No. 885,781. PATENTED APR. 28, 1908.

C. E. ORD.

FLUID HEATED CHAMBER.

APPLICATION FILED OCT. 29, 1906.

Fig. 1.

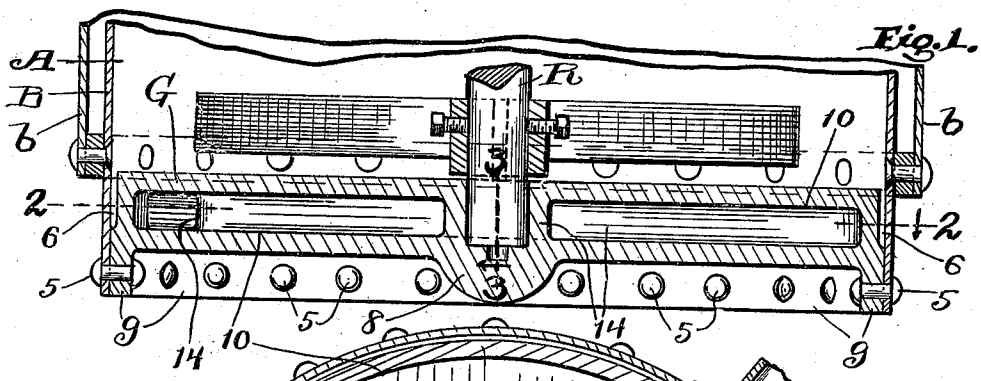


Fig. 2.

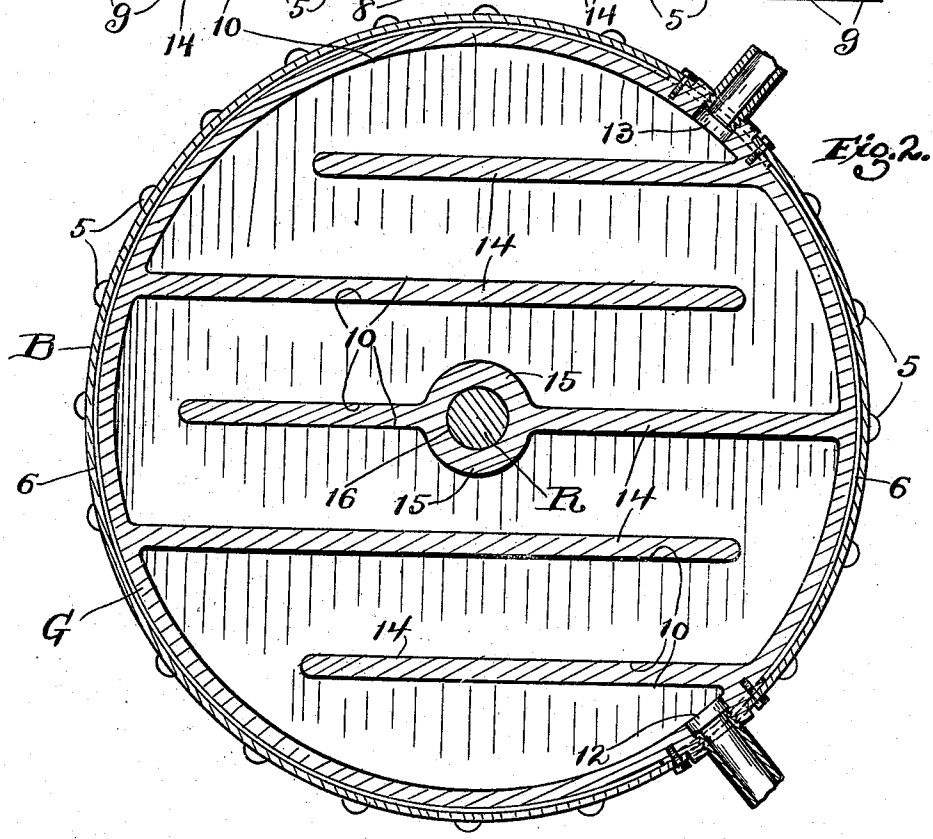
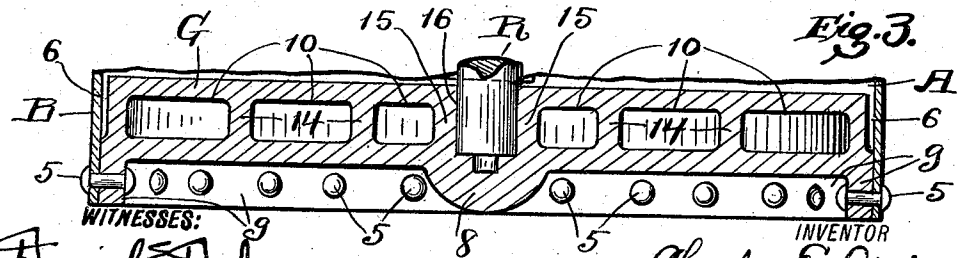


Fig. 3.



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FLUID-HEATED CHAMBER.

No. 885,781. Specification of Letters Patent. Patented April 28, 1908.

Application filed October 29, 1906. Serial No. 341,083.

To all whom it may concern:

Be it known that I, CHARLES E. ORD, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Fluid-Heated Chambers; and I 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 pertains to make and use the same.

This invention relates to improvements in fluid-heated chambers more especially applicable for use in drying or rendering vegetable or animal matter.

The primary object of this invention is to construct the bottom of a fluid-heated chamber of a single casting provided interiorly with chambers which are arranged to form a sinuous passageway by which the heating fluid introduced into the bottom is so distributed and passed within and through the bottom that the top surface of the bottom is uniformly heated to facilitate any drying or rendering process carried out within the first-mentioned chamber.

Another object is to prevent the accumulation of water resulting from the condensation of steam within the said bottom when steam is used as the heating agent and thereby prevent such condensation from materially interfering with the heating of the bottom.

Another object is to render the bottom simple and durable in construction.

With these objects in view, and to the end of realizing other advantages hereinafter appearing, this invention consists in certain features of construction, and combinations of parts hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of the lower portion of a fluid-heated chamber having a bottom embodying my invention. Fig. 2 is a horizontal section on line 2—2, Fig. 1, looking downwardly. Fig. 3 is a vertical section on line 3—3, Fig. 1, looking in the direction indicated by the arrow.

Referring to the drawings, A indicates a steam-heated chamber in which animal or vegetable matter is to be dried or rendered.

B represents the cylindrical casing which forms the surrounding wall or walls of the chamber A. The casing B is jacketed in any approved manner, as at *b*. The provision of a chamber with a surrounding heating jacket is too well known to require description in this specification.

G indicates the bottom of the chamber A. The said bottom is circular and arranged within and embraced by the lower end of the casing B. The bottom G is composed of a single casting which is arranged above the lower extremity of the casing B which is preferably riveted, as at 5, to a depending annular flange *g* with which the said bottom is provided, which flange is snugly embraced by the said casing. The bottom G above its depending flange *g* is preferably somewhat smaller diametrically or transversely than the casing B to form a narrow space 6 extending circumferentially of the upper portion of the bottom between the latter and the casing B so that in attaching the casing B to the flange *g* undue or destructive strain upon the rivets or securing devices employed in securing the jacket *b* to the said casing is avoided. The bottom G is hollow or chambered interiorly, being provided with several chambers 10 which are arranged and connected to form a sinuous passageway as will hereinafter more fully appear. Preferably an equal number of chambers 10 are formed interiorly of the bottom G at opposite sides of the center of the bottom. As shown, the chambers 10 are parallel and arranged in a row consisting of six chambers, with three chambers 10 of the said row at one side of the center of the bottom, and with the remaining three chambers at the other side of the said center. Each chamber of the row of chambers 10 between the two end chambers of the said row is in communication at one end with one of the adjacent chambers 10 and at the other end with the other of the said adjacent chambers so that the row of chambers 10 forms a sinuous passageway which extends transversely of the bottom several times but in opposite directions alternately, and any heating fluid, such, for instance, as steam which is supplied to a fluid-inlet 12 with which the closed end of one of the end chambers of the row of chambers 10 is provided takes a sinuous course, as indicated by the arrows in Fig. 2, through the bottom to a fluid-outlet 13 with which the closed end of the other end chamber of the said row of chambers is provided. It will be observed that the partition 14 between two adjacent chambers of the row of chambers 10 forms a reinforcing web within the bottom. The

partition formed between the two central chambers of the row of chambers 10 is enlarged laterally, as at 15, centrally of the bottom G, with the said enlargement provided centrally with a recess or hole 16 extending downwardly from the top surface of the bottom a suitable distance so as to form a vertically arranged step-box or bearing for a stirring shaft R arranged within the chamber A and employed in stirring material treated within the said chamber.

The bottom G is provided next below the step-box-forming enlargement 15 of the central partition with a depending lug 8, the lower extremity of which is arranged in the same horizontal plane with the lower extremity of the depending flange *g* of the bottom and hence the said flange and the said lug form the base of the bottom.

The bottom G constructed as hereinbefore described is not only remarkable for its great strength and durability but insures an equal distribution of the heating agent throughout the bottom so as to result in uniformly heating the top surface of the bottom, and any water resulting from the condensation of steam, when the latter is used as the heating agent, is driven out at the outlet 13.

I would here remark that by making the upper portion of the bottom G diametrically or transversely smaller than the lower portion of the said bottom, the casing B can be more readily, accurately and tightly fitted to the said bottom That is, the casing may be of such size diametrically or transversely relative to the lower portion of said bottom that it has to be forced onto the bottom from above in assembling the parts, and the reduction diametrically or transversely of the upper portion of the bottom facilitates the application of the casing to the bottom. Also the space 6 formed between the upper portion of the said bottom and the casing accommodates the introduction of a plate (not shown) which is instrumental in forming an abutment for the heads of the rivets or securing devices employed in securing the jacket *b* to the said casing during the upsetting or heading of the said rivets.

What I claim is:—

1. A fluid-heated chamber whose surrounding wall is formed by a cylindrical casing, which chamber has a bottom composed of a single casting which is provided interiorly with a sinuous passageway provided at one end with a fluid-inlet and at the opposite end with a fluid-outlet, said casting being also provided centrally with a depending lug and having a depending annular flange snugly embraced by and rigid with the aforesaid casing, with the lower extremities of the flange and the lug arranged in the same plane horizontally.

2. A fluid-heated chamber having a bottom which is provided interiorly with a row of chambers extending transversely of the bottom, with each chamber of the said row between the end chambers of the row in communication at one end with one of the adjacent chambers of the row and at its opposite end with the other of the adjacent chambers, with one of the said end chambers provided with a fluid-inlet and with the other of the said end-chambers provided with a fluid-outlet, and with the partition between the two central chambers of the row of chambers enlarged laterally centrally of the bottom to form a vertically arranged shaft-bearing.

3. A fluid-heated chamber having its surrounding wall formed by a cylindrical casing, said chamber having a bottom composed of a single casting which is provided interiorly with a sinuous passageway provided at one end with a fluid-inlet and at its opposite end with a fluid-outlet, said casting having a depending annular flange which is snugly embraced by and rigid with the aforesaid casing and larger in external diameter than the upper portion of the bottom so as to form a narrow space extending around the upper portion of the bottom.

4. A fluid-heated chamber having its surrounding wall formed by a cylindrical casing, said chamber having a bottom comprising a casting which has a depending annular flange snugly embraced and rigid with the aforesaid casing and larger in external diameter than the upper portion of the bottom so as to form a narrow space extending around the said upper portion of the bottom.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

CHARLES E. ORD.

Witnesses:
C. H. DOREN,
B. C. BROWN.