

(No Model.)

A. McDOUGALL.

APPARATUS FOR REMOVING ASHES FROM FIRE HOLDS OF VESSELS.

No. 530,850.

Patented Dec. 11, 1894.

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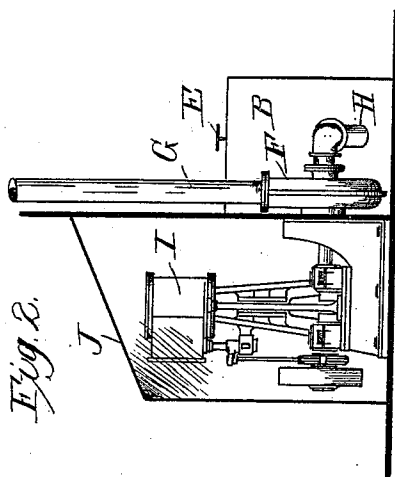


Fig. 2.

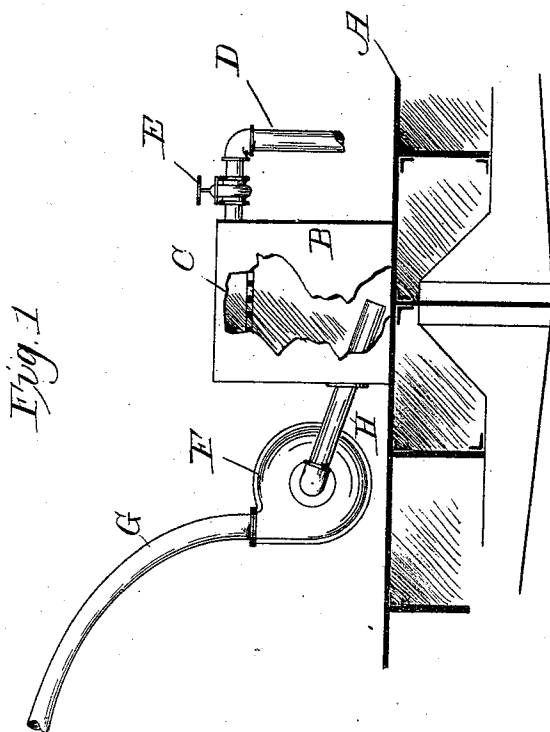


Fig. 1

Witnesses

A. Reese
A. L. Johnson

Inventor

Alexander Mc Dougall
By his Attorney
Frank L. Ayer

UNITED STATES PATENT OFFICE.

ALEXANDER MCDOUGALL, OF DULUTH, MINNESOTA.

APPARATUS FOR REMOVING ASHES FROM FIRE-HOLDS OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 530,850, dated December 11, 1894.

Application filed January 9, 1893. Serial No. 457,795. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER MCDOUGALL, a citizen of the United States of America, residing at Duluth, in the State of Minnesota, have invented certain new and useful Improvements in Apparatus for Removing Ashes from the Fire-Holds of Vessels; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The operation of removing ashes from the firehold of vessels as it is now practiced, is attended with many objections. This operation consists simply in hoisting the ashes to the deck and emptying them overboard. It will therefore be seen that in order to carry this operation out it requires the attention of two men for a large portion of their time, and that the ashes will be blown over a portion of the vessel so as to settle thereon in the form of a heavy dust which has to be cleaned off.

I propose, by means of my present invention, to greatly facilitate the removal of ashes from the firehold of vessels.

My improved apparatus is practically automatic and when once started will require but little attention.

In my present invention the ashes are mixed with a large quantity of water so as to be thoroughly dampened, and for this reason no dust or dirt will be blown over the vessel.

In my present invention the ashes will be expelled from the firehold a short distance above the water line, so that the ashes will be removed in a clean and rapid manner.

The principal novelty in the construction of my improved apparatus consists in the utilization of a centrifugal or other pump, in connection with other elements of construction by which the ashes mixed with water will be ejected out of the vessel at a point near the water line.

For a better comprehension of my invention, attention is directed to the following drawings, forming a part of this specification, and in which—

Figure 1 represents a side elevation, partly in section, of my improved apparatus, with the frames of the vessel shown in section, and

Fig. 2 an end elevation of the improved apparatus.

In both of the above views, corresponding parts are designated by the same letters of reference.

A represents the floor of the firehold of the vessel which is mounted on the usual transverse frames and which in most cases constitute the top of the false bottom.

B is a metal tank or ash box, which is preferably made rectangular in shape, but which may be round, oval or any other shape. The upper end of this metal tank or ash box is open and mounted a short distance beneath the upper end within the same is a heavy iron grating C.

D is a metal pipe which connects with the outside water, preferably through the side of the vessel and which communicates with the metal tank or ash box B at a point above the said grating C.

E is a sea valve placed within said pipe D and by which the flow of water from outside is regulated or cut off.

F is a centrifugal pump which is mounted in front of said metal tank or ash box B, and G is the discharge pipe from said centrifugal pump which extends up and passes outside the vessel at a point near the water line. H is the suction pipe of said centrifugal pump, which extends into the metal tank or ash box.

I is a small steam engine of any desirable type which is preferably coupled directly with the said centrifugal pump and which is used to operate the same. The said engine is preferably supplied with steam from the boilers of the steam boat and can in this way be operated with the greatest economy. Although it is not necessary, I prefer to house in the steam engine by means of a metal cover J by which the engine will be effectively protected and the noise will be muffled to a great extent.

In carrying out the idea I have in my mind in removing ashes by means of this improved apparatus I proceed substantially as follows: The ashes from the fire-box of the boilers are dumped upon the grating C as they accumulate. A small portion of these ashes will drop through the grating and be precipitated upon the bottom of the metal tank or ash box B, but the greater portion will remain upon the

grating C by the adhesion of the particles. The sea-valve E is now opened to the desired extent and water from the outside of the vessel is allowed to enter the metal tank or ash box B. This water, as it will be observed, enters the metal tank or ash box at a point near the grating C and therefore comes directly in contact with the ashes thereon and will wash the ashes into the lower part of the metal tank or ash box so that at the same time the ashes will be thoroughly mixed with the water. The steam-engine I is now started and the pump commences to operate, drawing the mixture of ashes and water out of the metal tank or ash box B and forcing them through the pipe G to the outside of the vessel near the water line. By mixing the ashes with water, as I have just described they can be pumped very readily and all the dust will be precipitated so that there will be no liability of the ashes being blown back on the vessel as they pass out of the same.

It will be understood that the pipe D may enter the lower end thereof instead of at the upper end. It will also be evident that any other variety of pump may be used and if a force pump is employed the ashes may be forced out of the vessel below the water line and against the water pressure, and it will be also evident that instead of making use of a steam engine I for operating the pump, the engine itself may be dispensed with where a steam pump is used or an electric or any other kind of a motor may be substituted for the same; but all these modifications which I have suggested tend rather to decrease than increase the advantages of my invention as I have illustrated it in the drawings.

The apparatus which I have described is capable either of a continuous or an intermittent action, that is to say, the pump F may be operated continuously and a certain proportion of water may be allowed to pass through the pipe at all times, so that, as the ashes are deposited from time to time upon the grating C, they will be immediately precipitated to the bottom of the metal tank or ash box B and carried out through the pump F, or instead, the ashes may be deposited upon the grating C until a sufficient supply has accumulated thereon, when the pump may be started and the water allowed to flow into the pipe D until the supply of ashes has been removed, when the engine will be stopped and the water supply cut off until a new sup-

ply of ashes has been allowed to accumulate upon the grating.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. An improved apparatus for removing ashes from the fireholds of vessels, which consists of a metal tank or ash box B open at its upper end; a heavy grating near the upper end thereof; a pipe connecting with the outside water and entering the said metal tank or ash box B above said grating C; and a pump F having its suction pipe connecting with said metal tank or ash box B near the lower end thereof and with its discharge pipe G passing outside of the vessel at a point above the water line, substantially as described.

2. In an improved apparatus for removing ashes from the fireholds of vessels, the combination of a metal tank or ash box B; the heavy metallic grating C, near the upper end thereof; the pipe D connecting with the outside water and entering said metal tank or ash box B, above said grating C; the sea valve E within said pipe D; the pump F adjacent to the said metal tank or ash box B; the suction pipe H of said pump entering said metal tank or ash box B near the lower end thereof; and the discharge pipe G of said pump passing outside of the vessel at a point near the water line, substantially as described.

3. In an apparatus for removing ashes from the fireholds of vessels, the combination of a metallic tank or ash box open at its upper end; the metallic grating C within said metal tank or ash box and near its upper end; the pipe D connecting with the outside water and entering said metal tank or ash box at a point above said grating C; the sea valve E in said pipe D; the centrifugal pump F adjacent to said metal tank or ash box; the suction pipe of said pump entering said metal tank or ash box at the lower end thereof; the discharge pipe G of said pump passing outside of the vessel at a point near the water line; the engine I for operating said pump; the casing J for covering said engine for the purposes set forth, substantially as described.

This specification signed and witnessed the 10th day of October, A. D. 1892.

ALEXANDER McDOUGALL.

Witnesses:

ANGUS McDOUGALL,
CHAS. W. LELAND.