

(No Model.)

J. L. COOPER.

APPARATUS FOR CLEANING SHIPS' SIDES, &c.

No. 295,357.

Patented Mar. 18, 1884.

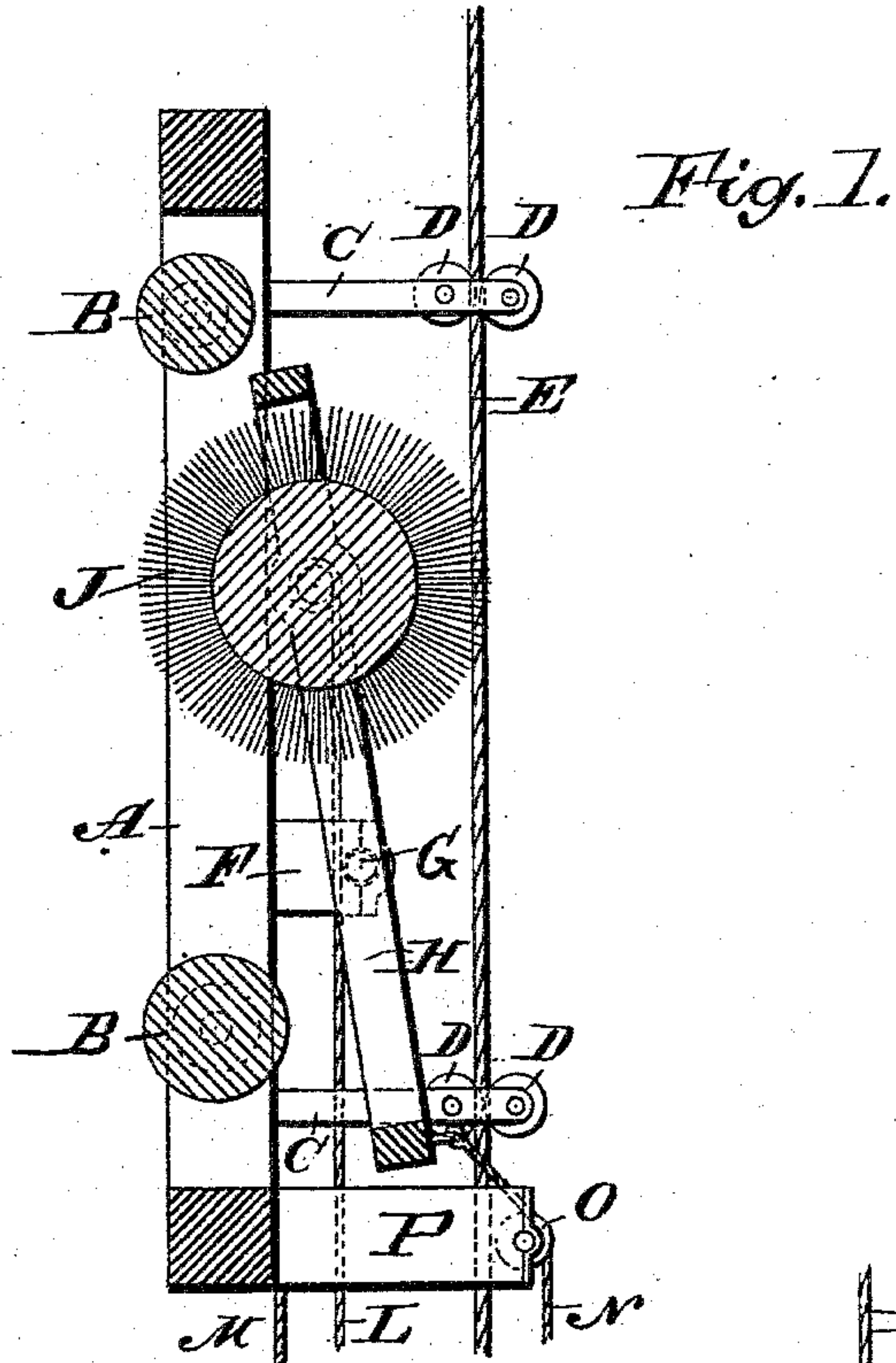
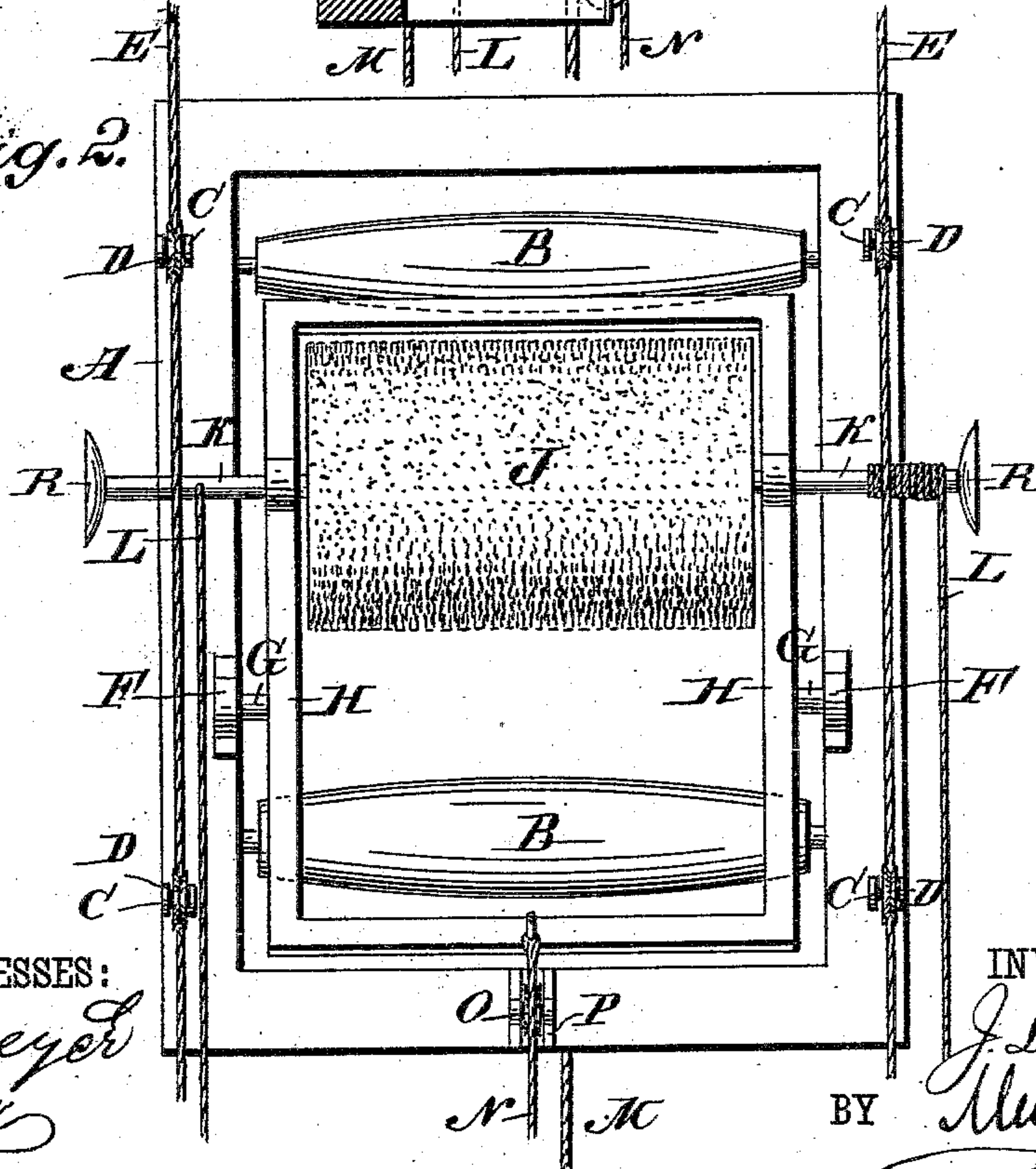


Fig. 2.



WITNESSES:

Wm Beyer
L. Sedgwick

INVENTOR:

J. L. Cooper
Munn & Co

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN LEE COOPER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO JAMES OSBORNE COOPER, OF PORTLAND, OREGON.

APPARATUS FOR CLEANING SHIPS' SIDES, &c.

SPECIFICATION forming part of Letters Patent No. 295,357, dated March 18, 1884.

Application filed September 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN LEE COOPER, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Ship-Cleaner, of which the following is a full, clear and exact description.

The object of my invention is to provide a new and improved device for cleaning ships' sides and bottoms, either in port or at sea.

The invention consists in a cylindrical scarifier journaled in a frame pivoted in another frame held on the ship's side or bottom, which scarifier can be revolved by suitable devices; and can be pressed against the ship's side or bottom with more or less force to scrape off the barnacles, rust, &c.

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

Figure 1 is a cross-sectional elevation of my improved ship-cleaner. Fig. 2 is a front view of the same.

A is a wooden frame, which is very strong and as light as possible. Two parallel convex rollers, B, are journaled in the frame, which rollers keep the frame about an inch from the ship's side or bottom. Four standards or arms, C, project from the frame A, and in the end of each two rollers, D, are journaled, between which the guide-ropes E pass, which are drawn taut and suitably fastened, and on which ropes the frame can be raised or lowered. The frame A is provided with two journals, F, for receiving pivots G, projecting from the sides of a frame, H, fitting within the frame A, and in which frame H a transverse scarifier, J, is rigidly mounted on a transverse shaft, K, the ends of which project over the frame A. The cylindrical scarifier J is provided with bristles of steel wire about six inches in length. The wire must not be too stiff nor too elastic, as in the first case it would not sharpen itself, and in the second case it would not clean the vessel properly. The scarifier is worked by means of two ropes, L, which are coiled reversely on the shaft K of the scarifier, so that if the scarifier is revolved in one direction by pulling on one rope, L, the other rope will be wound on the shaft K, and so on alternately,

the scarifier being revolved in opposite directions. The stay-rope M is secured to the lower end of the frame A, and runs up to or over the gunwale of the ship and bears most of the weight of the machine when at work. The lifting-rope N is secured to the end of the frame H, passes over a pulley, O, in a bridge, P, on the frame A, and then extends to the deck or to a boat at the side of the vessel, or to a dock, &c., so that by pulling on the rope N the lower end of the frame H will be lifted from the side or bottom of the vessel and the scarifier will be pressed against the side or bottom of the vessel, and the degree of pressure can be regulated at will.

Barnacles, rust, paint, &c., can be removed from a ship's side or bottom in a very short time.

The machine is rigged for work by extending a cable or rope from back-stay to back-stay, or between two other suitable supports, and on the said rope a pulley travels, from which the ropes E hang. These ropes E unite under the ship, and are extended over the gunwale on the other side. Three or four men can easily work the machine, whether the machine is at sea or in port.

If desired, caps R or end pieces can be secured to the ends of the shaft K, to prevent the ropes L from running off the ends of the said shaft.

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

1. In a ship-cleaner, the combination, with a frame, of an additional frame pivoted in the same, a cylindrical scarifier journaled in the pivoted frame, and means for revolving the scarifier, substantially as herein shown and described.

2. In a ship-cleaner, the combination, with a frame having convex rollers, of an additional frame pivoted in the above frame, a cylindrical scarifier journaled in the pivoted frame, and means for revolving the scarifier, substantially as herein shown and described.

3. In a ship-cleaner, the combination, with the frame A, of the convex roller B, the frame H, pivoted in the frame A, the cylindrical scarifier J, journaled in the frame H, and the ropes L, wound in inverse directions on the

ends of the scarifier-shaft, substantially as herein shown and described.

4. In a ship-cleaner, the combination, with the frame A, of the frame H pivoted therein, 5 the cylindrical scarifier J, journaled in the frame H, means for revolving the scarifier, and means for pressing it against the ship, substantially as herein shown and described.

10 5. In a ship-cleaner, the combination, with the frame A, of the frame H, pivoted therein, the cylindrical scarifier J, journaled in the frame H, means for revolving the scarifier, the rope N, the bridge P, and the pulley O, substantially as herein shown and described.

6. In a ship-cleaner, the combination, with 15 the frame A, of the standards C, the rollers D, the ropes E, the frame H, journaled in the frame A, a cylindrical scarifier journaled in the frame H, and means for revolving the scarifier, substantially as herein shown and de- 20 scribed.

JOHN LEE COOPER.

Witnesses:

JAMES MASON,
T. H. DIXON.