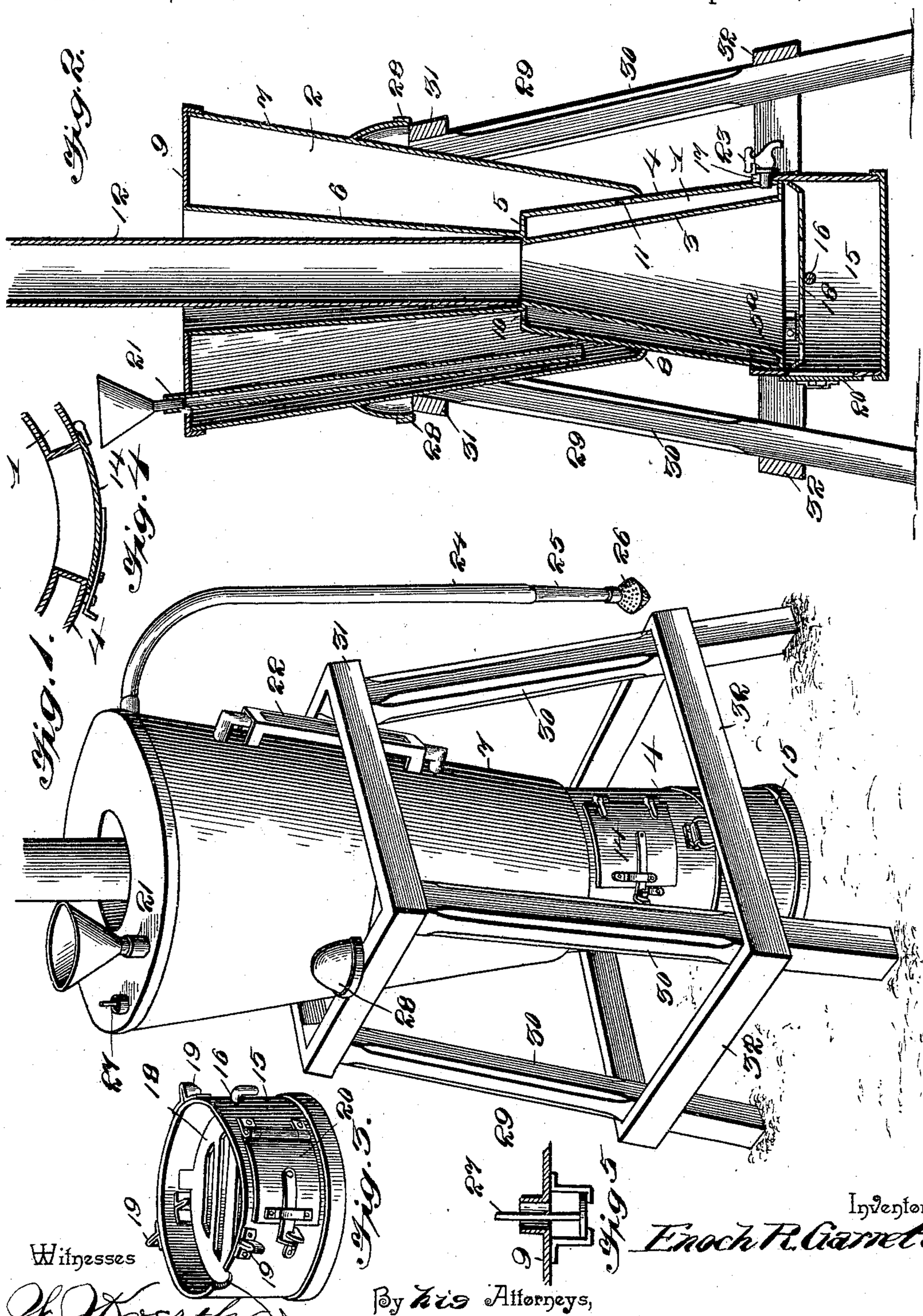
(No Model.)

E. R. GARRETT.

STEAMER.

No. 580,857. Patented Apr. 20, 1897.



Witnesses

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ENOCH R. GARRETT, OF APPLETON CITY, MISSOURI.

STEAMER.

SPECIFICATION forming part of Letters Patent No. 580,857, dated April 20, 1897.

Application filed June 6, 1896. Serial No. 594,589. (No model.)

To all whom it may concern:

Be it known that I, ENOCH R. GARRETT, a citizen of the United States, residing at Appleton City, in the county of St. Clair and State of Missouri, have invented a new and useful Steamer, of which the following is a specification.

The invention relates to improvements in steamers.

The object of the present invention is to improve the construction of the steamer shown and described in Patent No. 545,790, granted me September 3, 1895, and to increase the durability and efficiency of the same and to enable feed to be steamed while the latter is in a mixing-trough, and also to enable hot water or steam to be rapidly furnished for bath-rooms, laundries, fruit-evaporators, and the like.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a steamer constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail perspective view of the detachable fire-box or furnace. Fig. 4 is a detail sectional view illustrating the manner of mounting the door for supplying fuel to the fire-box or furnace. Fig. 5 is an enlarged detail sectional view illustrating the construction of the inwardly-opening valve.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

The body of the steamer comprises two separate and independent annular chambers 1 and 2, and the chamber 1 is composed of a tapering cylindrical inner wall or sheet 3, decreasing in diameter toward the top, and an outer tapering wall or sheet 4, arranged concentric with the inner sheet or wall 3 and tapering slightly less than the latter to make the intervening space between them slightly wider at the top than at the bottom. The inner and outer walls 3 and 4 are connected at their upper and lower edges by annular top and bottom plates 5 and 5^a.

The chamber 2 has an inner cylindrical sheet or wall 6, which slightly tapers from its top to its bottom and rests upon the cap-plate 5, and the said chamber 2 also has an outer tapering cylindrical wall or sheet 7, which surrounds the inner wall 6 and extends down over and surrounds the inner chamber 1, terminating at a point just above the bottom of the said inner chamber and being united thereto, as shown at 8. The diameter of the outer wall or sheet 7 increases as it approaches the top, where it is connected by an annular plate or cap 9 with the upper end of the inner wall or sheet 6. Two separate and independent water-containing chambers are thus provided, one overlapping the other, and the intermediate wall 4 between said chambers is provided with upper and lower apertures 10 and 11 for the circulation of water and steam.

A vertically-disposed smoke flue or pipe 12 is employed, and it has its lower end resting upon the inner edge of the cap-plate 5 of the lower chamber.

The furnace or fire-box, which is constructed substantially the same as that shown in the above-mentioned patent, consists of a cylindrical box 15, which is provided at one side with a perforation 16 and at the opposite side with a notch or open slot 17, said perforation and notch being adapted to receive the shaft on which a dumping-grate 18 is supported. Suitable rotary projecting brackets 19 are attached to the exterior surface of the fire-box at suitable intervals, the upper edges of such brackets being in the same horizontal plane with the upper side of the weight-supporting shaft and adapted to receive the lower edge of the steamer. The grate-supporting shaft is thus held in place when the fire-box is in use, but may be removed when the latter is detached from the steamer. A series of pivoted loops, connected to the lower end of the chamber 1 upon the exterior wall thereof, pass beneath and engage the brackets 19 on the fire-box, thus coupling the parts together. A hinged door 20 at one side of the fire-box is provided for the removal of the ashes and affords the necessary draft.

The lower chamber 1 is provided with a door-opening communicating with the space inclosed by the inner wall 3, and it has a hinged door 14, by means of which fuel is supplied to the fire-box or furnace. The inner

and outer walls 3 and 4 of the lower chamber are provided with suitable flanges for closing the intervening space between them around the door-opening.

In the operation water is introduced into the chambers 1 and 2 through a supply-pipe or filling-tube 21, arranged within the upper chamber 2, adjacent to the outer wall 7 thereof and extending downward from the top plate 9 to the point of juncture between the walls 7 and 4 and communicating with the lower chamber 1. The filling-tube or supply-pipe is provided at its top with a suitable funnel, and sufficient water is introduced into the steamer to fill the latter substantially to the upper end of a water-gage 22, mounted on the exterior of the wall 7 of the upper chamber and provided with a glass tube mounted in a suitable frame. Another faucet 23, located at the bottom of the inner chamber 1, provides for drawing off the water when desired. A fire having been kindled in the furnace-box 15 the products of combustion pass up within the space in the inner wall of the lower chamber 1, and thence out through the smoke flue or pipe 12. In their passage they heat the water in the chamber 1 to a boiling-point, when it passes out through the upper aperture 10 in the outer chamber 2, the cold water therein passing downward and through the lower aperture 11 into the inner chamber. The steam finally escapes into the upper end of the upper chamber and is conveyed through a flexible hose or pipe 24 to the desired point. The steam pipe or hose is provided at its end with a metallic sleeve 25, which receives a detachable steam register or distributer 26, made of perforated sheet metal and adapted to be inserted into the feed.

The upper chamber is provided at its top or cap plate with an inwardly-opening valve 27, adapted, when the upper chamber is filled with steam and water, to be closed automatically by the steam, and capable, when the steam is exhausted, to open automatically and admit air into the upper chamber to prevent the steamer from collapsing under the atmospheric pressure when it is not supported by sufficient interior pressure. It ofttimes happens that the steamer is employed for heating feed and that the nozzle is left in the feed, which practically closes the same, so that air cannot enter it. Should the fire be permitted to go out when the nozzle is in the feed, the steam would exhaust in the upper chamber, as, the lower end of the filling-tube being submerged in the water contained within the upper chamber, no air could possibly enter, and if the inwardly-opening valve were not provided the steamer might collapse under the atmospheric pressure. The inwardly-opening valve, which may be constructed in any suitable manner, preferably consists of a perforation, a valve-stem, and a valve-plug, together with suitable means for supporting the valve-plug and steam when the valve is open.

The steamer, which is provided at opposite sides with rigid handles 28, is removably mounted in a supporting-frame 29, comprising tapering corner-posts 30 and upper and lower connecting-bars 31 and 32. The supporting-frame is open at its top to receive the steamer, and the latter has its handles 28 resting upon the adjacent top bars 31.

It will be seen that the durability and efficiency of the steamer are increased, as the filling-tube or supply-pipe is arranged on the interior instead of on the exterior and a valve is employed to prevent the steamer from collapsing when the steam is exhausted from the upper chamber, and that an increased amount of water is arranged at the lower extremity of the lower chamber to prevent any liability of the parts being burned out at that point.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

What I claim is—

1. In a steamer, the combination of a lower or inner chamber comprising inner and outer tapering walls forming an intervening space slightly greater in width at its top than at its bottom, and top and bottom plates connecting the upper and lower edges of the inner and outer walls, an upper chamber surrounding the upper portion of the inner or lower chamber and composed of inner and outer cylindrical walls and a top plate connecting the upper edges of the same, an inwardly-opening valve arranged at the top of the upper chamber, an interiorly-arranged filling-tube extending from the top of the upper chamber to the bottom thereof and communicating with the inner or lower chamber, and a flexible hose extending from the upper chamber, substantially as described.

2. In a steamer, the combination of the tapering annular inner or lower chamber, composed of inner and outer walls and provided with a door-opening communicating with the space inclosed by the inner wall, a door hinged to the lower or inner chamber, the upper cylindrical chamber mounted on and surrounding the upper portion of the lower or inner chamber and composed of inner and outer cylindrical walls, a smoke-pipe arranged within the inner wall of the upper chamber, and a fire-box or furnace arranged at the bottom of the inner or lower chamber, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ENOCH R. GARRETT.

Witnesses:

G. A. DICKBREDER,

E. B. LUSK.