(No Model.)

S. G. CABELL.

MEANS FOR PREVENTING THE ATTACHMENT OF BARNACLES TO VESSELS.

No. 468,741. Patented Feb. 9, 1892.

Fig. 3.

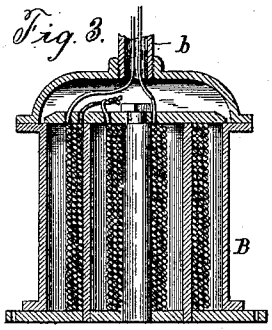
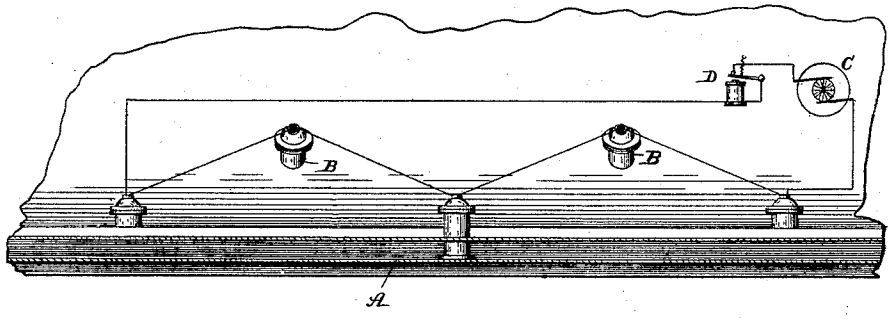


Fig. 1.

Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL G. CABELL, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO FLORA B. CABELL, OF SAME PLACE, HARVEY S. BROWN, OF SAN FRANCISCO, CALIFORNIA, AND MILTON S. CABELL, OF QUINCY, ILLINOIS.

MEANS FOR PREVENTING THE ATTACHMENT OF BARNACLES TO VESSELS.

SPECIFICATION forming part of Letters Patent No. 468,741, dated February 9, 1892.

Application filed April 23, 1889. Serial No. 308,342. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. CABELL, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Means for Preventing the Attachment of Barnacles to Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My improvements relate to means for preventing the attachment of barnacles to vessels and for removing them therefrom; and the invention consists in the combination, with the skin or outer body of a vessel, of an electro-magnet or a plurality of such magnets, as will be hereinafter described.

In the drawings, Figure 1 is a transverse section of a vessel, showing my invention as applied thereto. Fig. 2 is a segment of a longitudinal central section of the same, and Fig. 3 is a section of an electro-magnet suitable for combination with the vessel.

A is the outer skin of an iron or steel vessel, and B B are electro-magnets applied at intervals directly to the inside of the outer plates forming the skin of the vessel, and C is the dynamo-electric machine or other suitable source of electricity for energizing the magnets. Any approved form of electro-magnet may be used in this combination; but I prefer a compound magnet, such as shown in Fig. 3, in order to obtain a great magnetic force. The magnets are screwed, bolted, or otherwise firmly secured to the inside of the outer plates, and by preference they are incased to prevent the access of dampness and the destruction of the insulation of the wires. Each magnet-case is also provided with a neck or tube, as *b*, through which the wires are led. I arrange a row of magnets at distances apart of from six to fifteen feet on each side of the keelson, as shown, and two other rows opposite the bilge of the vessel at similar distances apart, substantially as shown in the drawings. These magnets are all connected together and with a generator of electricity. The plates or skin of the vessel become armatures of the magnets, and are therefore thoroughly magnetized.

Obviously the arrangement of the magnets may be modified and their distances apart increased or decreased without departing from or altering my invention, the object being to magnetize the entire surface body of the vessel subject to the attachment of barnacles or other like marine animals.

An incidental function of my invention is that it retards the progress of oxidation or corrosion of the outer skin.

In some cases I have found it to be advantageous to intermittently magnetize and demagnetize the skin, and for this purpose I use an alternating current or introduce into the circuit any suitable automatic or other circuit-breaker, as shown at D.

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

1. The combination, with the iron or steel skin or outer body of a vessel, of an electro-magnet, substantially as and for the purpose set forth.

2. The combination of a series of electro-magnets arranged at intervals and the iron or steel surface plates of a vessel, substantially as described.

3. The combination, with the iron or steel surface plates of a vessel, of a plurality of electro-magnets arranged at intervals, as described, a circuit-breaker, and a source of electricity.

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

S. G. CABELL.

Witnesses:
JAS. A. TAIT,
W. BENNETT.