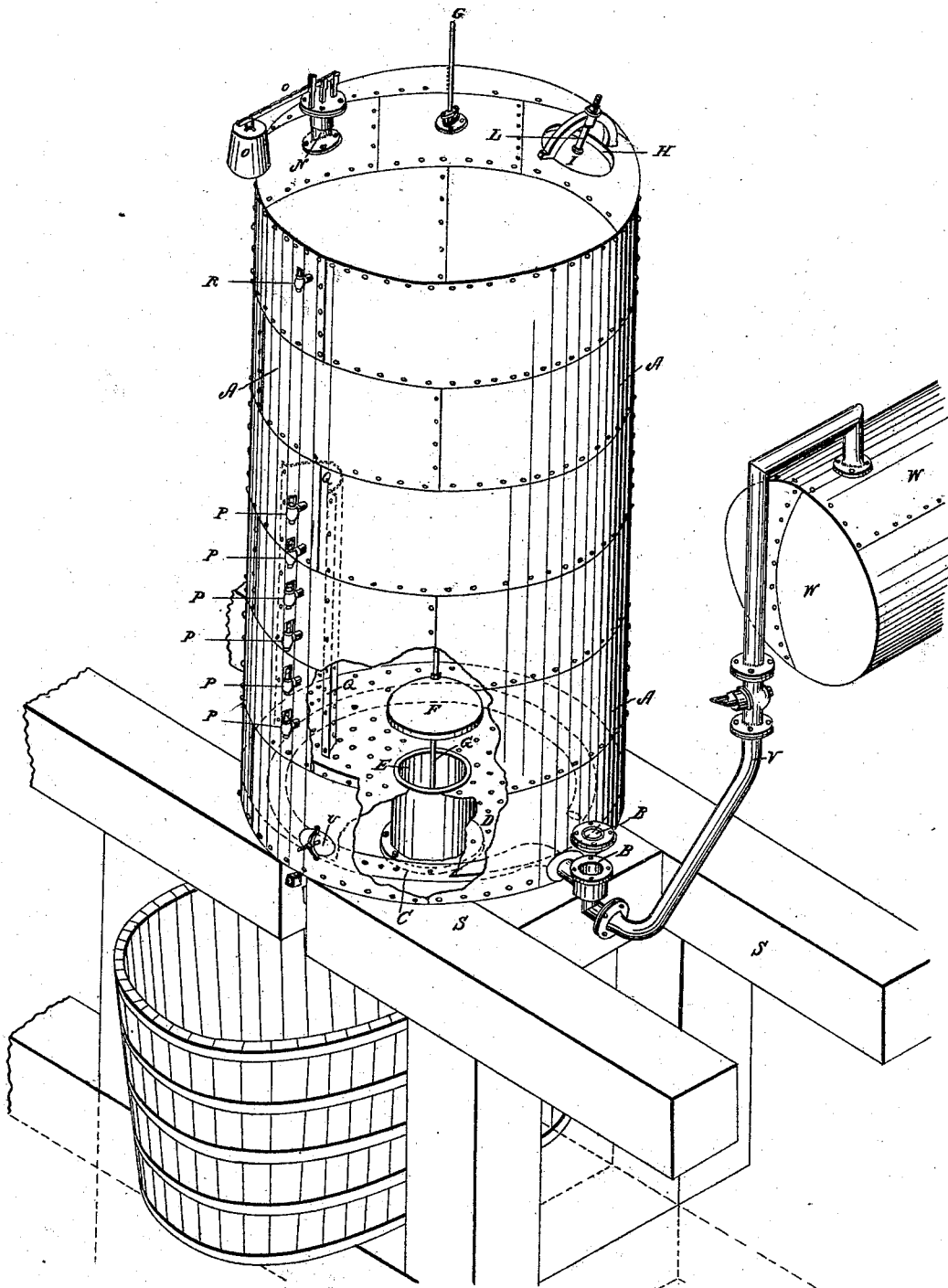


E. WILSON.  
Rendering Apparatus.

No. 3,784.

Patented Oct. 9, 1844.



# UNITED STATES PATENT OFFICE.

EBENEZER WILSON, OF CINCINNATI, OHIO.

## IMPROVEMENT IN METHODS OF RENDERING LARD.

Specification forming part of Letters Patent No. 3,784, dated October 9, 1844.

*To all whom it may concern:*

Be it known that I, EBENEZER WILSON, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful improvement in the apparatus for and process of extracting and rendering lard, tallow, and oil from concrete substances and for refining and purifying the same; and I do hereby declare that the following is a full and exact description of the construction and operation of the said apparatus.

Description of the apparatus used by me illustrated by the drawing hereunto annexed, which is on a scale of one inch to the foot:

My apparatus consists of a boiler W for generating steam, similar to those in common use for that purpose.

A A A A represent a close cylindrical vessel or tank made of boiler-iron and placed vertically.

B B is a foot-valve and bonnet at the junction with the tank of V, which is a pipe connecting the boiler W with it; C, a pipe attached to the said foot-valve and bonnet, perforated with holes and coiled on the bottom of the tank aforesaid inside of said tank.

D is a false bottom made of iron perforated with holes, placed within the tank aforesaid, and elevated by supports about six inches from the bottom thereof.

E is a discharging-hole, the upper end of which opens above the false bottom. Its lower end passes through the bottom of the tank aforesaid, usually at the center thereof.

F is a cover to the discharging-hole aforesaid. This cover is ground, so as to fit water-tight on the top of the opening E.

G G is a bolt or rod, which passes through the tank from the bottom to the top. The lower end of this rod has a screw cut on it to receive a nut for the purpose of fastening the cover F down in the same way in which the cover of the man-hole K is fastened. The rod G therefore serves as a bolt to secure the cover of the discharging-hole in its proper place. The upper part of this rod passes through a stuffing-box placed on the head or top of the tank, and any suitable power applied to it will serve to raise the cover F of the discharging-hole.

H is a man-hole through which the tank is charged.

K is a man-plate to cover the man-hole aforesaid.

L is a bolt for securing the man-plate aforesaid.

M is an arch through which the bolt last aforesaid passes for securing the man-plate aforesaid.

N is a safety-pipe and valve.

O O is a lever and weight for the safety-valve aforesaid.

P P P P P are cocks in the side of the tank, placed one above the other. These may be ten inches apart, the one nearest to the bottom of the tank being about three feet therefrom. These cocks are used to draw the rendered or refined lard, tallow, or oil from the tank.

Q Q is an iron strainer placed over the openings of the cocks aforesaid on the inside of the tank.

R is a try-cock to determine the state of the contents of the tank during the process of rendering or refining placed near the top of the tank.

X is a regulating-cock to draw off a portion of the contents of the tank should it be found to be too full. During the process aforesaid this regulating-cock is placed in the bottom of the tank.

T is a tub or vessel placed under the discharging-hole to receive the water and sedimentary contents of the tank when discharged therefrom.

S is the timber-works supporting the tank.

U is an opening or man-hole for giving admission to the upper side of the false bottom.

Description of the operation as practically performed by me: I affix the false bottom in its place and close the discharge-hole. Fill the tank through the man-hole nearly full, leaving about two and one-half feet at the top unfilled with the substance from which the lard, tallow, or oil is to be extracted, or with the lard, tallow, or oil to be refined and purified. Then secure the man-plate K over the man-hole H. Then introduce steam under a high pressure from the steam-boiler W, through the foot-valve into the perforated pipe C within the tank. Set the safety-valve at the pressure required. Keep up the full pressure of steam—say of from fifty to a hundred pounds to the square inch—for the space

of from eight to fifteen hours continuously, as may be required from the condition of the substance to be rendered or refined, and during the process of steaming, as aforesaid, carefully and frequently determine the state of the contents of the tank by opening the try-cock R. If the quantity of condensed steam in the tank is too great, it will be indicated by the ejection of lard, tallow, or oil from the try-cock aforesaid, and in such a case the regulating-cock X should immediately be opened and the condensed steam permitted to flow therefrom into the receiving-tub T until the lard, tallow, or oil shall cease to flow from the try-cock aforesaid. After the eight or fifteen continuous hours aforesaid have expired, discontinue the introduction of steam into the tank and let the steam escape therefrom through the try-cock aforesaid and the safety-valve aforesaid. Then allow the contents to settle, after which draw the lard, tallow, or oil through the cocks P P, &c., in the side of the tank into a cooler of the ordinary construction. After the tallow, lard, or oil is drawn off, as above, raise the cover F from the discharging-hole E by the rod G and discharge the remaining contents of the tank into the tub T, and if on inspection oleaginous matter is found in the tub return it to the tank and put it through the operation again the next time the tank is filled.

I am aware that steam has been admitted into a vessel containing the concrete materials from which lard, oil, or tallow is to be separated, and that it has been allowed to pass under a perforated false bottom and through coiled tubes, also perforated, so as to cause the steam to come into direct contact with the materials to be rendered; but this process has been comparatively inefficient in consequence of the employment of open vessels to contain the fatty materials. I have found by actual experiment that to produce the best result the steam-pressure within the vessel should not be less than fifty pounds to the square inch. The pressure usually employed by me has been about seventy-five pounds to the inch, and I intend to carry it up to a hun-

dred pounds, as the higher the pressure the more rapid is the process. By this procedure the bones are reduced so as to lose their tenacity, and they are made to part with all the sebaceous matter contained in them. When lard is obtained from the whole carcass of the hog, with the exception only of the hams and shoulders, I have obtained a yield of full twelve per cent. greater in my apparatus than has been obtained in any other, and in rendering tallow about half that amount. The operation is performed in about one-third of the time ordinarily required and with one-third of the labor. The material obtained bears also a higher price in the market, being much more pure than when not obtained under a higher pressure, all foreign matter being effectually separated from it, while in the ordinary process the gelatine remains in the rendered product, together with other impurities.

Having thus fully described the nature of the apparatus which I use and of the process which I follow for the rendering of concrete fatty substances, I do hereby declare that I do not make any claim to the rendering of such substances by the introduction of steam into open vessels in which they are contained, this having been previously done; but

What I do claim as constituting my improvement, and desire to secure by Letters Patent, is—

The manner set forth of arranging and combining the respective parts of such a vessel—that is to say, in combination, the vertical tank A A, perforated false bottom B, and discharging-hole E, such hole having a cover F, to be operated upon in the manner and for the purpose set forth, the said tank being also furnished with a series of cocks P P, guarded on the interior by a strainer Q, the whole being so formed and arranged as to attain the proposed end by means substantially the same with that herein fully made known.

EBENEZER WILSON.

Witnesses:

THOS. P. JONES,

WM. H. BISHOP.