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H. ARENTZ

MACHINE FOR THE CLEANSING OF THE BOTTOMS AND SIDES OF FLOATING SHIPS

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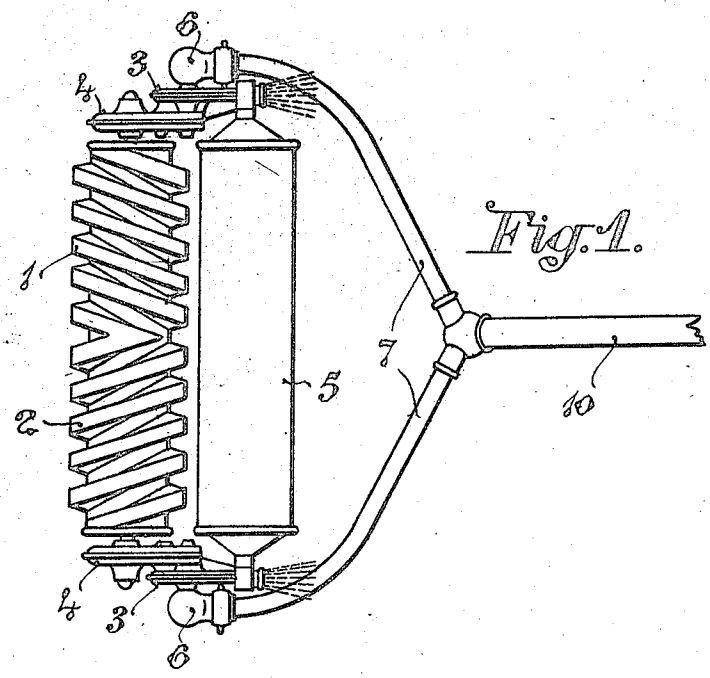
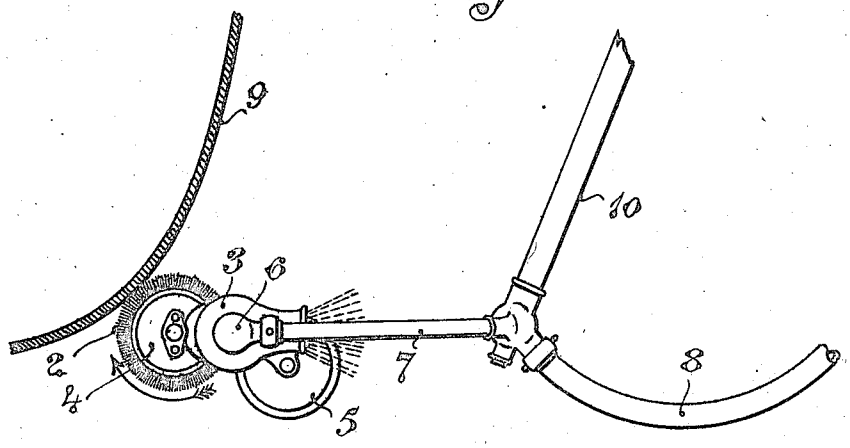


Fig. 1.

Fig. 2.



Inventor:

Hjalmar Arentz

By Louis Paniels Le

Attorney

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UNITED STATES PATENT OFFICE.

HJALMAR ARENTZ, OF HELLERUP, DENMARK.

MACHINE FOR THE CLEANSING OF THE BOTTOMS AND SIDES OF FLOATING SHIPS.

Application filed January 30, 1923. Serial No. 615,905.

To all whom it may concern:

Be it known that I, HJALMAR ARENTZ, subject of the King of Denmark, residing at Hellerup, Denmark, have invented certain new and useful Improvements in Machines for the Cleansing of the Bottoms and Sides of Floating Ships, of which the following is a specification.

The present invention relates to a machine for the cleansing of the bottom and sides of floating ships and of the kind having a turbine driven rotating brush provided or formed on a cylindrical member arranged as an air container.

A machine of the kind referred to together with its auxiliaries is of a considerable weight which must in the hitherto known machines be balanced only by the buoyancy of the said container. Without such balancing the manipulation of the machine will become too difficult for the reason that the machine, when operated, will have to be constantly removed from one place to another.

In view of the great buoyancy thus required the air container formed by the cylindrical member of the brush must be large in the hitherto known machines of the kind in question, that is to say, the said member must be of a large diameter, which entails the drawback that the diameter of the brush proper will become relatively very large. Owing to the great weight or mass it is, further, difficult to obtain a pressure between the brush and the side of the ship sufficient for an effective cleansing of the latter.

The said drawbacks are obviated in the machine according to the present invention. This machine is principally characterized in this that, apart from the air container constituting in known manner the supporting part for the brush proper, it is provided with an auxiliary air container producing buoyancy, whereby is attained that the diameter of the first mentioned air container, and thus the diameter of the brush may always be kept within a suitable value without the buoyancy thereby becoming too small. The rotation of the brush is, further, brought about by means of two identical turbines arranged each at one end of the brush and from which the pressure of water will discharge in such a direction that two reactive and equal forces will be produced which are disposed symmetrically with respect to the vertical centre plane of the machine and which will assist in pressing the brush against the side of the ship.

A constructional form of the machine according to the present invention is, by way of example, shown on the accompanying drawing, where—

Fig. 1 is a top view of the machine and

Fig. 2 is an end view of the same.

1, Fig. 1, is a cylindrical member serving as an air container and to which is secured or formed the brush 2 of the machine.

The member 1 together with the brush 2 is rotated at the desired speed by means of two identical turbines 3 the energy of rotation of which is by means of gearings transmitted to each end of the body 1, 2. The said gearings are enclosed in casings 4 supporting the cylindrical member 1 together with the brush 2 and a cylindrical auxiliary air container 5 disposed parallel to the cylindrical member 1 (air container). The casings 4, further, serve as supports for the turbines 3 and are provided with pipe fittings 6 for establishing connection through branch pipes 7 to a hose 8.

Pressure water is by means of a donkey pump pumped through the hose 8 and pipes 7 to the turbines 3 for driving these. As indicated on the drawing the water will discharge from the turbines in a direction away from the brush so as to produce two equal reactive forces which are disposed symmetrically with respect to the vertical centre plane of the machine and which will tend to move the machine to the left in the figures thus pressing the brush against the side 9 of the ship.

10 is the guiding rod which is in known manner guided in a crutch on a common rail of a ship's boat and which ensures that the machine will follow the proper path when moved up or down.

As the diameter of the auxiliary air container 5 may, to a certain extent, be chosen at will it is obvious that the size of said container may always be chosen such that the diameter of the air container 1 (the cylindrical member) and, thus, of the brush proper may be of a suitable value. If the machine be used with no guiding rod, in other words, if it be moved from place to place of the side and bottom of the ship by means of ropes or chains, the auxiliary air container—and if so desired, together with a roll arranged at the place where

otherwise the guiding rod is connected with the branch pipes 7—may serve as a guiding roll running along the side or bottom of the ship.

I claim:

1. Machine for the cleansing of the bottom and sides of floating ships of the kind having a turbine driven rotating brush provided or formed on a cylindrical member which latter is arranged as an air container for the purpose of producing buoyancy, characterized in this that there is provided, apart from the said air container an auxiliary air container producing buoyancy, whereby is attained that the diameter of the first mentioned air container and thus of the brush can always be kept suitably small, the rotating of the brush being brought about by means of two turbines arranged each at one end of the brush and from which the pressure water will discharge in such a direction that two equal forces will be produced by the reaction which forces are disposed symmetrically with respect to the vertical centre plane of the machine and which will assist in pressing the brush against the side of the ship.

2. In a machine according to claim 1 the arrangement that gearings, through which the movement of rotation is transmitted from the turbines to the cylindrical member and the brush, are enclosed in casings which serve as supports for the turbines and are provided with fittings for branch pipes through which pressure water is pumped to the turbines for driving same.

In testimony whereof I affix my signature.

HJALMAR ARENTZ.