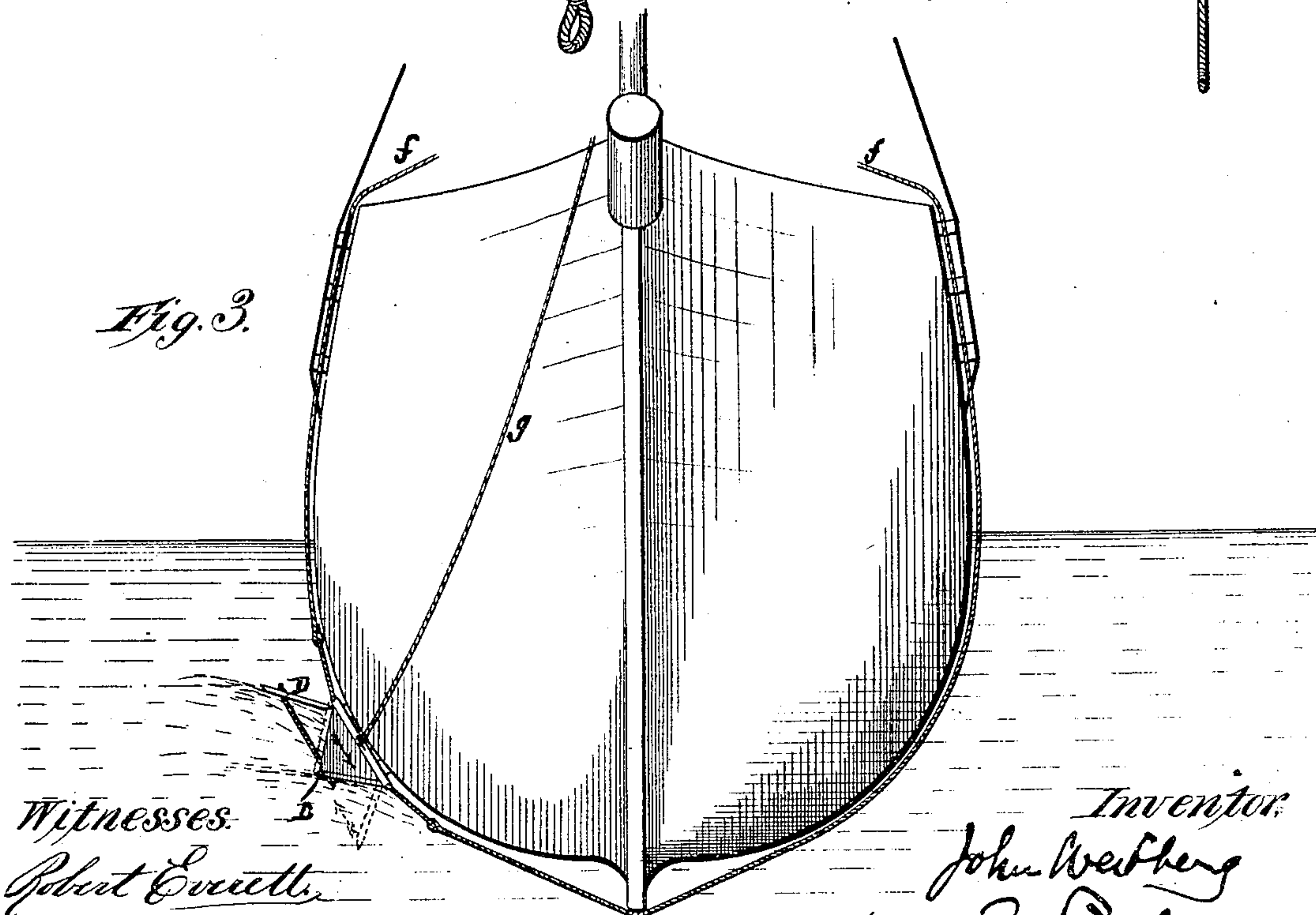
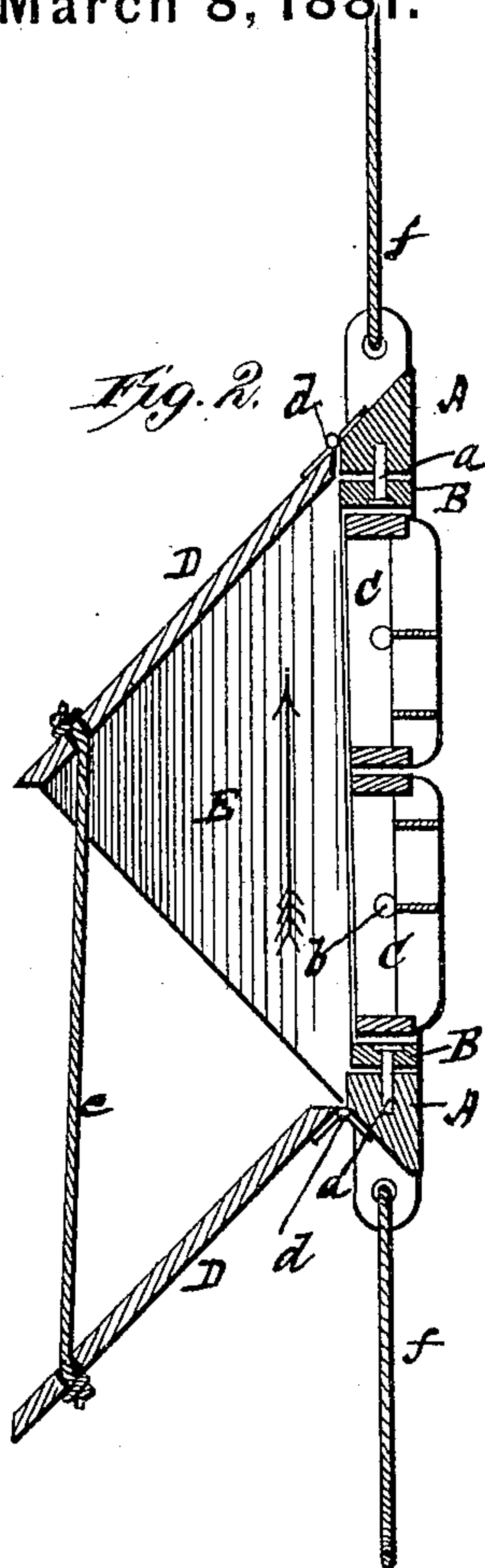
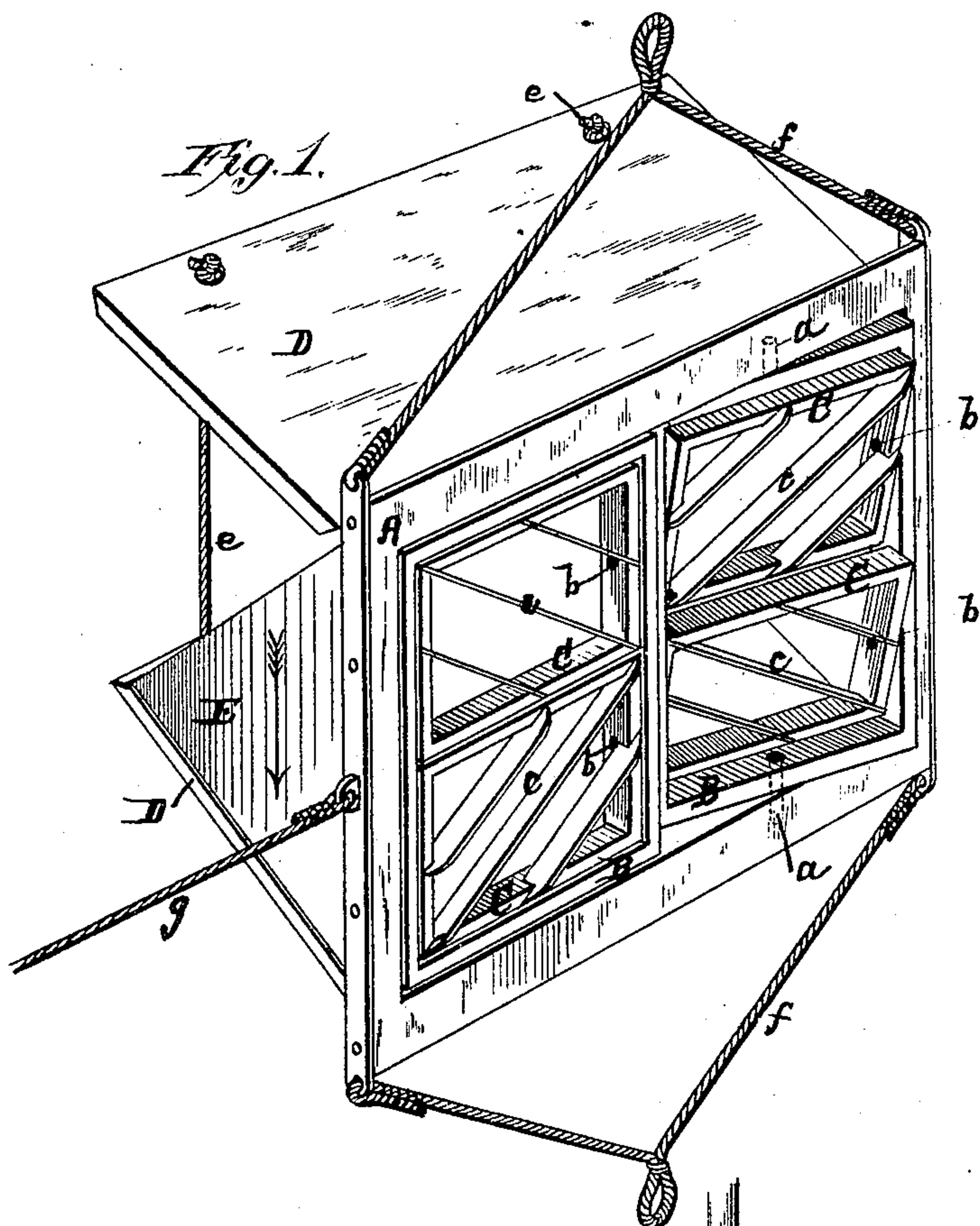


(Model.)

2 Sheets—Sheet 1

J. WESTBERG.

Apparatus for Scraping Ships' Bottoms.  
No. 238,624. Patented March 8, 1881.



*Witnesses:*

Robert Everett.

Adick

*Inventor:*

John Werberg

In Darby

his Atty.

(Model.)

2 Sheets—Sheet 2.

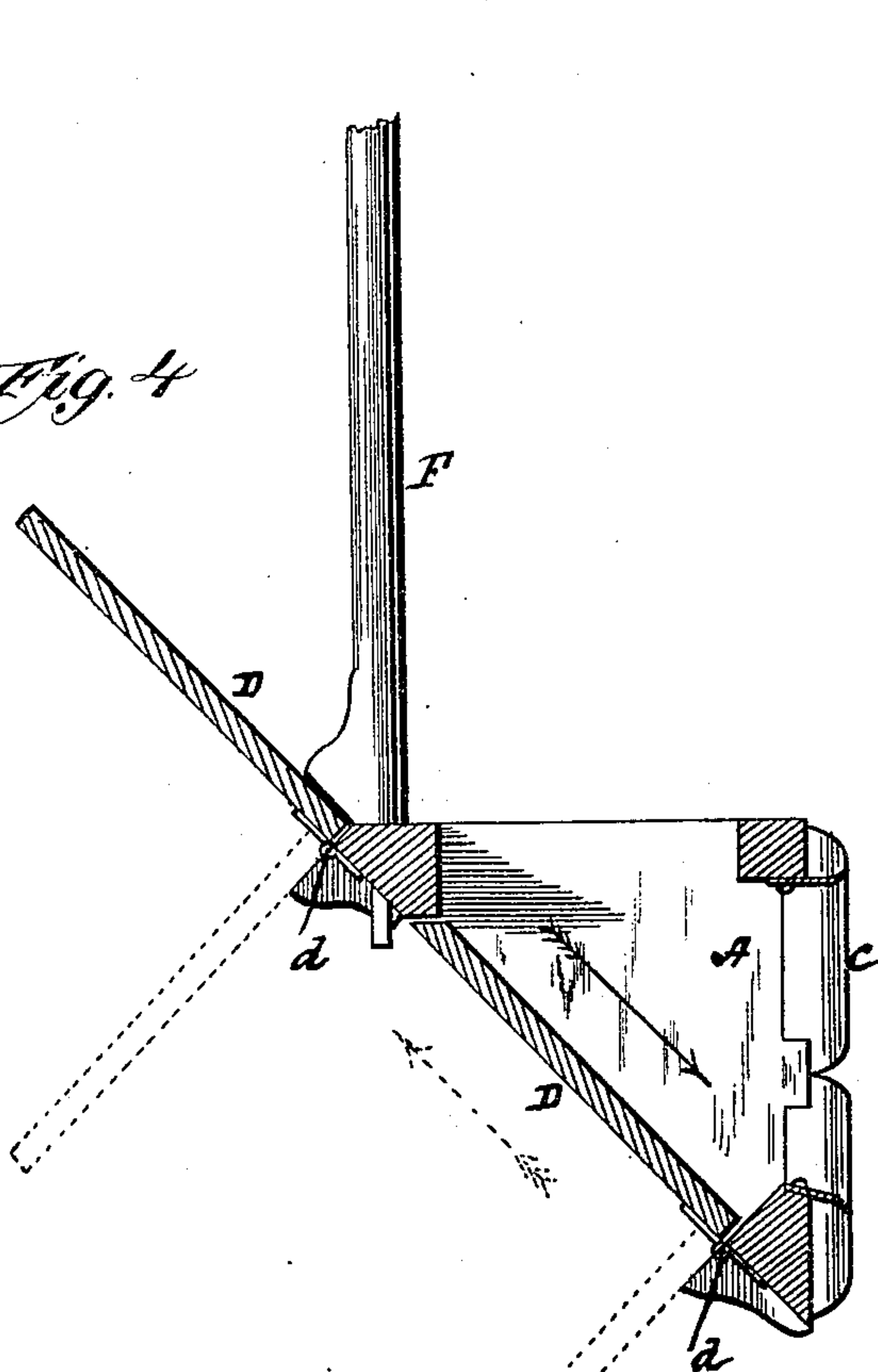
J. WESTBERG.

Apparatus for Scraping Ships' Bottoms.

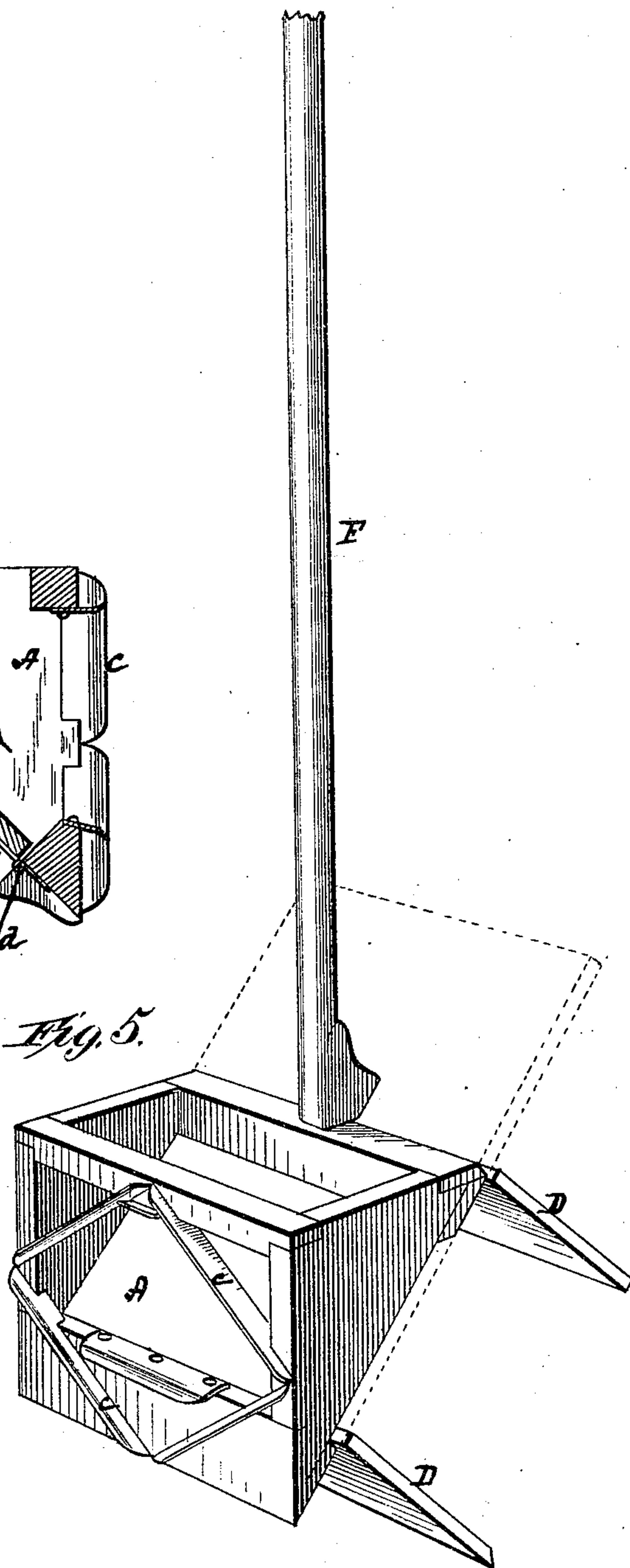
No. 238,624.

Patented March 8, 1881.

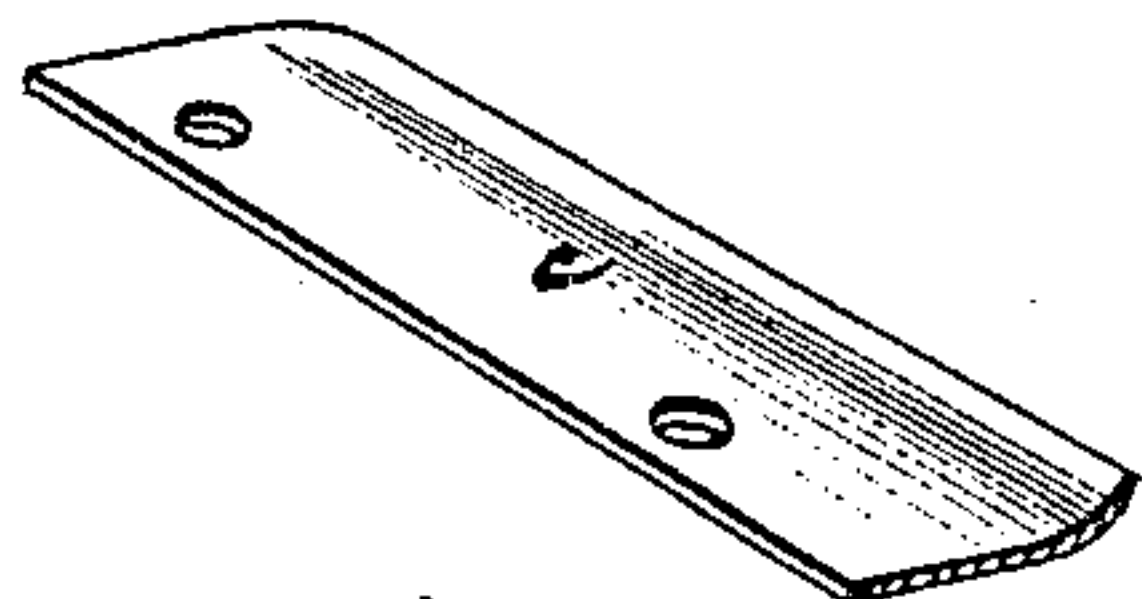
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Witnesses.*  
*Robert Emmett*  
*Et. Sick*

*Inventor.*  
*John Westberg*  
*by M. Bailey*  
*his Atty*



# UNITED STATES PATENT OFFICE.

JOHN WESTBERG, OF BRAHESTAD, FINLAND, RUSSIA.

## APPARATUS FOR SCRAPING SHIPS' BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 238,624, dated March 8, 1881.

Application filed February 1, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, JOHN WESTBERG, of Brahestad, Finland, in the Empire of Russia, have invented certain new and useful Improvements in Apparatus for Scraping the Bottoms of Vessels, of which the following is a full, clear, and exact description.

The apparatus in which my invention is comprised is intended for use on vessels at sea, the object being to obtain an apparatus which, while the ship is in water, can be effectively used to scrape and clean the ship's bottom.

The characteristic feature of the apparatus consists in the combination, with the scraper proper, or that portion which directly acts on the sides and bottom of the vessel, of automatically-shifting inclined deflecting-plates, which, whether the scraper be drawn up or down, act to press it closely against the ship.

The manner in which my invention is or may be carried into effect will be understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view, and Fig. 2 a transverse section, of an apparatus embodying my invention.

That portion of the frame of the apparatus which holds the scraper proper, or the device or devices which act directly on the ship's sides and bottom, may be of any suitable shape and dimensions.

In practice I find it advantageous to use a rectangular frame, A, of wood or other proper material about three feet by two. In this frame are placed the scrapers, which, in this instance, consist of two frames, B, each hung on pivots *a*, and each containing two smaller frames, C, armed with metallic scraper-blades *c*, and pivoted each to the larger frame B at *b*. The arrangement of the two sets of pivots *a* and *b* is such as to permit the scraping-surface to adapt itself freely to the sides and bottom of the vessel. This is one convenient kind of scraping-surface; but I do not restrict myself to the same. I can use stiff bristles or any suitable instrumentality, and the scraping device may be pivoted or not, as preferred.

The frame A is backed by hinged inclined plates D, which, as before said, are the means of pressing the scraper against the side of the

vessel. These plates are hinged to the frame A at *d*, and when closed rest on the triangular sides E or other suitable support. They are connected by lines or chains *e*, as shown, this being a nicety, not a necessity, all that is needed being that each plate shall be so connected with the frame of the scraper as to be prevented from opening beyond the prescribed angle. By connecting the two, as shown, the opening of one will compel the closing of the other.

I remark that I may use one deflecting-plate, or I can use more than two. I find, however, in practice that the best results can be obtained from two.

The scraper is provided at the top and bottom with lines *f*, by which it is drawn up and down. It is also in practice provided with a line at one or both ends, *g*, by which its position lengthwise of the ship may be shifted.

The mode of operation is as follows, reference being had to Fig. 3, in which the scraper is shown in position for use on a vessel. The scraper is lowered in the water alongside the vessel, a line, *f*, extending from each side of the vessel, and by these lines the scraper is drawn up and down. When drawn down the under plate, D, will close and the upper one will open, thus presenting inclined surfaces against which the water will act to press the scraper closely against the vessel. When the scraper is drawn up the plates will automatically shift to the position shown in dotted lines, Fig. 3, and full lines, Fig. 2, in which position their angle of inclination is again such as to cause the water to press the scraper against the vessel. The deflecting-plates will thus automatically shift with each reversal of the motion of the scraper, and will at all times present surfaces so inclined that the pressure of the water thereon will act to jam or force the scraper against the vessel.

With a device such as shown I can scrape a vessel's bottom to within two or three feet each side of the keelson.

For scraping the bottom at the bow and stern, where the lines are sharp, I make use of a hand-scraper, such as shown in Figs. 4 and 5, of smaller dimensions, provided with a handle, F, of suitable length—say from fifteen to twenty feet—and with metallic scraper-blades,

one of which is shown separately in Fig. 6. The form and dimensions of this scraper differ somewhat from the scraper shown in Figs. 1 and 2, but the principle of operation remains the same. The shifting-plates D act with entire efficiency to hold the scraper tightly against the vessel. In this scraper, as well as in the other, the scraping-surface may be formed of metallic blades or of any other suitable instrumentalities.

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

1. A scraper for ships' bottoms provided with one or more automatically-shifting inclined plates movable with respect to the scraper-body to which they are jointed, and

arranged and operating to present to the water at all times faces inclined in such direction that the pressure thereon of the water through which the scraper moves back and forth will tend to hold the scraper against the vessel, substantially as hereinbefore set forth.

2. The combination, with the scraper proper, of the hinged automatically-shifting inclined deflecting-plates, substantially as and for the purposes hereinbefore shown and set forth.

In testimony whereof I have hereunto set my hand this 24th day of January, 1881.

JOHN WESTBERG.

Witnesses:

E. A. DICK,  
N. C. LANE.