(No Model.)

H. N. H. LUGRIN.

FOG DISPELLING APPARATUS FOR SHIPS.

No. 598,636. Patented Feb. 8, 1898.

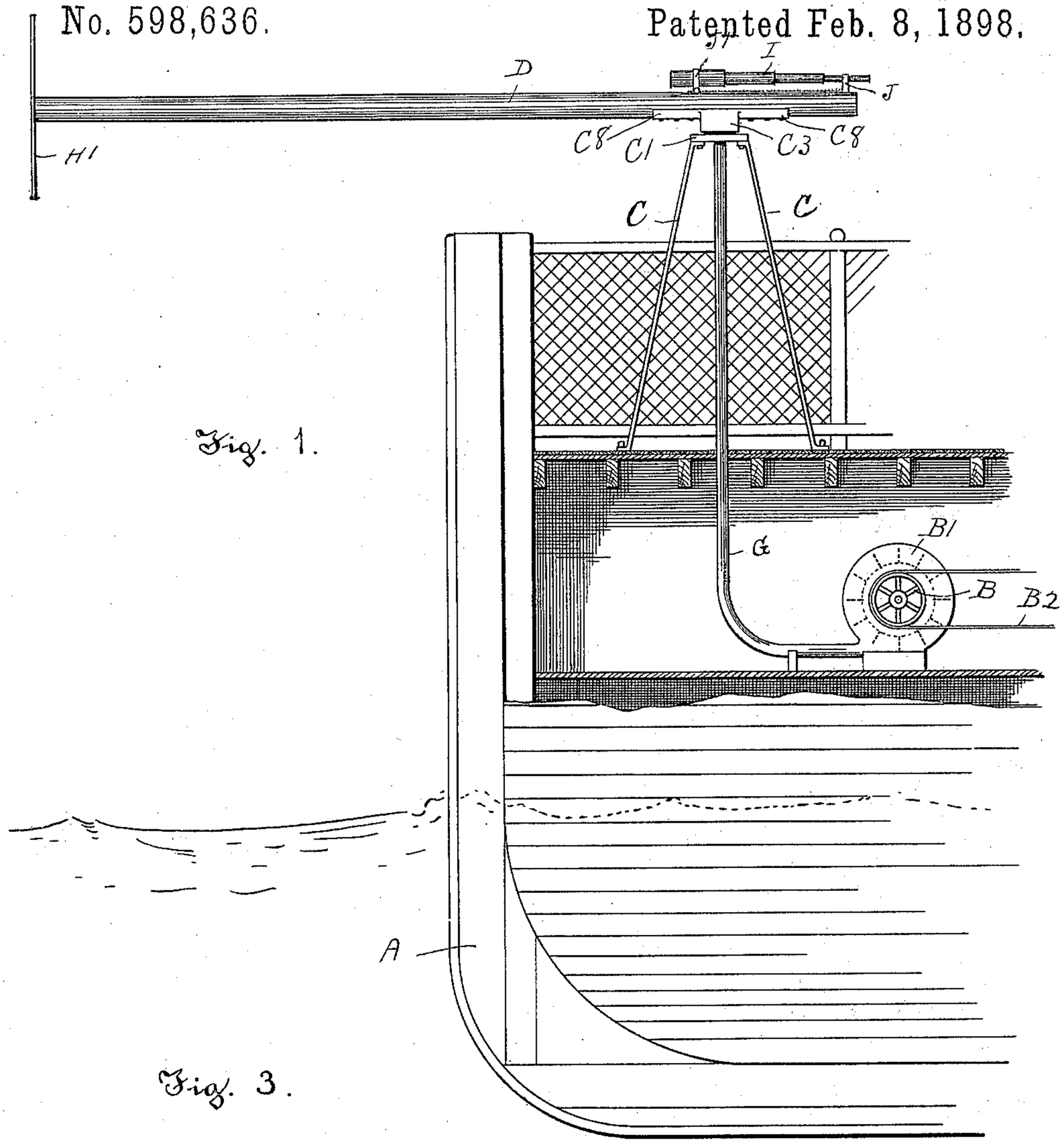

Fig. 1.

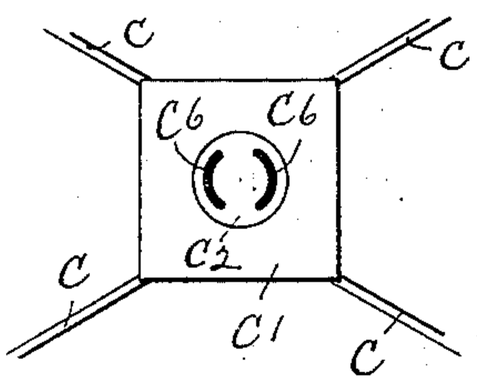

Fig. 3.

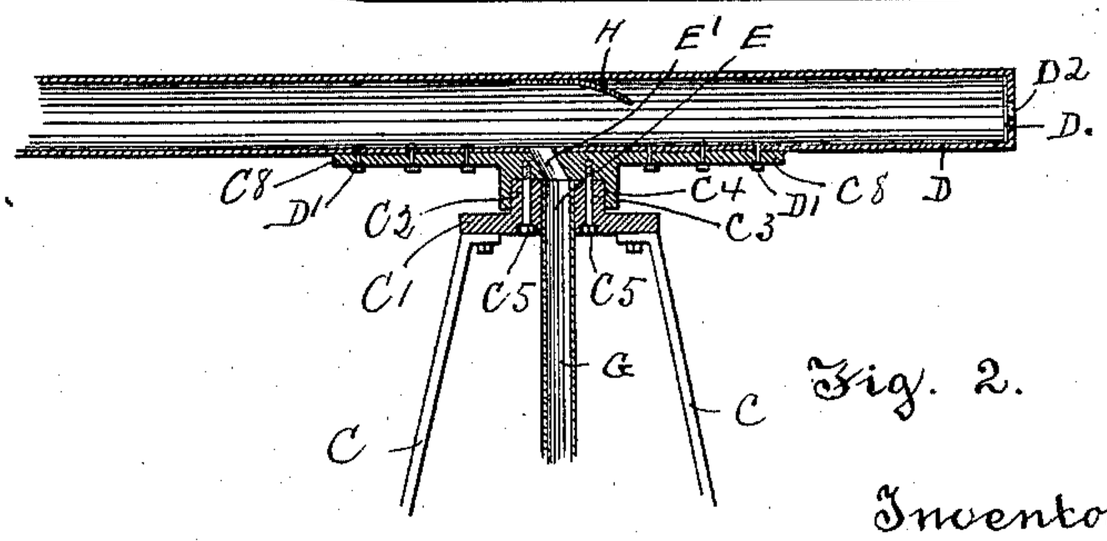

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

HORATIO N. H. LUGRIN, OF WORCESTER, MASSACHUSETTS.

FOG-DISPELLING APPARATUS FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 598,636, dated February 8, 1898.

Application filed May 25, 1896. Serial No. 593,087. (No model.)

To all whom it may concern:

Be it known that I, HORATIO N. H. LUGRIN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in an Apparatus for Ships for Dispelling Fog, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a portion of the hull of a vessel having my improved apparatus applied thereto, a portion of the side of the hull being removed in order to disclose the interior. Fig. 2 is a central vertical longitudinal sectional view of a portion of the fog-dispelling apparatus, and Fig. 3 represents a top view of the supporting-stand.

Similar letters refer to similar parts in the different figures.

The object of my present invention is to provide means for dispelling or dissipating a fog in front of a moving vessel, thereby forming a clear space of sufficient width for the passage of the vessel and sufficiently in advance of the bow of the vessel to permit the course of the vessel to be discerned and obstacles to be avoided; and my invention consists of an apparatus comprising means for creating an air-blast and means for directing the same in a single current in the direction of the motion of the vessel and in advance thereof, said current being limited in the area of its cross-section throughout a considerable portion of its passage in a line parallel with the motion of the vessel, whereby the body of moving air is projected in a current of considerable force in advance of the vessel, as hereinafter described.

Referring to the drawings, A denotes a portion of the hull of a vessel having a part of one side broken away to disclose the interior forming an inclosed space, within which are placed means for producing an air-current or air-blast, in the present instance consisting of a rotary fan B, contained in a case B′ and driven by any suitable motive power through a belt B^2. Mounted upon the upper deck of the vessel is a supporting-stand consisting of the legs C, attached to the deck and supporting a table C′ at any convenient height. The table C′ is provided on its upper surface with a circular boss C^2, on which is mounted the turn-table C^3, provided with a circular recess C^4, fitting the boss C^2 and capable of turning thereon. The turn-table C^3 is connected with the supporting-table C′ by any known means, that represented in the drawings consisting of the bolts C^5, which pass through slots C^6, curved concentrically with the circular boss C^2, said bolts being screwed into the turn-table C^3 and having their heads bearing against the under side of the supporting-table C′, thereby allowing the turn-table C^3 to be rotated in a limited arc upon the boss. Arms C^8 project from the turn-table C^3 on diametrically opposite sides, to which the tube D is attached by bolts D′ or other suitable means. The tube D can be made of such length and diameter as may be found most efficient in practice. For ordinary purposes I prefer to make the tube ten or fifteen feet in length and from four to eight inches in diameter.

The tube is attached to the arm C^8 near its rear end, which is closed, and its forward end is left open. The rear end is preferably provided with a concentric peek-hole D^2, covered by a glass plate D^3 to allow an observer to look through the tube. The turn-table C^3 is provided with a vertical opening or concentric hole E, passing through the table and communicating at its upper end with an oblique hole E′, passing through the turn-table C^3 and having its upper end communicating with the interior of the tube D, said oblique opening E′ being inclined toward the forward end of the tube, so an air-blast passing upward through the concentric hole E will be turned toward the forward end of the tube D. A curved deflecting-plate H is attached to the inner and upper side of the tube D, slightly to the rear of the opening E′, with its rear edge curved downward toward the center of the tube D in order to turn the air-current, which strikes against the under side of the deflecting-plate toward the forward end of the tube D.

The pipe G connects the concentric hole E with the mouth of the case B′, causing the air-current generated by the fan B to be blown through the tube D in a powerful blast sufficient to dissipate the fog in the same manner as a fog-bank is dispelled by the natural currents of wind. The air-blast as it proceeds from the mouth of the tube D is restricted in

the area of its cross-section to the diameter of the tube, and therefore it possesses at this point its initial force and velocity, its force, of course, diminishing in intensity as it advances in divergent lines from the tube D. The length of the tube D is preferably great enough to cause the air-blast to acquire considerable velocity in a straight line before it is delivered from the mouth of the tube. In order to prevent any induced current of air outside of and parallel with the tube D, I provide the end of the tube D with an outwardly-projecting flange H, which may be inclined at any desired angle to the axis of the tube or, as represented in Fig. 1, placed at right angles thereto.

If desired, a spy-glass I can be mounted upon the rear end of the tube, with the rear end of the glass supported by a bracket J and the forward end supported by a bracket J', having the ordinary rack-and-pinion adjustment along the tube D. The fan B or other means for producing the air-blast is preferably located in the hold between the decks or within an inclosed space, so that, if desired, the air-blast through the tube D may be taken from said inclosed space and under different conditions from those existing outside the vessel.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a fog-dispelling apparatus for ships, the combination with a vessel, of a tube, means for supporting said tube above the deck of the vessel and in a direction parallel with its line of motion, means for generating a continuous air-blast of uniform force and means for conducting said air-blast from said air-blast generator through said tube, substantially as described.

2. In a fog-dispelling apparatus for ships, the combination with the vessel, of a tube supported above the deck of the vessel and parallel with its line of motion, said tube having an opening in its side and being capable of rotating around said opening, means for generating a continuous air-blast of uniform force, and means for conducting said air-blast from said generator to said opening in the side of said tube, substantially as described.

3. In a fog-dispelling apparatus, the combination with a vessel having an inclosed space, means for generating an air-blast continuously and of uniform force contained in said space, a tube supported above the deck of the vessel, and means for conducting said air-blast from said generator to said tube, substantially as described.

4. The combination of a supporting-table, a turn-table mounted on said supporting-table and capable of turning thereon, a tube attached to said turn-table, an opening in said supporting-table concentric with the axis of said turn-table, an oblique opening in said turn-table communicating with said tube and said concentric opening, means for generating an air-blast and means for conducting said air-blast to said concentric opening, substantially as described.

5. The combination of a tube D open at its forward and closed at its rear end, and having an opening in its side, means for conducting an air-blast through said opening and a curved deflecting-plate above said opening, whereby said air-blast is deflected to the forward end of said tube, substantially as described.

6. The combination with a tube, and means for generating an air-blast, of means for conducting said blast through said tube, and a flange projecting outwardly from the end of said tube at its forward end, whereby induced currents of air outside of said tube are prevented, substantially as described.

Dated this 19th day of May, 1896.

HORATIO N. H. LUGRIN.

Witnesses:
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