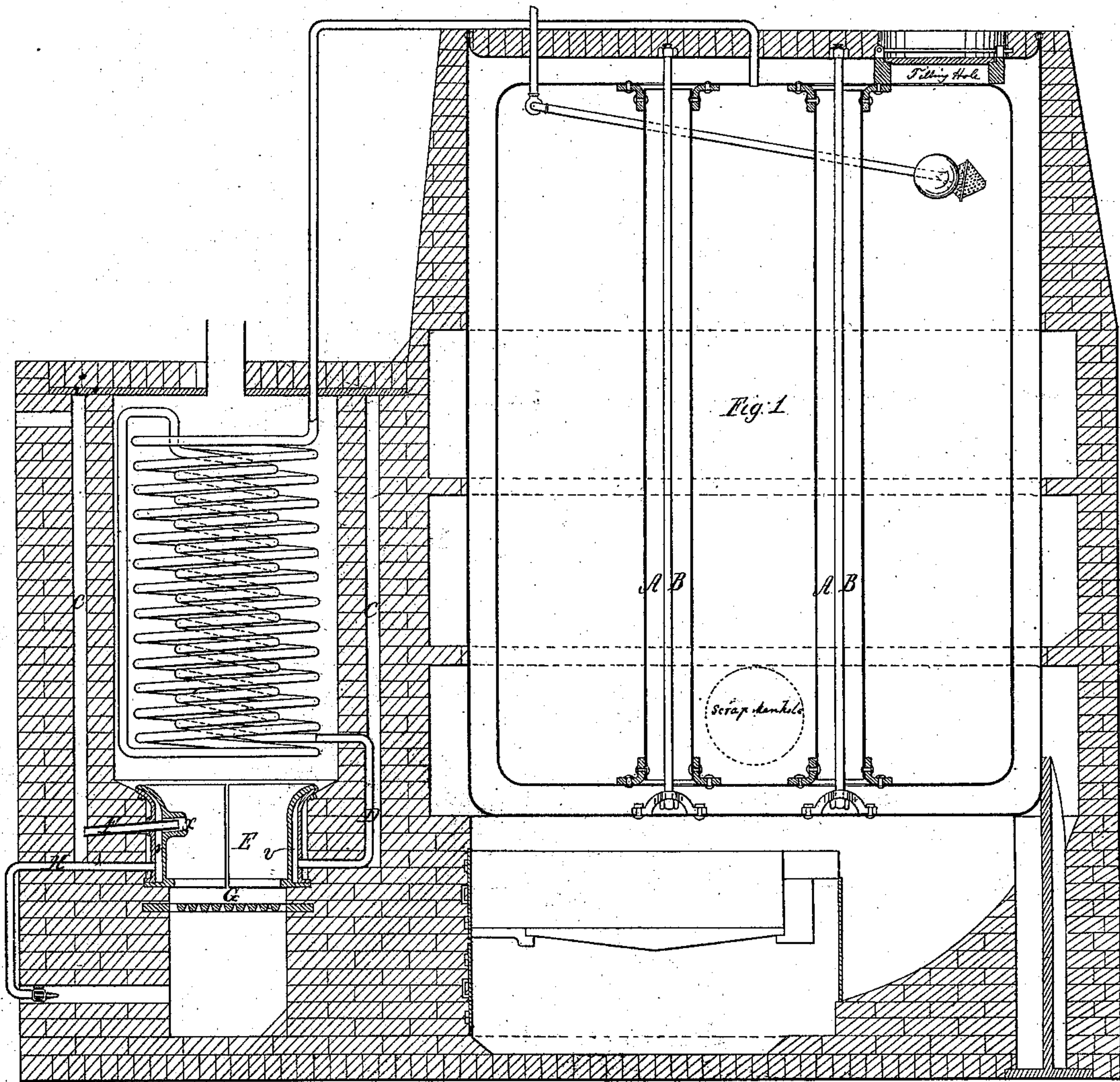


*C. J. Everett*

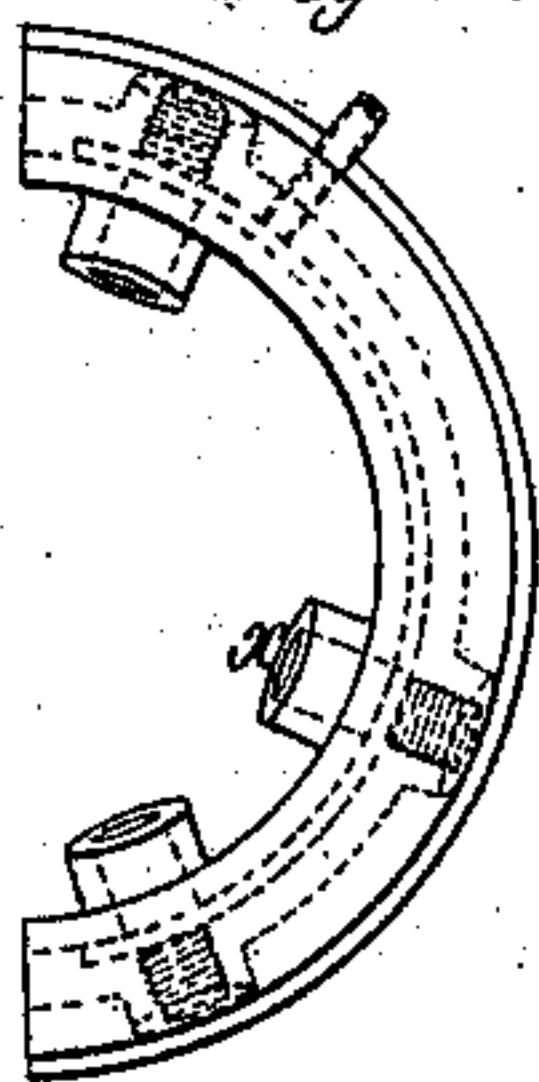
*Rendering App's.*

*N<sup>o</sup> 87,482.*

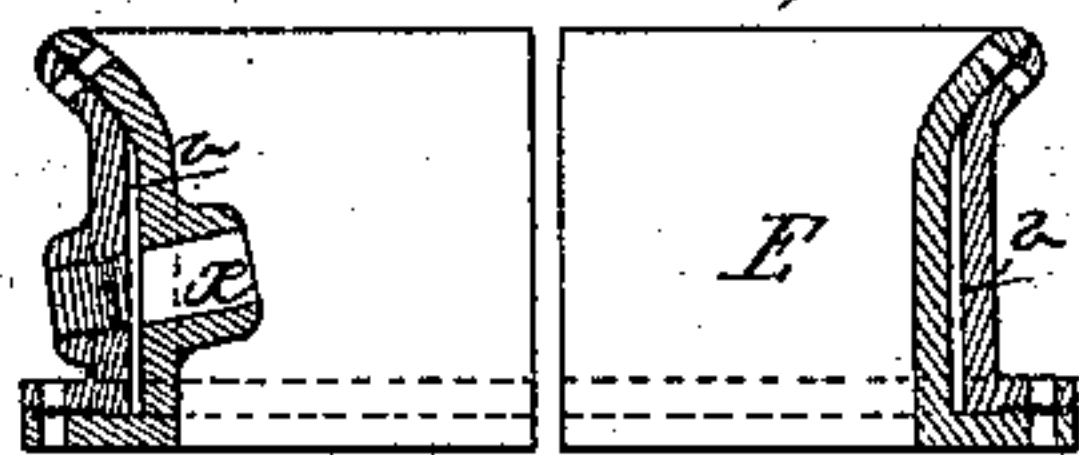
*Patented Mar. 2, 1869.*



*Fig. 2.*



*Fig. 3.*



*Witnesses;*  
*James R. Sharp*  
*Edward P. Flint*

*Inventor;*  
*Charles J. Everett*  
*By Amos Braadley*  
*att'y*



# UNITED STATES PATENT OFFICE.

CHARLES J. EVERETT, OF NEW YORK, N. Y.

## IMPROVED APPARATUS FOR RENDERING LARD, TALLOW, &c.

Specification forming part of Letters Patent No. 87,482, dated March 2, 1869.

*To all whom it may concern:*

Be it known that I, CHARLES J. EVERETT, of the city and county of New York, in the State of New York, have invented certain new and useful Improvements in Rendering Apparatus for Melting Lard and Tallow, and for treating other animal fat, flesh, or tissue, and for destroying the noxious gases and vapors evolved in said process of rendering or treating said substances; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a vertical section through the whole apparatus, and Figs. 2 and 3 are parts of the invention, to be hereinafter referred to and explained.

My invention relates to certain improvements in rendering apparatus by me heretofore invented, and for which Letters Patent of the United States were granted to Radcliff B. Lockwood and Charles J. Everett, assignees of Charles J. Everett, one on the 13th day of February and one on the 13th day of October, both in 1866.

In the patent of the 13th of February aforesaid a claim was allowed for avoiding the condensation of the noxious vapors and gases against the upper end or top of the digester by entirely enveloping it with a self-generating steam-jacket, which, previously to that, had been made to cover but a part of the tank or digester only, leaving the top exposed to the cooling effects of the atmosphere; but in the apparatus for which the said patent was granted there was no communication between the water-space under the bottom of the tank and the steam-space over the top thereof by which the steam and water could pass through the body of the digester. This defect was partly remedied by the improvement for which the aforesaid patent of the 30th of October was granted. In that patent a claim was allowed substantially for increasing the heating-surface by placing a pipe in the center of the digester and in communication with the bottom water-space, carrying the water and steam up to the top of the digester, but not in communication with any steam-space over the top of the digester.

Now, one of the objects of this present in-

vention is to supply the omissions above pointed out in both of the patents above alluded to by completely enveloping the fat-digester in the water and steam retort or jacket, as proposed in the patent of February 13, 1866, and by uniting the steam and water spaces through the body of the digester by means of pipes or flues A, as shown in Fig. 1. By these means the communication between the water-bottom and the steam-space under the top of the jacket is made perfect, the heating-surface of the digester enlarged, and its efficiency increased by the circulation of the water through the flues, which yield a uniform temperature all over the digester, while at the same time the strength of the digester is increased and a ready means of tying together the top and bottom of the steam and water retort is furnished by means of rods or bolts B, which I am enabled to pass through the flues in the manner shown.

The patent of the 13th of February, 1866, hereinbefore referred to, was for the use, among other things, of a separate consuming-furnace and superheater, in combination with the digester, for the purpose of superheating and consuming the noxious gases and vapors issuing therefrom; and the patent above alluded to of the 30th of October, 1866, was for, among other things, an improvement in said separate consuming-furnace, consisting, for the most part, in introducing an artificial current of air into the fire along with the noxious gases and vapors from the tank, and in providing means for inducing said current of air, by the flow of said gases and vapors, from said digester into the fire, as aforesaid; but this current of air, thus thrown into the fire along with the steam and gas, was a current of cold air, and the superheating was done in the coil over the furnace or fire.

Now, a second object of the improvement making the subject-matter of this description is to throw a current of hot air into the furnace along with the steam and gas from the superheater, instead of a current of cold air, and also to increase the superheating capacity of the furnace.

The first of these objects I accomplish—that is, the current of hot air—by making a chamber, C, in the brick-work, within the reach of the heat of the furnace, making openings K



in the top thereof for the admission of air, and by then drawing the air, through the agency of the pipe F, from this chamber; and the second object—that is, an increased superheating-surface—I accomplish by making the wall of the furnace double, making and arranging the plates forming it so as to leave a chamber, *v*, between them, and by delivering the steam and gas from the coil into said chamber, leaving it to flow along with the current of hot air into the furnace through the jet-orifices and superheater, as shown in the drawing.

To throw a current of steam and gas under the grate-bars G, a pipe, H, is introduced into the chamber *v* and directed to the ash-pit, in the manner shown.

Fig. 2 shows a top view of the plate composing the walls of the furnace, showing the relations of the jet-orifices, and Fig. 3 is a transverse section through said plates, both figures being made upon an enlarged scale.

Having now described the nature and extent of my improvements in rendering apparatus, I claim as new herein and desire to secure by Letters Patent—

1. Strengthening the digesters and uniting

the water-bottom under the same with the steam-space over the top thereof, to give circulation to the water and uniformity of temperature in the jacket, by means of flues introduced therein, substantially as described.

2. Tying the bottom and top of the steam and water jacket together by means of bolts or rods passed through said flues in said digester, substantially as described.

3. The introduction of the noxious gases and vapors from the superheater into or under the furnace of the consumer along with a current of hot air created by the passage of said noxious gases and vapors from the superheater to the furnace, substantially as described.

4. Making a superheating-chamber between the plates composing the wall of the furnace, substantially as described.

5. Making the gas and air jet orifices a part of the superheater, through which the gas and steam pass on their way to the fire, substantially as described.

CHAS. J. EVERETT.

Witnesses:

AMOS BROADNAX,  
PETER D. KENNY.