No. 646,328. Patented Mar. 27, 1900.

C. W. THORNE.

ASH EJECTOR.

(Application filed July 27, 1899.)

(No Model.) 2 Sheets—Sheet 1.

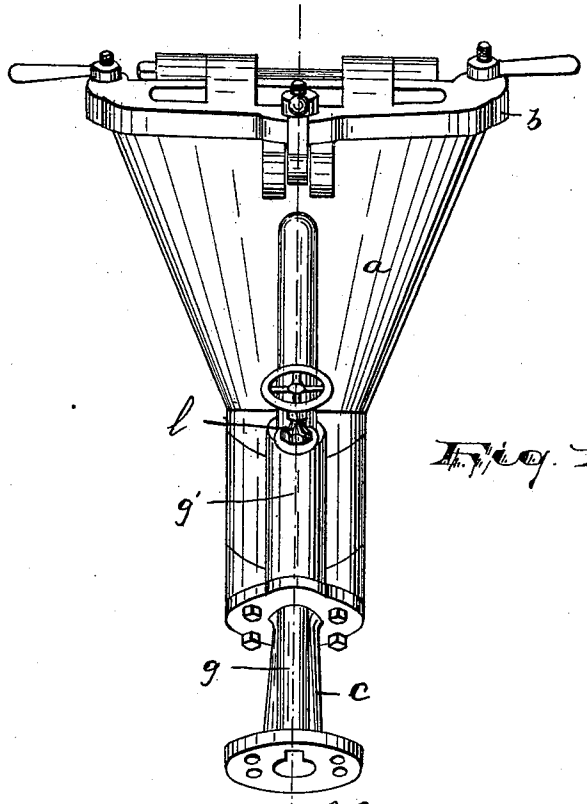
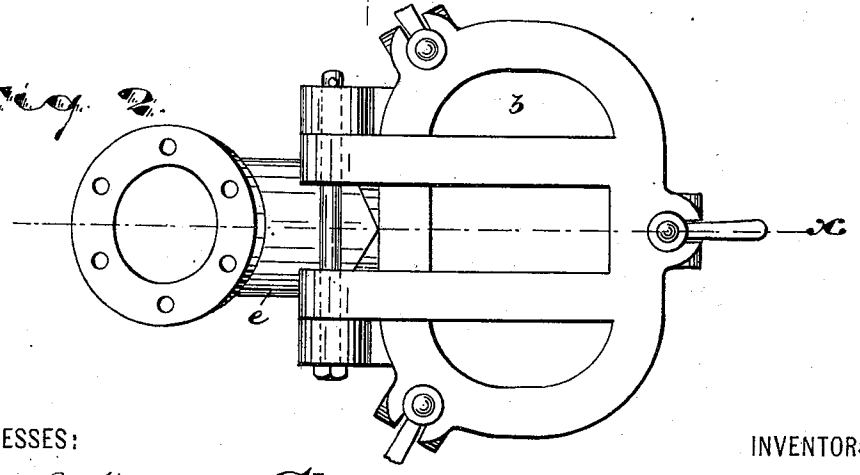


Fig. 1.

Fig. 2.



WITNESSES:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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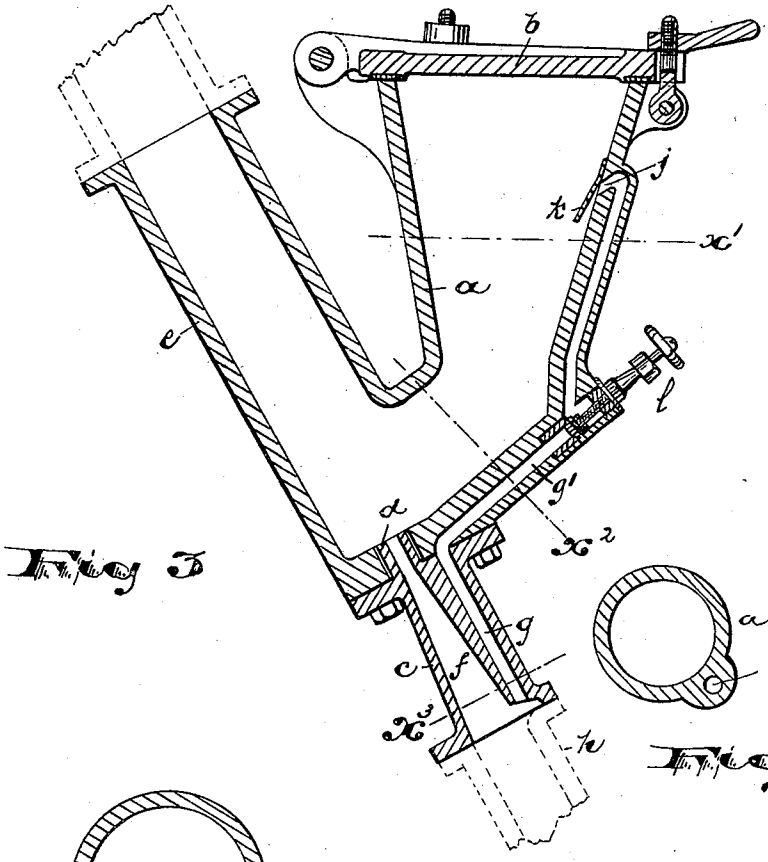


Fig. 3.

Fig. 5.

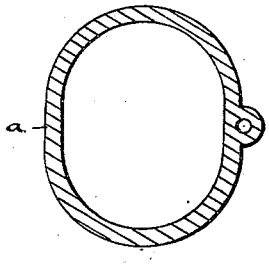


Fig. 4.

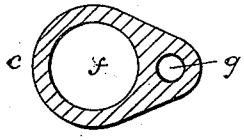


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHESSMAN W. THORNE, OF GREENPORT, NEW YORK.

ASH-EJECTOR.

SPECIFICATION forming part of Letters Patent No. 646,328, dated March 27, 1900.

Application filed July 27, 1899. Serial No. 725,264. (No model.)

To all whom it may concern:

Be it known that I, CHESSMAN W. THORNE, a citizen of the United States, residing at Greenport, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Ash-Ejectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to facilitate the removal of ashes from the furnace-room, more particularly of steam-yachts or other vessels; to prevent the ashes from clogging within the passages of the ejector, between the converging walls thereof, by bridging the said passages, and thus requiring the use of a poker or other implement to break the arch and permit a proper gravitation of the ashes into contact with the ejecting stream of water, steam, or other fluid by which the ashes are carried away, and to obtain other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved ash-ejector and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several views, Figure 1 is a front elevation, and Fig. 2 is a plan, of the improved ejector. Fig. 3 is a section taken through line x of Fig. 2; and Figs. 4, 5, and 6 are sections taken on lines x' x^2 x^3, respectively, of Fig. 3.

Heretofore it has been more or less common to eject ashes from a hopper by means of a water-jet; but such devices have been objectionable because of the liability of the ashes to clog in the hopper and require more or less hand manipulation to secure a final ejection. By means of my improvements I prevent such clogging, and in practice no such objection is experienced.

In said drawings, a indicates a hopper having a flaring or funnel-like upward extension open at its upper end to the furnace-room and provided with a cover b, by which the opening may be securely closed in any suitable manner. At the lower small end or bottom of said hopper the same receives the hydraulic or fluid ejector c, the nozzle d of which enters through a perforation in the bottom of the hopper, as shown in Fig. 3. In connection with said hopper, preferably integral therewith, is formed a tubular extension e, which lies at an angle to the axial line of the hopper in line with the nozzle d, so that the water issuing from said nozzle will pass upward directly through said extension and with it force the ashes outward from the hopper, as is common.

To prevent the ashes becoming clogged in the hopper by bridging the converging walls thereof, I have provided, in connection with the main passage f of the ejector, a supplemental or branch water passage or duct g, adapted to receive a part of the water-supply from the water-feed pipe h and direct it into a side passage or duct g' formed in the walls of the hopper or upon said walls and leading to a point about half-way up the sides of the hopper, where said duct d' is turned inward and opens through the wall of the hopper into the hopper, as at j. Said extremity of the supplemental passage is preferably turned downward, as shown in Fig. 3, and over the end of said passage, where it opens into the hopper, I prefer to employ a deflecting-plate k. Said deflecting-plate is attached to the inner wall of the hopper and hangs down over the mouth of the supplemental passage g' at a little distance therefrom. The water issuing from the supplemental passage therefore strikes the deflecting-plate k and is directed to the right and left and downward around the inside of the hopper, forming a revolving sheet of water, which follows the walls of the hopper between said walls and the ashes or other contents of the hopper. This flattened stream being under more or less pressure and possessing considerable force effectually undermines the contents of the hopper and renders it impossible for the bottom passage of the hopper to become clogged with any body smaller than the said outlet.

At an intermediate point between the ejector c and the outlet j the hopper is provided

with a valve *l*, adapted to close communication or cut off flow through the supplemental passage when desirable. This valve *l* may be of any ordinary construction.

In operating the device the water is simply turned on through the passages *f* and *g g' j* by means of a cock or valve (not shown) in the feed-pipe *h*, the cover *b* is opened, and the ashes are thrown into the hopper. The water flowing downward in said hopper from the passage *j* carries with it the ashes to the bottom, where they are brought under the influence of the main ejecting-stream and are forced thereby through the tube *e*.

By my improved construction there is no danger of the contents of the hopper becoming "bridged," and consequently no time is lost in poking or ramming down the contents to insure their proper removal. The said contents are carried rapidly and surely away from the hopper, and in practice I am enabled to dispose of about twice the quantity of ashes in a given time that could be handled without the auxiliary stream.

I am aware that various minor deviations may be made from the exact construction shown without departing from the spirit and scope of the invention, and I do not wish to be understood as limiting myself by the positive descriptive terms employed excepting as the state of the art may require.

Having thus described the invention, what I claim as new is—

1. The improved ash-ejector comprising a hopper, having an extension and a duct conveying water into the upper part of said hopper, and a fluid-ejecting nozzle in open communication with said extension and duct, substantially as set forth.

2. The improved ash-ejector, comprising a hopper having an extension *e*, in connection with the bottom thereof, a duct *g'*, opening into the hopper and adapted to direct the fluid toward the bottom of the hopper and a fluid-ejector having a passage leading directly into the hopper at the bottom and a passage connecting with said duct, substantially as set forth.

3. An ash-ejector comprising a hopper having an outlet-passage near its bottom, an ejecting-nozzle opening into the lower part of said hopper in line with the said outlet, said nozzle having a branch passage leading upward and opening into the upper part of the hopper, substantially as set forth.

4. An ash-ejector comprising a hopper having an outlet near its bottom, an ejecting-nozzle having a main passage leading into the lower part of the hopper and a branch passage leading upward and opening downwardly through the side wall of the hopper, and a valve for regulating the flow through said branch passage, substantially as set forth.

5. An ash-ejector comprising a hopper to receive the ashes, said hopper having an outlet near the bottom, a nozzle having a main duct entering the lower part of the hopper and a branch duct entering the upper part of the hopper, and a deflecting-plate arranged over the opening of said branch duct into the hopper, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of May, 1899.

CHESSMAN W. THORNE.

Witnesses:
EDWARD B. HARRIS,
F. B. COREY.