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2,361,894

DEHYDRATOR

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Fig. 1.

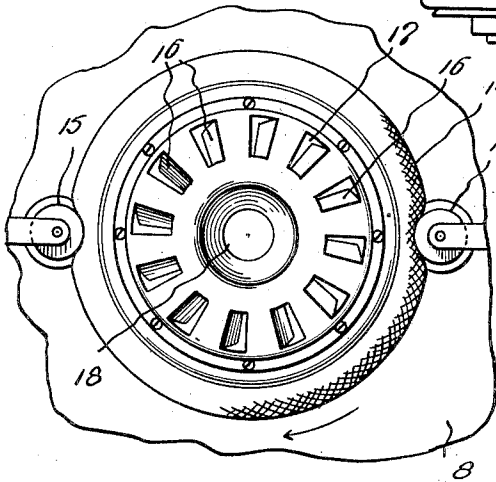
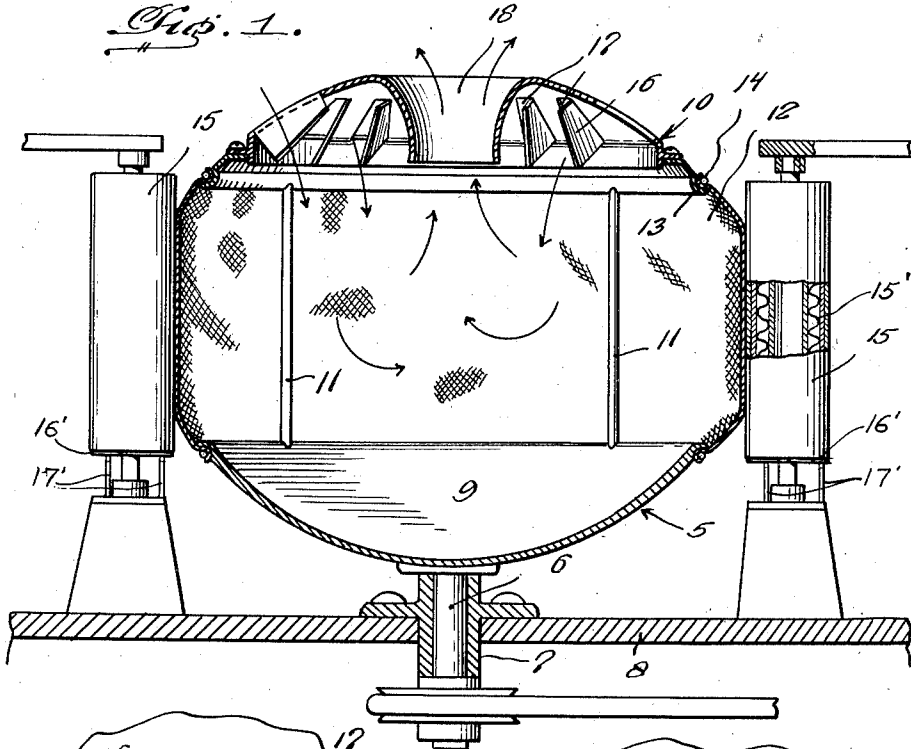


Fig. 2.

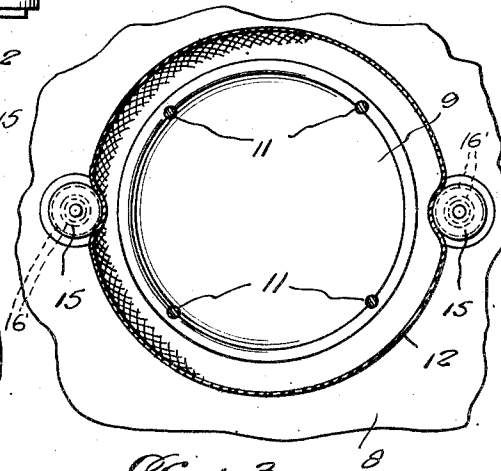


Fig. 3.

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DEHYDRATOR

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8 Claims. (Cl. 34—58)

This invention relates to a dehydrator for the treatment of food and other materials whereby moisture may be quickly and completely extracted or removed therefrom and at the same time bleach the material to a desired amount.

The primary object of the invention is the provision of a device of the above stated character which will be extremely economical to construct and operate and will permit the dehydration and bleaching of the material to be carried out in one operation and at the same time maintain a thorough agitation of the material to assure the rapid and complete dehydration thereof.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a vertical sectional view illustrating a dehydrator constructed in accordance with my invention.

Figure 2 is a top plan view illustrating the device.

Figure 3 is a horizontal sectional view illustrating the device.

Referring in detail to the drawing, the numeral 5 indicates a container, preferably more or less of bowl shape and mounted for rotation through the provision of a shaft 6 journaled in a bearing 7 mounted on a support 8. The shaft 6 may be belted or otherwise connected to a power source (not shown).

The container 5 includes a concaved rigid bottom or lower section 9 on which the shaft 6 is secured. An inverted concave rigid upper section 10 is mounted on the bottom or lower section 9 by a skeleton frame consisting principally of vertically arranged bars 11 integrally connected with said sections 9 and 10. The rigid section 10 is superimposed with respect to the bottom section 9 and is spaced a selected distance therefrom. Also connecting the sections 9 and 10 and to cooperate therewith in completing the container is a flexible porous wall 12 preferably constructed of a suitable fabric and which is clamped in grooves 13 of said sections 9 and 10 by clamping rings 14 whereby the fabric may at any time be removed for cleaning or for renewal if worn or damaged.

The porous flexible wall 12 rides against vertically arranged heating rolls 15 rotatably supported on the support 8. The heating of the rolls can be carried out in any well known manner, preferably by electricity. The rolls 15 have therein electric heating elements 15' and in order that they may be connected into an electric circuit, collector rings 16' are mounted on the rolls and are engaged by contacts 17' which may be connected in the electric circuit. In order that the rolls may be maintained at a selected temperature, the circuit may be controlled by a thermo apparatus of a conventional type.

The wall 12 when in contact with the rolls will be flexed inwardly, as clearly shown in Figures 2 and 3 and the flexing of the wall as specified besides the rotation of the container, will bring about a complete agitation of materials arranged therein and in order that an air circulation may be had within the container during the rotation thereof the upper section 10 is provided with a series of struck-out blades 16 and ports 17 adjacent thereto. Further, the upper section 10 is provided centrally thereof with a neck 18 extending inwardly of the container and centrally thereof. This neck provides an air escape while the air will be drawn in through the ports 17 by the blades 16 during the rotation of the container, contacting the material within the latter to thoroughly aerate the material. The air after contacting the material escapes by way of the neck 18. The upper rigid section 10 of the container includes detachably connected parts clearly shown in the drawings, whereby one part may be easily removed to permit material after being treated in the device to be easily removed therefrom.

In operation, the material to be dehydrated is cut or chopped into small pieces or ground and then placed within the container by way of the neck 18. The container is then rotated by the power medium (not shown) and during its rotation the material is thrown out against the wall 12 by centrifugal action and as the wall is engaged by the heating rolls the moisture of the material is converted into steam, this steam passing off with the air taken in the container by the blades 16 through the neck 18 thus bringing about a thorough rapid extraction of the moisture from the material and the steam at the same time acting to bleach the material eliminating a separate operation for the bleaching of the material. The complete dehydration of the material by this device will be extremely rapid

due to the novel way of subjecting the material to heat for converting the moisture into steam and carrying off of the steam by the circulation of air into and from the container.

Due to the constant movement of the material with relation to the heating rolls will allow extremely high temperatures to be employed without the danger of scorching the material and which results in a more rapid extraction of the moisture from the material. Also, the novel agitation of the material during the heating thereof greatly assists in the rapid extraction of the moisture.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:

1. In a dehydrator, a container for materials, means for the rotation of said container, said container having flexible porous portions engaged by the material by the rotation of the container, heating means engaging said porous flexible portions to convert moisture in the material into steam, and means for circulating air into and out of said container for carrying off moisture from the container.

2. In a dehydrator, a container for materials, means for the rotation of said container, said container having flexible porous portions engaged by the material by the rotation of the container, heating means engaging said flexible porous portions to convert moisture in the material into steam, and means included in the construction of the container for the circulation of air into and from the container during the rotation thereof to carry off steam from the material and the container.

3. In a dehydrator, a container including rigid portions and a porous and flexible portion, means for rotatably supporting the container, means for the rotation of the container, heating means contacting and flexing the flexible porous portion of the container during the rotation thereof for heating material in the container to remove moisture therefrom in the form of steam and thereby bring about bleaching of the material, and means for circulating air into and out of said container for carrying off moisture from the container.

4. In a dehydrator, a container including rigid portions and a porous and flexible portion, means for rotatably supporting the container, means for the rotation of the container, heating means contacting and flexing the flexible porous por-

tion of the container during the rotation thereof for heating material in the container to remove moisture therefrom in the form of steam and thereby bring about bleaching of the material, and means forming a part of one of the rigid portions of the container to drive air into and out of the container during the rotation thereof.

5. In a dehydrator, a container including spaced superimposed rigid portions and a porous and flexible portion connecting said rigid portion, a shaft secured to one of the rigid portions, a support rotatably receiving said shaft and arranging the container vertically, means for connecting said shaft to a power source, rotatable heating means engaging and flexing the porous and flexible portions of the container during the rotation thereof, and means for circulating air into and out of said container for carrying off moisture from the container.

6. In a dehydrator, a container including spaced superimposed rigid portions and a porous and flexible portion connecting said rigid portion, a shaft secured to one of the rigid portions, a support rotatably receiving said shaft and arranging the container vertically, means for connecting said shaft to a power source, rotatable heating means engaging and flexing the porous and flexible portion of the container during the rotation thereof, and means formed in one of the rigid portions for forcing air into and from the container during the rotation thereof and providing means to permit material to be placed in and removed from the container.

7. In a dehydrator, a container including rigid portions arranged in spaced relation and rigidly connected to each other and a porous and flexible portion connecting said rigid portions, means for rotatably supporting said container, rotatable heating rolls contacting and flexing the porous and flexible portion of the container, and means for circulating air into and out of said container for carrying off moisture from the container.

8. In a dehydrator, a container including rigid portions arranged in spaced relation and rigidly connected to each other and a porous and flexible portion connecting said rigid portions, means for rotatably supporting said container, rotatable heating rolls contacting and flexing the porous and flexible portion of the container, one of said rigid portions having struck therefrom a plurality of blades arranged in the container and providing ports to the latter for the intake of air, said latter-named rigid portion having an inwardly directed neck to permit air to pass from the container.

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