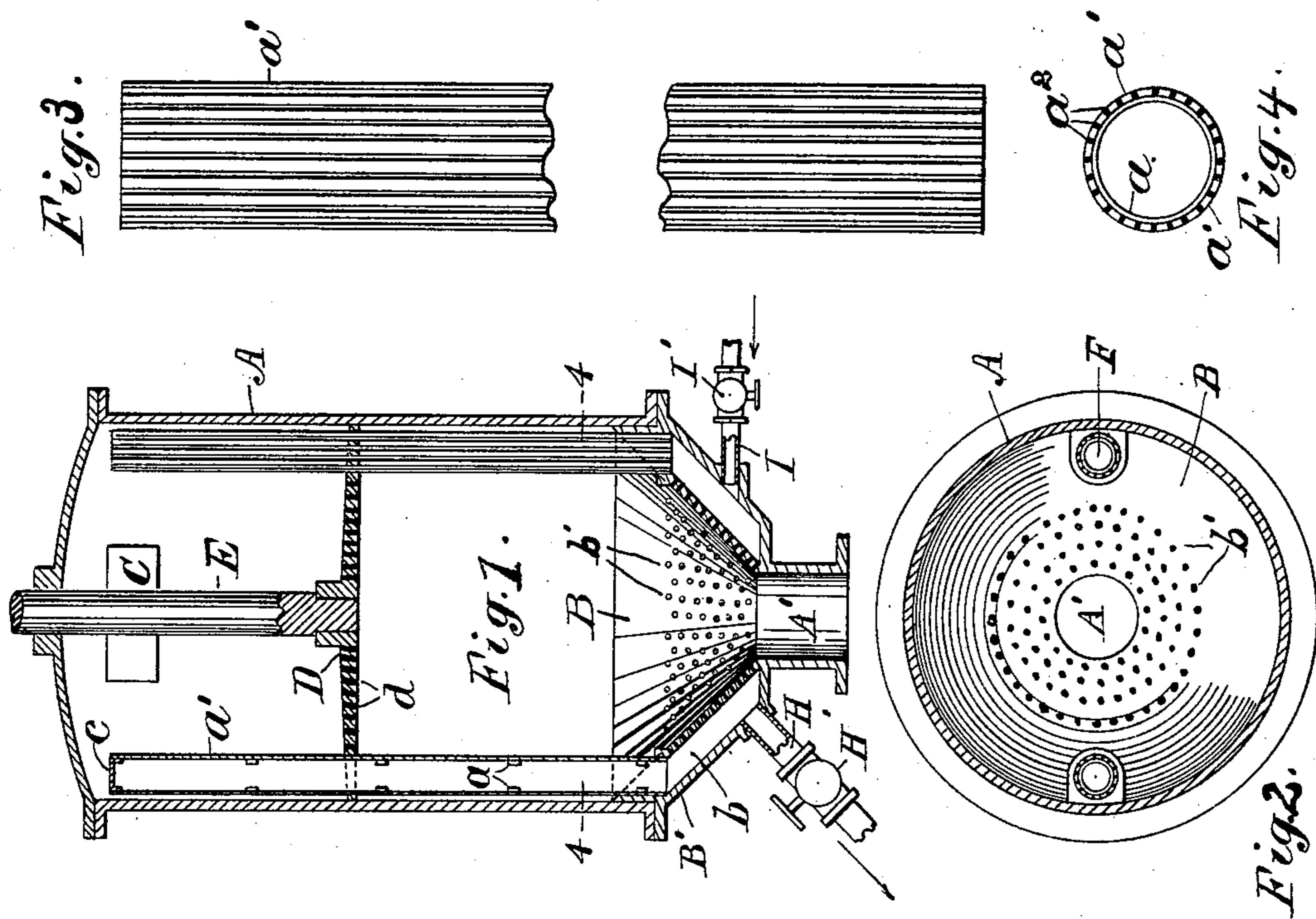


(No Model.)

E. HOLTHAUS.
RENDERING APPARATUS.

No. 594,013

Patented Nov. 23, 1897.



Attest:
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UNITED STATES PATENT OFFICE.

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RENDERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 594,013, dated November 23, 1897.

Application filed July 13, 1896. Serial No. 598,944. (No model.)

To all whom it may concern:

Be it known that I, EMIL HOLTHAUS, a citizen of the United States, residing at Canarsie, county of Kings, State of New York, have invented certain new and useful Improvements in Heating and Draining Appliances for Rendering-Tanks, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of rendering-tanks which are formed with an upright casing commonly of cylindrical form and a flaring or funnel-shaped bottom, terminated in a discharge-opening. Such tanks are usually provided with a filling-aperture near the top and with stand-pipes for introducing steam to the material to cook and render the same.

The present improvements are especially adapted for a rendering-tank in which a piston is used to compress the material at the close of the rendering operation; but their operation is not dependent upon the use of such piston. The stand-pipes heretofore used have been commonly formed with small perforations and extended upward within the tank, with steam connections at the bottom to supply steam and discharge it from the apertures into the material. Where the material is pressed by a piston, such small holes or apertures are liable to become clogged; and my present improvements include a special construction for the stand-pipes with long narrow vertical apertures adapted to discharge the fluid freely, while the movement of the piston over the same tends to dislodge the material therefrom. To cook the material in the bottom funnel of the tank below the bases of the stand-pipes, I provide the funnel with numerous perforations and supply it with a steam-jacket and connect the annular passage around the same with the bases of the stand-pipes. Steam introduced to the jacket therefore escapes not only from the slits in the stand-pipes, but from the perforations in the funnel, and thus cooks the material in the most rapid and effective manner. The passage in the annular jacket is also provided with a pipe and cock for drawing off the liquid, which is expressed

from the material and discharged through the slits and perforations during the pressing operation after the material is suitably cooked.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a vertical section at the center line, where hatched, of a rendering-tank provided with these improvements. Fig. 2 is a horizontal section of the tank on line 4 4 in Fig. 1. Fig. 3 is a side elevation of a stand-pipe formed with vertical staves, the view being broken for want of room upon the drawings; and Fig. 4 is a plan of the same.

The rendering-tank is shown formed of a vertical cylinder A, with funnel-shaped bottom B, having discharge-opening A'. A filling-inlet C is shown upon the side of the tank near the top, and a piston D, perforated with numerous holes *d*, is shown within the tank, connected with a piston-rod E. The funnel B is shown provided with numerous holes *b'* and surrounded by a jacket B', forming an annular passage *b*. Two stand-pipes (lettered F in Fig. 2) are shown extended upward from the passage B nearly to the top of the tank and adjacent to the wall of the cylinder A. The annular passage *b* within the steam-jacket is shown provided upon one side with steam-pipe I, having cock I', and upon the other side with drain-pipe H, having cock H'. The stand-pipes are formed each of a series of horizontal rings *a*, having vertical bars or staves *a'*, secured upon their exterior and fitted so closely together as to form narrow slits or spaces *a''* between them, through which the fluid can be discharged without permitting the escape of the material. The rings *a* form a foundation for the bars *a'*, and the top of the stand-pipe may, if desired, be closed by a cap *c*, attached to the upper end, as shown in Fig. 1. In practice the discharge-opening A' is provided with a gate and connected with apparatus for drying the compressed material.

The apparatus thus constructed operates as follows: The discharge-opening A' is closed and the piston D raised to the top of the cylinder. A suitable charge of material is inserted through the inlet C, which is then tightly closed. The draining-cock H' is closed

and the cock I' opened, admitting steam to the slits a^2 and the perforations b' . When the material is properly cooked, the steam-cock is closed and the drain-cock H' opened, which permits the free liquid to escape through the slits a^2 and holes b' . The piston is then pressed downward and a portion of the liquid escapes from the slits a^2 below the piston, another portion through the holes b' in the funnel, and the remainder passes upwardly through the holes d in the piston, the latter portion then escaping freely through the slits a^2 and the whole passing off through the pipe H. Minute portions of the material below the piston are forced into the slits when the material is compressed, but the downward movement of the piston crowds the material before it and successively drags all such portions from the slits, leaving the latter comparatively clean above the piston. The fluid which passes upward through the holes d thus finds a very free escape from the tank through the open slits a^2 . The stand-pipes formed of parallel staves furnish a large area for the passage of the fluid in the numerous slits between the staves, while the vertical arrangement of such slits parallel with the movement of the piston greatly facilitates the clearing of the same from the material as the piston is moved downward. The spaces a^2 , which form the slits between the staves, are proportioned in their width to the class of material that is to be strained, and thus retain the material while they permit the escape of the fluid. The holes b' and the slits a^2 perform the double function of admitting the steam during the cooking operation and draining the expressed liquid during the pressing operation, the pipes I and H serving, with their cocks, to introduce the steam and draw off the fluid at the proper time. When the steam is first introduced, its pressure tends to clean the holes b' and to thus secure the free ingress of the steam and the free discharge of the liquid later.

The present invention furnishes a very large area of apertures for the discharge of the steam into the material and for the removal of the fluid therefrom when compressed in the rendering-tank, and the operation of rendering is thus greatly facilitated.

Having thus set forth the nature of the invention, what I claim herein is—

1. A rendering-tank having the funnel B at the bottom with outlet A' at the center, the funnel being perforated and surrounded with an annular jacket B' forming the annular passage b , perforated stand-pipes projected upward at the sides of the tank from the annular passage b , the pipe H provided with cock H' for drawing liquid from the passage b , and the pipe I provided with cock I' for admitting steam to the passage b , the whole being arranged and operated, when the material is placed in the funnel between the stand-pipes, to admit steam through the perforations of the funnel and stand-pipes to cook the material, and when the material is cooked, to drain the water from the material through the same perforations, substantially as herein set forth.

2. The combination, with a cylindrical rendering-tank, of stand-pipes extended vertically within such tank, and provided at the bottom with steam and water connections, as set forth, the stand-pipes being formed each of integral rings and a series of screen-bars formed of parallel staves secured vertically upon said rings with narrow intervening spaces adapted to strain the liquid from the material when the material is pressed thereon, substantially as herein set forth.

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

EMIL HOLTHAUS.

Witnesses:

JACOB MARX,
THOMAS S. CRANE.