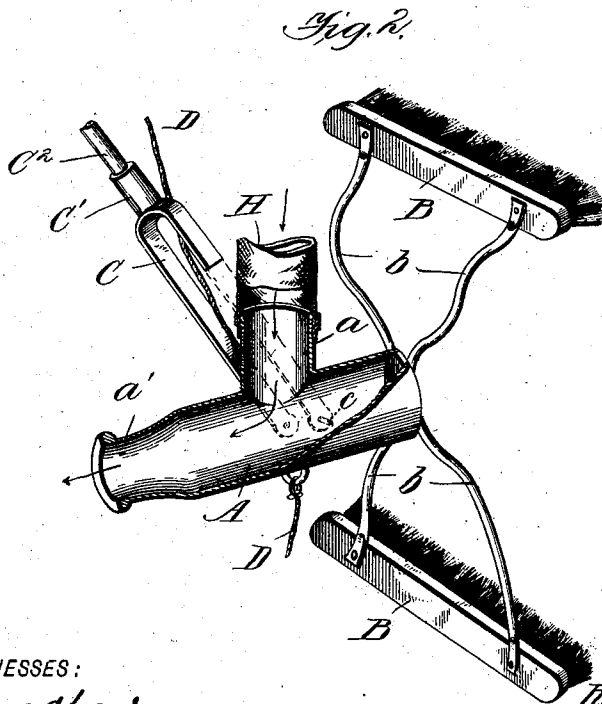
Patented Feb. 11, 1902.

R. S. CULPEPPER.

APPARATUS FOR CLEANING BOTTOMS OF SHIPS.

(Application filed Nov. 7, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLEANING BOTTOMS OF SHIPS.

SPECIFICATION forming part of Letters Patent No. 693,242, dated February 11, 1902.

Application filed November 7, 1901. Serial No. 81,373. (No model.)

To all whom it may concern:

Be it known that I, ROBERT SMITH CULPEPPER, of Houston, in the county of Harris and State of Texas, have invented a new and useful Improvement in Apparatus for Cleaning the Bottoms of Ships, of which the following is a specification.

The object of my invention is to provide a simple and practical apparatus for removing barnacles, seaweed, mud, and other adhesions from the sides and bottom of a ship. The great obstruction which such growths on the sides and bottom of a ship afford to the speed of a ship is well known, involving for a maintenance of speed in steam vessels a greatly-increased coal consumption. Ordinarily the vessel is at great expense put into the dry-dock when the latter is available; but it frequently happens that the vessel is out of reach of such dry-dock. My invention provides a simple portable apparatus which may be compactly stored on shipboard and which when brought into requisition will effectually and with but little trouble remove such fouling adhesions from the bottom and sides of the ship in an easy and satisfactory manner.

Figure 1 is a side view of my apparatus shown applied transversely to a ship. Fig. 2 is an enlarged sectional view of the cleaning apparatus detached.

In the drawings, A represents the hollow body portion of my apparatus, which has on one side and communicating with it at right angles a hose-coupling *a*, which connects with a flexible hose H. On the inner end of the hollow body portion are mounted four spreading arms *b*, upon each pair of which at a considerable distance apart is mounted a brush B. These two brushes are arranged parallel to each other on the ends of the arms and are made of bristles or steel, or they may be simple rigid scrapers. The object in spacing apart the two brushes is to give a broad or widely-separated bearing of the brushes against the ship's side or bottom to permit them to be reciprocated thereagainst without turning over.

From the hollow body portion there projects at right angles to the plane of the brush-

arms a contracted nozzle *a'*, through which 50 water introduced under pressure from the hose H is discharged. The reactionary effect of this stream of water issuing at high speed from the nozzle tends to forcibly thrust the brushes against the ship's bottom.

On the sides of the hollow body A are formed trunnions *c*, upon which are hinged the forked arms C, connected to a metal socket C', which latter receives a long stiff handle C² of sufficient length to permit the brushes to be adjusted to a proper bearing against the ship's sides. To the body portion of the apparatus there is also attached on each side a rope or chain D, which extends underneath the ship and is manipulated by men at each side of the ship, being pulled first one way by the men on one side and then in the opposite direction by the men on the other side.

When the apparatus has been adjusted to the side of the ship, a forceful stream of water 70 is sent down through the hose H from a pump on board the ship, preferably arranged as a portable plant working around the ship, and this stream of water issuing through the nozzle causes the brushes to be pressed strongly against the surface of the ship and holds the brushes so firmly against the barnacles, &c., that the reciprocating movement given to the brushes through the rope or chain will effectually dislodge the adhesions. For such portions of the vertical sides of the ship as can be reached by the rigid handle the apparatus may be reciprocated by the rigid handle without the rope or chain passing beneath the bottom of the ship; but for cleaning the bottom of the ship the rope or chain will be employed. The reaction of the issuing jet of water from the nozzle, it will be seen, furnishes only the power or pressure for holding the brush up to its work, while the actual work of dislodging the adhesion is performed manually or mechanically. I point out this distinguishing feature for the reason that a stream of water has heretofore been pumped down to a revolving brush, which was supposed to be rotated by the said stream of water with sufficient energy to clean off the adhesion. Experiment has demonstrated,

however, that a more vigorous action is really necessary to dislodge barnacles, and I therefore employ an issuing stream of water for its reactionary effects only in holding the brush
5 up to its work and supply the actual power required to dislodge the adhesions from another source.

With my invention it will be seen that after a ship comes out of a dock it is possible
10 to always keep her clean by scrubbing, using brushes of such material as are best suited.

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

15 1. A cleaning device for ships' sides and bottoms, having a jet-nozzle opening in opposite direction to the operating-face of the cleaning device to hold the latter by reactionary effect up to its work substantially as described.

20 2. A cleaning device for ships' sides and bottoms, having a jet-nozzle opening in opposite

direction to the operating-face of the cleaning device to hold the latter up to its work, and means for moving the cleaning device over the ship's surface substantially as described. 25

3. A cleaning device for ships' sides and bottoms, consisting of two separated brushes, arms supporting the same, a hollow body portion connected to said arms and having a hose-coupling and a discharge-nozzle pointed in opposite direction to the cleaning-face of the brushes substantially as described. 30

4. A cleaning device for ships' bottoms comprising two separated bearing-surfaces, and a reactionary jet-nozzle between them pointed in opposite direction to the face of the bearing-surfaces substantially as described. 35

ROBERT SMITH CULPEPPER.

Witnesses:

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J. D. NORTHRUP.