

L. HOCHSTEIN.
EJECTOR FOR SHIPS' ASHES.
APPLICATION FILED OCT. 6, 1908.

919,014.

Patented Apr. 20, 1909.

2 SHEETS—SHEET 1

Fig. 1.

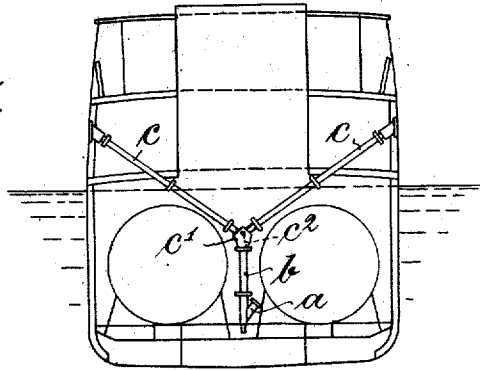


Fig. 2.

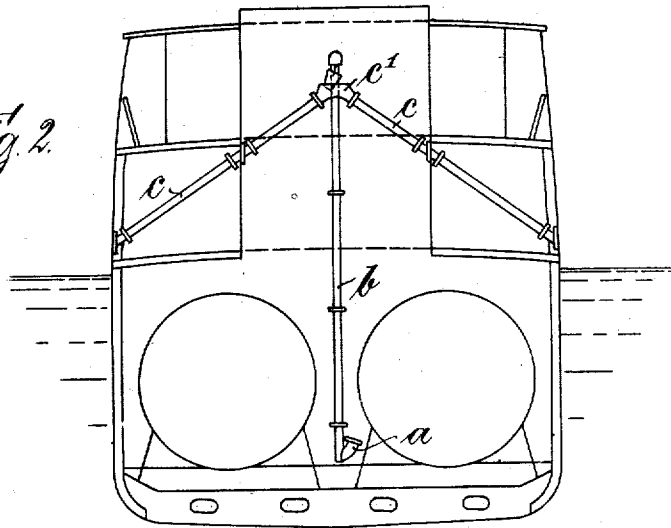


Fig. 3.

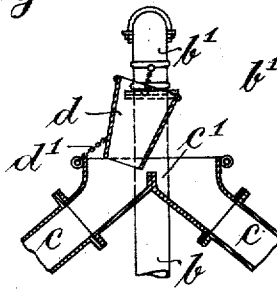
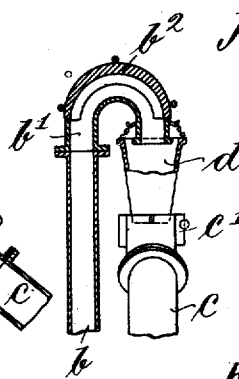


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

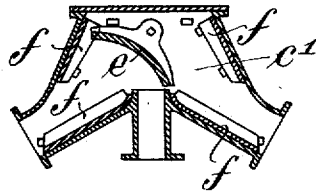


Fig. 6.

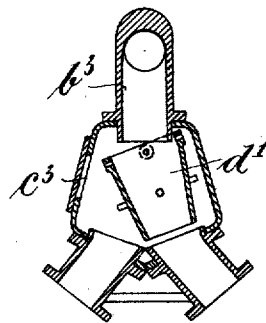


Fig. 7.

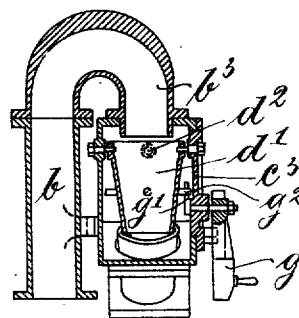


Fig. 8.

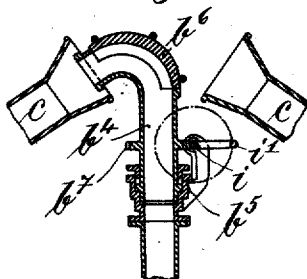
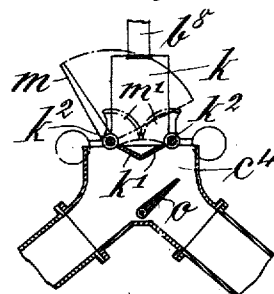


Fig. 9.



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UNITED STATES PATENT OFFICE.

LUDWIG HOCHSTEIN, OF NEUMÜHLEN-DIETRICHSDORF, NEAR KIEL, GERMANY.

EJECTOR FOR SHIPS' ASHES.

No. 910,014.

Specification of Letters Patent.

Patented April 20, 1909.

Application filed October 6, 1908. Serial No. 456,444.

To all whom it may concern:

Be it known that I, LUDWIG HOCHSTEIN, a subject of the King of Prussia, and resident of Neumühlen-Dietrichsdorf, near Kiel, in the Province of Schleswig-Holstein, German Empire, have invented certain new and useful Improvements in Ejectors for Ships' Ashes, of which the following is a specification.

This invention relates to those devices for ejecting ashes for ships which are operated by high pressure water or the like and the present novelty consists in branching the ascension pipes of the ejector toward both sides of the ship. At the branching point there is arranged a switching device by which one or the other of the branch pipes may be closed off as desired.

Heretofore ash ejectors were in use with discharge openings on one side of the ship only. Such ejectors are objectionable. When the ship lies with this side directly toward another ship or toward the wall of a quay it is either impossible to eject the ashes or such ejection could not be effected without polluting the adjacent ship or quay wall. According to the present invention the ashes may be ejected from either side of the ship. It is preferable to conduct the ascension tube so high that the branch tubes are inclined downward toward the region of the water line. The ashes in this case only require to be led forward to the branching point from which they fall by gravity through the branch tubes.

Referring now to the accompanying drawings, in which a few examples of the novel arrangements are given Figure 1 is a diagrammatic cross section of a ship showing one arrangement of ash-ejector while Fig. 2 is a similar diagrammatic cross section showing a modified arrangement of ash-ejector. Figs. 3-9 are diagrammatic cross sections of convenient switching devices for switching the ash to one or other of the side branch pipes illustrated in Figs. 1 and 2.

In carrying the invention into effect according to the form shown in Fig. 1 the usual ejector *a* is connected to the ascension pipe *b* which opens into a division box *c'*. In the division box *c'* a switch plate *c''* may be pivoted at its upper end and from this box there lead to each side of the ship branch pipes *c c'*. The branch pipes *c c'* preferably pass through the hull of the ship in the neighborhood of the water line. It will be seen that by

switching the plate *c''* to one or the other side the central ascension pipe *b* may be placed in communication with either the port or starboard branch pipe as desired.

According to the form of the invention shown in Fig. 2 the ejector is arranged in the usual manner and the ascension pipe *b* is continued to a higher point and opens above the division box *c'*. The port and starboard branch pipe *c* in this case are inclined downwardly so that the ejector *a* only requires to advance the ashes to the delivery or division box *c'* from which the said ashes pass by gravity through either the starboard or port branch pipe as desired.

It will be understood that the switching of the ashes to one or other side of the ship may be effected in a vast number of ways. In Fig. 3 a front sectional elevation and in Fig. 4 a sectional side elevation is shown of one convenient arrangement in which the ascension pipe *b* is provided at its end with a curved bend *b'*. This curved bend is preferably made on its upper part *b''* of thickened cast or armor steel so as to withstand the impact of the water and ashes ascending through the pipe *b*. At the downwardly opened end of the bend *b'* there is suspended a bottomless bucket *d* which may be swung to one or the other side as desired. The bucket *d* may be held in the inclined position shown in Fig. 3 by means of a chain *d'*. It will be seen that in the position shown in Fig. 3 the bucket *d* directs the ashes into the left hand branch pipe. By inclining the bucket to the other side the ashes may be directed into the right hand branch pipe. In this form the division box *c'* is illustrated as open at its upper end and with this construction the tube *c* may be used for the ejection of the waste from the galley. In the case of war ships however such open boxes are not applicable and the switch may in such cases be arranged as shown in Fig. 5 in which the upper end of the division box *c'* is closed and a switch flap *e* is pivoted within the box. This switch flap may be fixed in the desired position by means of a handle operated from the exterior in any convenient manner. This switch flap *e* is preferably made of cast or armor steel and armor plates *f* are provided on the walls of the division box *c'* so as to protect the division box against the impact of hard and sharp edged pieces of ash or clinker.

In Fig. 6 there is illustrated a front section

and in Fig. 7 a sectional side view of another form of closed division box in which a pivoted bottomless bucket is employed for directing the ashes into one or other of the branch pipes. In this modification the ascension pipe *b* is provided as in Figs. 3 and 4 with a bend *b*¹ at its upper end which bend opens into a pivoted bottomless bucket *d*¹. This bucket is pivoted at *d*² within the division box *c*³ and may be actuated by means of a lever *g* adapted to actuate a fork *g*¹ engaging pins *g*² on the bucket.

In Fig. 8 there is illustrated a form in which a bend *b*¹ is arranged to be rotated into position to engage either with the right or left hand branch pipe *c*. A stuffing box *b*² is arranged to provide a joint for this oscillating pipe. The rotating bend *b*¹ is provided with an armor part *b*³. The bend *b*⁴ is also provided at its lower end with a worm wheel rim *b*⁵ engaging with a screw *i* adapted to be rotated by means of a handle *i*¹.

In some cases it is desirable to separate the ashes and the water before ejecting the same through the branch pipe *c* and a suitable arrangement for this purpose is illustrated in Fig. 9. In this figure the ascension pipe *b* is not illustrated but the end *b*¹ of the bend from the ascension pipe is illustrated. This end opens into a box *k*, the lower end of which is adapted to be closed by means of perforated or like plates *k*¹ which are pivoted about the axes *k*². To the axes *k*² there are also fixed segments *m*¹ so that when one of the axes is rotated by means of a hand lever *m* both the flaps *k*¹ are swung either into the open or closed position as desired. In the division box *c*³ there is arranged a switch *o* adapted to close off one or other of the branch pipes *c*.

The operation of this device is as follows: The water and ashes passing together from the end of the pipe *b*¹ enter the box *k* and owing to the perforations in the flaps *k*¹ the water passes through the flaps which are of course in the closed position illustrated in Fig. 9. After a convenient time the hand lever *m* is swung into position for opening the flaps *k*¹ and the ashes then fall from the box *k*. If desired the water may be directed to the same side of the ship as the ashes or to the opposite side as found most convenient.

I claim:—

1. In ships, the combination of an ascension pipe a hydraulic ash ejector delivering

into the lower end of said ascension pipe, branch pipes leading from the upper delivery end of said ascension pipe to the port and starboard sides of the ship, and means for placing said ascension pipe in communication with the port or starboard branch pipe as desired.

2. In ships, in combination an ascension pipe, a hydraulic ash-ejector delivering into the lower end of said pipe, downwardly inclined branch pipes leading from the upper delivery end of said ascension pipe to the port and starboard sides of the ship, and means for placing said ascension pipe in communication with the port or starboard branch pipe as desired.

3. In ships, in combination, an ascension pipe, an ash-ejector delivering into the lower end of said ascension pipe, branch pipes leading downwardly to the port and starboard sides of the ship respectively, and means for establishing a connection between either of said branch pipes and the delivery bend on the upper end of the ascension pipe to eject the ashes from the ship at either side as desired.

4. In ships, in combination an ascension pipe, a hydraulic ash ejector delivering to the lower end of said ascension pipe, a division box into which said bend opens branch pipes leading from said division box and downwardly inclined to the port and starboard sides of the ship respectively, and means in said box for directing the ashes passing from the bend to either of said branch pipes for delivery outside the ship.

5. In ships in combination, an ash-ejector, an ascension pipe leading from said ejector, an armored bend on the end of said ascension pipe, an ash and water separating box into which said bend opens, a division box into which the separated ash or water is discharged from said separator, branch pipes leading from said division box and downwardly inclined toward the port and starboard sides of the ship and means in said division box for directing the separated ash or water to either branch pipe leading to the port or starboard side of the ship.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

LUDWIG HOCHSTEIN.

Witnesses:

ALFRED MEHLHORN,
HUGO LAUELS.