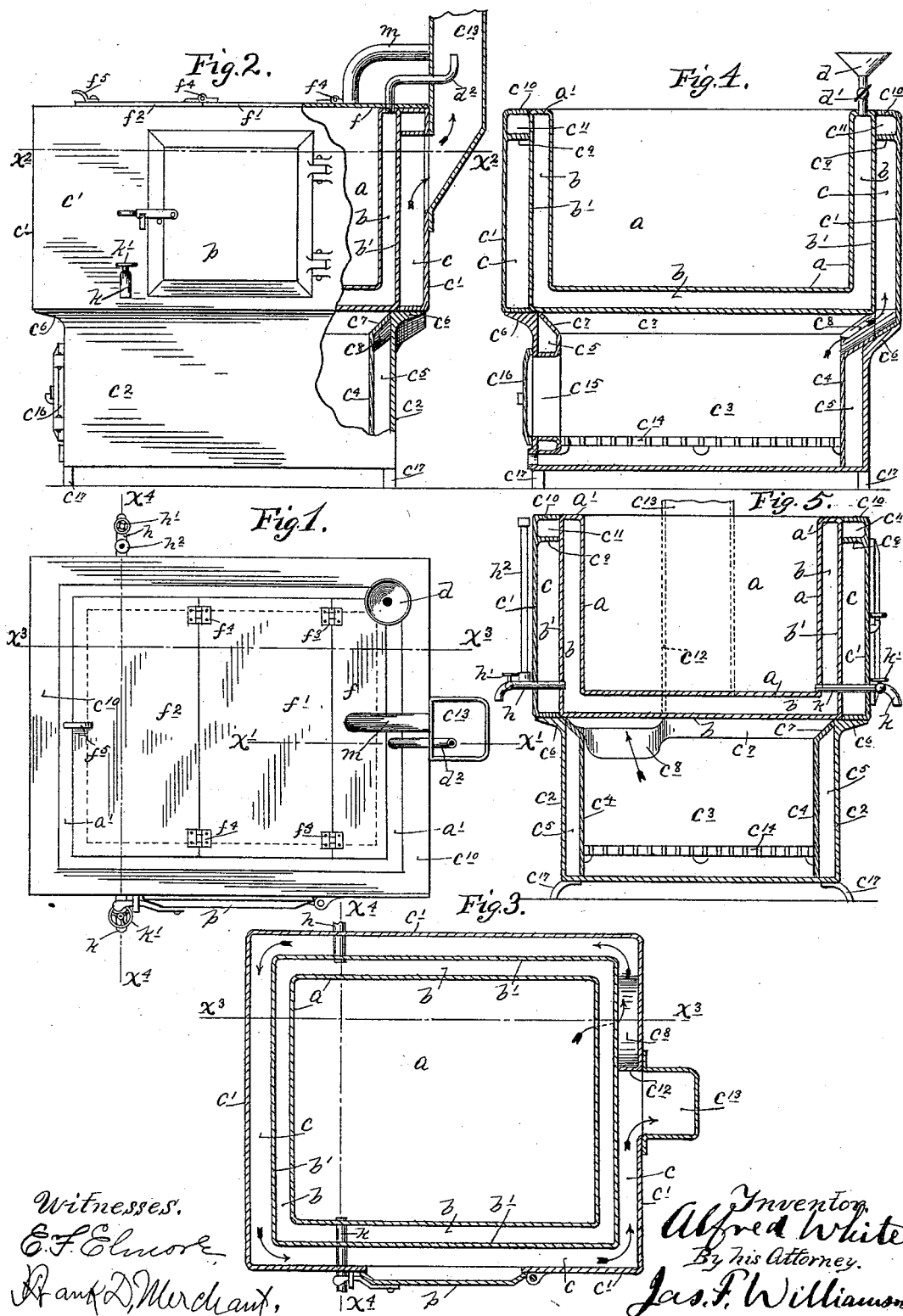


(No Model.)

A. WHITE.
RENDERING TANK.

No. 526,091.

Patented Sept. 18, 1894.



UNITED STATES PATENT OFFICE.

ALFRED WHITE, OF MINNEAPOLIS, MINNESOTA.

RENDERING-TANK.

SPECIFICATION forming part of Letters Patent No. 526,091, dated September 18, 1894.

Application filed March 26, 1894. Serial No. 505,051. (No model.)

To all whom it may concern:

Be it known that I, ALFRED WHITE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Apparatus for Rendering Lard, &c.; 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.

My invention has for its object to provide an improved apparatus for rendering lard, tallow, or other fatty materials, with a view of avoiding the burning of the same.

My invention will be fully disclosed in the following description, reference being had to the accompanying drawings, and will be defined in the claims.

In the said drawings, Figure 1 is a plan view of my apparatus. Fig. 2 is a side elevation of the same, with some parts broken away, and others shown in vertical section, on the line X' X' of Fig. 1. Fig. 3 is a horizontal section, on the line X² X² of Fig. 2. Fig. 4 is a vertical section, on the lines X³ X³ of Figs. 1 and 3; and Fig. 5 is a vertical section, on the lines X⁴ X⁴ of Figs. 1 and 3.

In my apparatus, I provide a central lard containing or rendering kettle proper, *a*, which is supported within a water or liquid containing kettle *b*, with the walls of the same spaced apart to form a water jacket *b'*. These two kettles may be formed and supported in this relative position in any suitable way, but are preferably formed, as shown, in a single casting, the walls *a b'* of which are united at the top by connecting rim *a'*. These parts *a b* are located within a combustion chamber *c*, formed by the shell casting *c'*, which rests upon and is supported by the outside casting *c²* of a fire-pot *c³*, located directly below the water-kettle *b*. The inner wall *c⁴* of the fire-pot is formed in any suitable way, but preferably of corrugated castings, which are spaced apart from the external fire-pot wall *c⁴*, to form a dead air chamber *c⁵*. The casting *c²* is flanged outwardly as shown at *c⁶*, to form a seat for the combustion chamber casting *c'*, and the kettle-castings *a b*. The inner wall *c⁴* of the fire-pot connects with the top of the outer wall casting *c²* by an inclined flange or cast-

ing *c⁷*, which is depressed, as shown in Figs. 3, 4 and 5, to permit an upward passage *c⁸*, for the products of combustion from the fire-pot *c³* into the combustion chamber *c*. The combustion chamber casting *c'*, is provided with inwardly projecting flanges *c⁹* and *c¹⁰* which co-operate with the water kettle casting *b*, to form a dead air space *c¹¹*, above the combustion chamber *c*. The said casting *c'* is also provided with an inwardly projecting vertical flange *c¹²*, which joins with the exterior of the water kettle casting *b*, to form an external partition in the combustion chamber *c*, on one side of the outlet or chimney flue *c¹³*, which is secured to the exterior of the casting *c'*, in any suitable way. The passage *c⁸* from the fire-pot *c³* is located at the corner or part thereof adjacent to the partition *c¹²*, on the side thereof opposite the outlet flue. Hence, the products of combustion must enter the combustion chamber *c*, at a point therein most remote from the outlet flue *c¹³* and will have to circulate entirely around the water kettle *b*. The fire-pot *c³* is fitted with a suitable grate *c¹⁴* and provided with a fuel inlet *c¹⁵*, fitted with a fuel door *c¹⁶*. The whole structure rests on feet *c¹⁷* or other suitable base or support.

The top flange *a'* connecting the parts *a b*, is fitted with a removable valved funnel *d d'*, for filling the space *b'* with water or other liquid, to form the water-jacket around the rendering kettle *a*. A steam-pipe *d²* extends from said flange *a'* to the outlet flue *c¹³*, for permitting the escape of steam from the water-kettle *b* into the outlet flue *c¹³*, which construction affords a safety device, for avoiding any excess of pressure in the water-kettle, and affording a forced draft on the fire.

The rendering kettle *a*, is fitted with a sectional cover *f f' f²*, of which the section *f* is fixed to the top of the casting *a b*, at the portion of the same nearest the outlet flue *c¹³*. The section *f'* is hinged to the section *f*, as shown at *f³*, and the section *f²* is hinged to the section *f'*, as shown at *f⁴*. The outer section *f²* will therefore turn on the section *f'* and both will turn on the hinges *f³* to expose more or less of the top of the rendering kettle *a*, at will. The lid section *f²* is provided with a finger piece *f⁵*.

The water-kettle *b* is fitted with a valved

discharge faucet h h' , extending to the exterior of the combustion chamber casting c' and fitted, inward of the hand-valve h' , with a vertical water-glass h^2 , for indicating the water-level in the chamber b' . The rendering kettle a is provided with a draw-off or discharge faucet k , projecting outward through the water-kettle b and the casting c' and fitted with a hand-valve k' , for drawing off the rendered material.

From the fixed cover section f , to the outlet flue c^{13} , extends a fume-pipe m , which permits, and, under the action of the draft in the outlet flue, effects the escape of the fumes from the rendering kettle. In other words, the pipe m serves as a fume drainer.

The combustion chamber casting c' is provided with one or more doors p , which serve to afford access to the combustion chamber c , and the connections passing through the same, for cleaning out the said chamber, applying the said parts, such as the faucets h and k , and making repairs thereto or changes therein, as may be required.

Having regard now to the action, the chamber b is filled with water or other liquid, and is kept full therewith to a point above the flange c^9 . The lard, or other material to be rendered, is placed in the kettle a and fire is started in the fire-pot c^3 of the furnace. The products of combustion from the fire-pot will come directly into contact with the bottom of the water-kettle b , and the burning gases therefrom will circulate around and come in contact with the sides of the said water-kettle b , in their progress through the combustion chamber c , from the fire-pot passage c^8 to the outlet flue c^{13} . The water in the chamber b will be thereby rapidly heated, and under the circulation therein, the heat therefrom will be equally distributed onto the rendering kettle a . The fire or the burning products of combustion can never come in contact with the rendering kettle. The rendering action will therefore be produced entirely from the hot-water in the chamber b . The lard or other material being rendered can never be burned; and hence, the finished product will have its natural and agreeable flavor and be entirely free from the offensive qualities due to burning or scorching. Moreover, owing to the even distribution of the heat, the rendering action is considerably improved and an increased product is obtainable in any

given time. The great improvement, however, is the preservation of the natural flavor of the lard, tallow, or other materials being rendered, free from the offensive effects of burning or scorching.

In respect to the apparatus, it is obvious that the parts are easily taken down or put together, on account of the peculiar construction. The castings a a' b , which form the rendering kettle and the water-kettle are removable from the flange c^6 , or insertible into position inside the combustion chamber casting c' . The combustion chamber casting c' is removable from the external fire-pot casting c^4 , or securable thereto in any suitable way; and the fire-pot castings c^4 are removable from the interior of the external fire-pot casting c^2 , or insertible therein, at will. Likewise, the faucets h and k , and the steam-pipe d^2 and fume pipe m are all removable from the respective parts, to which they are applied. Hence, the whole apparatus may be readily knocked down for package and shipment, or be put together into working position, at will.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. The combination with the furnace having the combustion chamber casting c' , provided with the horizontal flanges c^9 and c^{10} and the vertical flange c^{12} , of the castings a a' b , constructed and arranged as described, with respect to each other and the said casting c' , to form the rendering kettle a , the water kettle b and the combustion chamber c , the fire-pot c^3 provided with the passage c^8 to said combustion chamber c , and the outlet flue c^{13} , all arranged and operating substantially as described.

2. The combination with the furnace, of the rendering kettle a and the water-kettle b , supported within the combustion chamber, the outlet flue c^{13} , the steam-pipe d^2 from the water-chamber b to said flue and the fume drain pipe m , from the rendering kettle to said flue, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED WHITE.

Witnesses:

JAS. F. WILLIAMSON,
EMMA F. ELMORE.