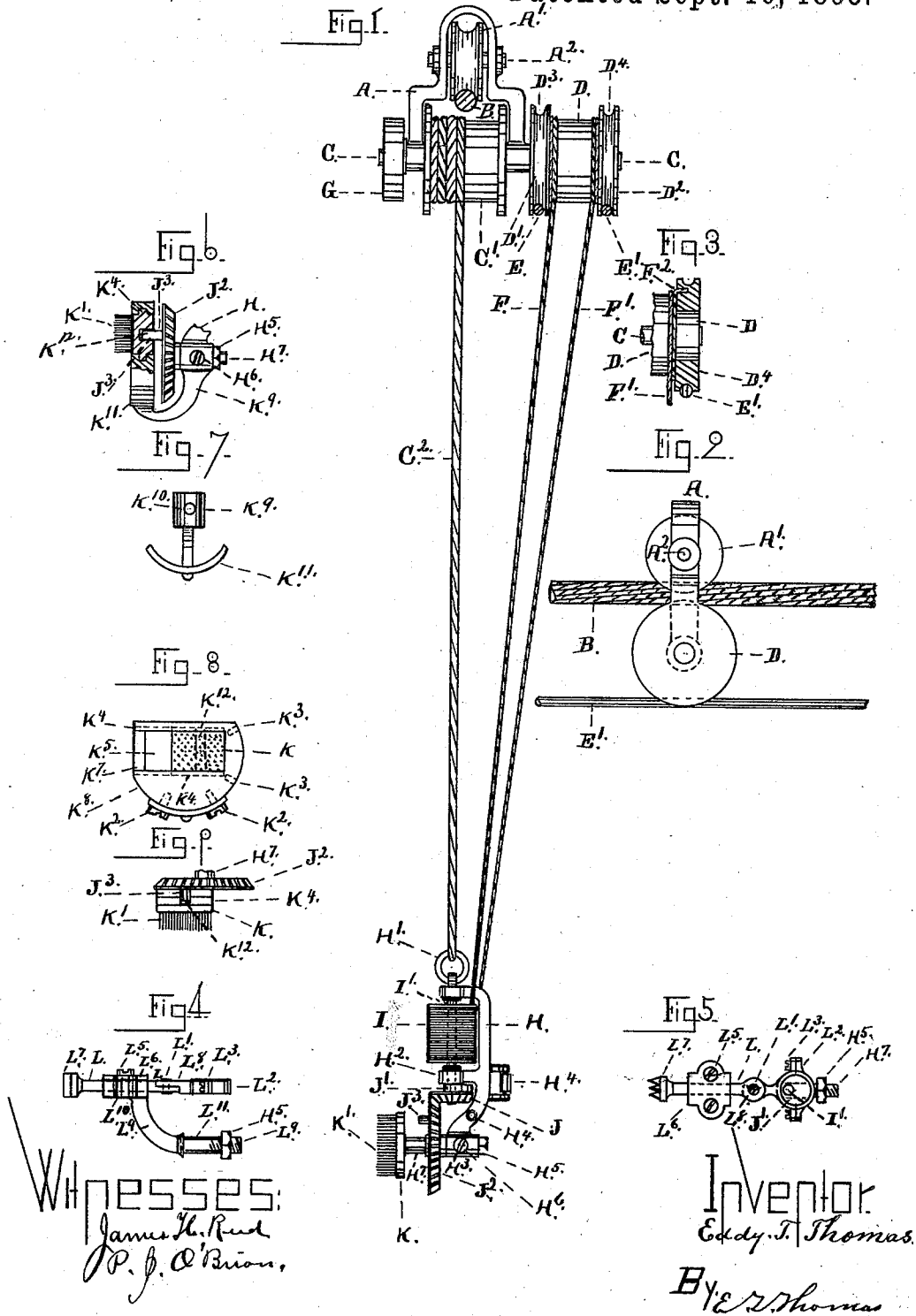


(No Model.)

E. T. THOMAS.
SHIP CLEANING APPARATUS.

No. 545,923.

Patented Sept. 10, 1895.



UNITED STATES PATENT OFFICE.

EDDY T. THOMAS, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO R. J. CAMPBELL, OF SAME PLACE, AND FRANCIS LARKIN, JR., OF SING SING, NEW YORK.

SHIP-CLEANING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 545,923, dated September 10, 1895.

Application filed January 3, 1895. Serial No. 533,778. (No model.)

To all whom it may concern:

Be it known that I, EDDY T. THOMAS, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and useful Improvement in Ship-Cleaning Apparatus, of which the following is a specification.

The object of this invention is to facilitate the cleaning of ships and buildings.

The invention consists in a traveling crane, spring-operated drum, a motor, supporting-cable, and a revolving horizontally or vertically operated brush and a pick.

Figure 1 is a side view of the whole machine. Fig. 2 is a front view of the crane-cables and trolley-drums. Fig. 3 is a sectional view of the trolley-drums. Fig. 4 shows the pick-frame. Fig. 5 is a top view of Fig. 4. Fig. 6 is a side view of the reciprocating or horizontal brush attachment. Fig. 7 is a vertical or horizontal brush-supporting frame. Fig. 8 is a front view of Fig. 6, and Fig. 9 is a top view of the vertical or horizontal brush and driving mechanism.

A, Figs. 1 and 2, is a crane-frame having a grooved wheel A', which supports and allows the crane to be moved along the cable B, which will be supported along the side of the building or ship to be cleaned.

C, Fig. 1, is a drum-arbor supporting the drums C' and D, and is held in place by the vertical arms of the crane A.

G, Fig. 1, is a stationary spring-case holding a coiled spring of common construction, one end being secured to the case G, the other being fastened to the arbor C. The spring (not shown) will be of sufficient strength to rewind the motor-cable C² and conducting-wires F and F' after the motor has been drawn down to reach a lower part of the ship or building which is being cleaned.

C' and D, Fig. 1, are drums of the same diameter, and both are secured to and turn with the arbor C. The drum C' is to hold the motor-supporting cable C², while the drum D holds the current-wires F and F', which convey the current of electricity to and from the

motor I. The part of the drum D on which the wires F and F' are coiled is a non-conductor, while the flanges D³ and D⁴ are copper, as shown in Fig. 3. By this construction the trolley-wire E conveys the current of electricity to the wheel D³, and wire F to the motor I, then back over the wire F' to the wheel D⁴ and trolley-wire E'. The wires F and F' are secured to the wheels D³ and D⁴ by bending the wires at right angles and inserting them in the recesses F² of the flanges, as shown in Fig. 3.

H, Figs. 1 and 6, is a frame supporting the motor I and gear J². It is provided with a staple H', to which the supporting-cable C² is fastened, and bearing-lugs H² and H³, and handles H⁴ for the operator.

I', Figs. 1 and 5, is the motor-arbor to which the bevel driving-gear J is secured.

J² in the several figures is a vertical bevel-gear driven by gear J and secured to the brush-arbor H⁷, which is run in the lug H³ and held in place by the nut H⁵.

K, Fig. 1, is a rotary brush-head operated by the arbor H⁷ and provided with stud-wires K' of sufficient size and stiffness to cut off old paint and rust from ships or for other similar purposes.

L⁹, Fig. 4, is a frame made to take the place of arbor H⁷, Fig. 1, and is rigidly secured by the nut H⁵. This frame is provided with a slotted head L¹⁰, in which the pick-bar L slides, being held in place by the cap L⁵.

L², Figs. 4 and 5, is an eccentric rod and strap pivoted at L⁸ to the pick-bar L by the stud L'.

J', Figs. 1 and 5, is an eccentric secured to the bevel-gear J or motor-arbor I', and drives the eccentric-strap L² and pick-bar L, forcing the pick L⁷ against barnacles or other formations too hard for the steel brush to readily remove.

K⁹, Figs. 6 and 7, is a frame having recess K¹⁰, and is secured to the motor-frame lug H³, Fig. 1, by the screw H⁶. It is provided with the flange K¹¹, Figs. 6 and 7, to which the brush-supporting frame K⁸, Fig. 8, is secured

by the screws K². This brush-supporting frame is provided with a slide way K⁵, in which the brush-head K is operated back and forth.

J³, Figs. 1, 6, and 9, is an eccentric-pin secured to the gear J², made to fit into the slot K¹² of the brush-head K, and drives the brush horizontally.

When it is desired to drive the brush-head K vertically, the screws K² are removed and the brush-head K⁸ swung around until the slot K⁵ stands vertically and the screw-holes K³ reach the position shown by the screws K². By this plan rotary horizontal and vertical motions are readily obtained to operate the brushes.

I may use weights instead of springs to balance the motor and brush mechanism.

By reducing the speed of the brush through the medium of the gears I am enabled to use a light motor I, which enables the operator to more easily handle the device.

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

1. In a ship cleaning device, the supporting frame A. provided with the drum C'. to support the motor cable C², and the motor I. operating a cleaning device, in combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

2. In a ship cleaning device, the supporting frame A provided with the wheel A', the drum C'. to support the motor cable C², and the motor I. in combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

3. In a ship cleaning device the supporting frame A. provided with the wheel A', the drum C'. to support the motor cable C², and the motor I. operating a cleaning device, supported by the cable B. in combination with the drum D. for holding the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

4. In a ship cleaning device the supporting frame A. provided with the drum C'. to support the motor cable C², and the motor I. operating a cleaning device, a spring in connection with the cable drum to rewind the cable C². in combination with the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

5. In a cleaning device the supporting frame A. provided with the arbor C. to operate the drums C'. and D., the motor cable C², and the motor operating a cleaning device, in

combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

6. In a cleaning device the supporting frame A'. provided with the drum C'. to support the motor cable C², and the motor I. operating a cleaning device, in combination with the drum D having grooved flanges D³. and D⁴. the said drum D. supporting the conducting wires F. and F', and the trolley wires E. and E'. as and for the purpose described.

7. In a cleaning device the supporting frame A. provided with the drum C'. to support the motor cable C², and the motor I. operating a cleaning device, the said motor I. driving the gears J. and J², in combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

8. In a cleaning device, the supporting frame A. provided with the drum C'. to support the motor cable C², the motor I. for operating the brush K., in combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

9. In a cleaning device the supporting frame A. provided with the drum C'. to support the motor cable C², the motor I. for driving the gear J². which is provided with an eccentric pin J³. for operating the reciprocating brush K. in combination with the drum D. for supporting the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

10. In a ship cleaning device the supporting frame A. provided with the drum C'. to support the motor cable C², and the motor I. for driving the reciprocating brush K. having an adjustable head K⁸. supported by the flange K¹¹, in combination with the conducting wires F. and F', trolley wires E. and E'. as and for the purpose described.

11. In a cleaning device the supporting frame A. provided with the drum C'. to support the motor cable C², and the motor I. for operating a cleaning device, in combination with the conducting wires F. and F'. as and for the purpose described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of October, 1894.

EDDY T. THOMAS.

Witnesses:

A. E. WOOD,
ARTHUR H. SMITH.