C. PAULSEN.

PASTEURIZING APPARATUS.

APPLICATION FILED JULY 31, 1911.

1,030,203.

Patented June 18, 1912.

2 SHEETS—SHEET 1.

Fig 1

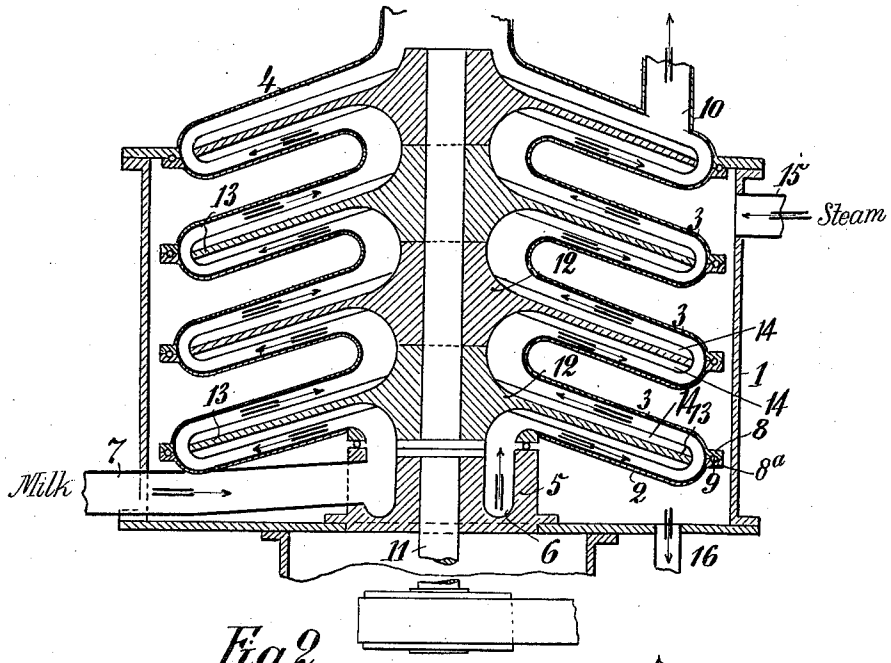

Fig 2

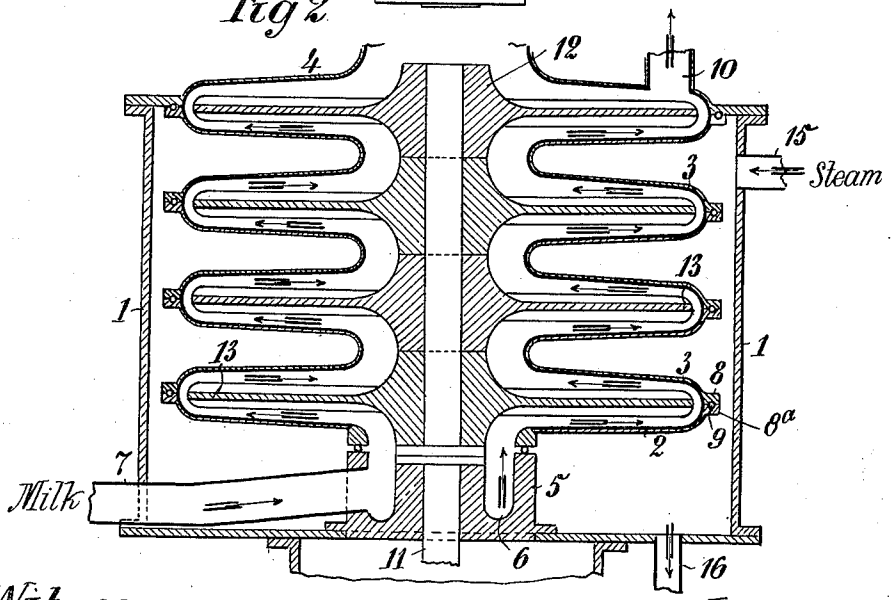

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Fig 3

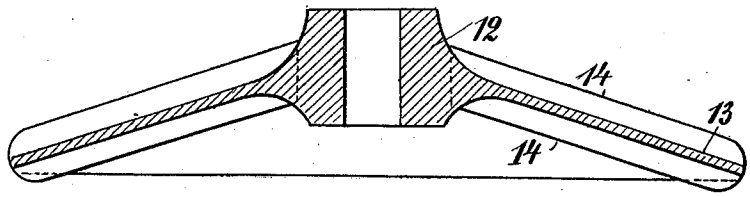


Fig 4

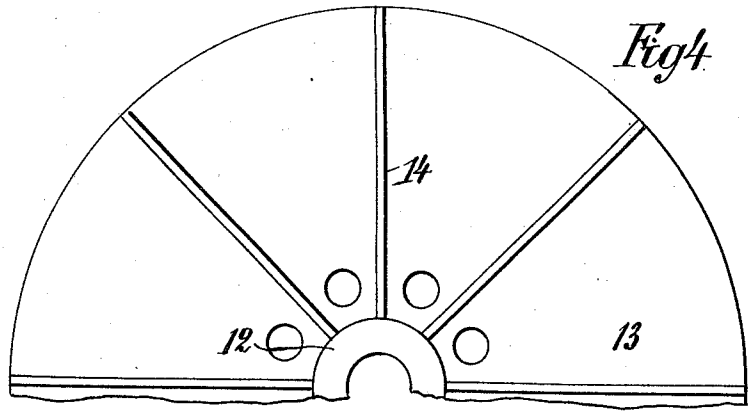


Fig 5

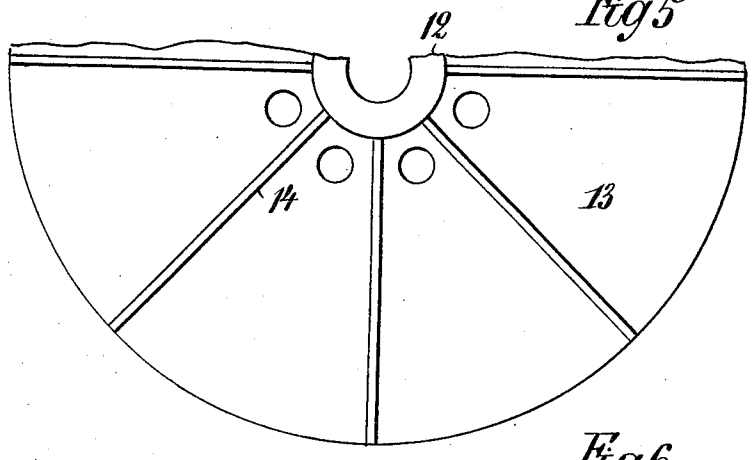
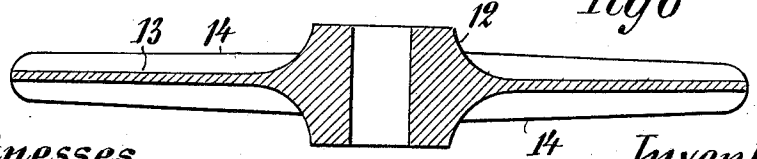


Fig 6



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UNITED STATES PATENT OFFICE.

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PASTEURIZING APPARATUS.

1,030,203. Specification of Letters Patent. Patented June 18, 1912.

Application filed July 31, 1911. Serial No. 641,620.

To all whom it may concern:

Be it known that I, CHRISTEN PAULSEN, a subject of the King of Denmark, and a resident of Copenhagen, Denmark, have invented a new and useful Improvement in Pasteurizing Apparatus, of which the following is a full, clear, and exact description.

My invention relates to an apparatus for the heating of liquids, and embodies an apparatus principally available as a pasteurizing apparatus for milk, but which can also be made use of for other purposes.

The characteristic feature of the invention consists in the very large heating surface employed in proportion to the size of the apparatus, and in the means provided for the good and thorough stirring which can take place, and lastly the ease with which the apparatus can be taken apart and cleaned.

Reference is to be had to the accompanying drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a central section through one form of my apparatus; Fig. 2 is a central vertical section through another form of my apparatus; Fig. 3 is a detail showing a central section through one of the units employed in the construction shown in Fig. 1; Fig. 4 is a fragmentary plan view of one of the units comprised in the mechanism shown in Fig. 2; Fig. 5 is a fragmentary plan view showing a different portion of one of the units comprised in the structure shown in Fig. 2; and Fig. 6 is a central vertical section through one of the units used in the apparatus shown in Fig. 2.

A steam chamber 1 serves as a container for various other parts as hereinafter described. Each heating unit, according to the construction shown in Fig. 1, comprises two saucer-like members 2, 3 fitted together steam-tight. The several heating units are stacked one on top of another, as shown. The upper surface 4 of the uppermost unit extends out of the steam chamber. The lowermost unit is supported by a pedestal 5 containing an annular passage 6 which is in communication with a pipe 7 through which the milk is supplied. The members 3, 2 are respectively provided with flanges 8, 8ª, and between these flanges are annular washers 9 serving as packings. A discharge pipe 10 is provided for discharging the milk after the pasteurization is completed.

A vertical shaft 11 extends through the pedestal 5, and rigidly secured upon it is a number of hubs 12 each provided with a disk 13 integral with it and adapted to turn whenever the shaft 11 is rotated. Each disk 13 is provided with a plurality of flat ribs 14, the ribs extending above and below the faces of the disk. As shown in the drawing the shaft 11 is provided with a pulley over which passes a belt which may be driven by any suitable motor. The shaft may however be rotated in any desired manner. Whenever the shaft 11 is turned rapidly, the disks cause the milk to be thrown outwardly by centrifugal force, the milk being ultimately discharged by aid of centrifugal force through the pipe 10. A steam pipe 15 is connected with the steam chamber 1 and an exhaust pipe 16 is also connected with said steam chamber.

When the various parts are assembled, as indicated, the entire device comprises practically a large revoluble composite member having generally a corrugated outer surface, and within this is a composite stirrer made of the disks, hubs and shaft 11. When the steam is admitted into the steam chamber 1, through the pipe 15, it serves to heat the entire corrugated surface within the steam chamber, and as the stirrer is turned the heat is uniformly diffused through practically all parts of the stirrer.

It is apparent that by aid of the device above described, a considerable heating surface is obtained notwithstanding the small size of the apparatus. For convenience, I designate the large corrugated member, made up principally of the members 2, 3, as a container.

The operation of my device is as follows: Steam being admitted through the steam pipe 15, as above described, and the shaft 10 turned at a rapid rate approximately uniform, milk is drawn in through the pipe 7 and being forced upwardly and outwardly by centrifugal force, is discharged upwardly through the pipe 10. While this takes place the steam circulates all around the container and heats the same uniformly.

I do not limit myself to the particular construction shown, as various changes may be made without departing from the spirit of my invention. Neither do I limit my-

self to any particular manner in which the device may be used, the scope of my invention being commensurate with my claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a device of the character described, an outer chamber, means for supplying a heating medium to the same, a stationary container mounted within said chamber, and consisting of sections each formed of saucer like members provided at their edges with flanges and fitted together to form a corrugated cylinder, packing between the said flanges for rendering the container steam tight, a revoluble shaft extending centrally in said container, disks carried by said shaft and extending between the members of the sections of the container, and an inlet and an outlet for said container.

2. A device of the character described, comprising a steam chamber, a steam inlet and an outlet connected with said chamber, a stationary container disposed within said steam chamber and consisting of separate members fitted together so as to form a corrugated cylinder, a pipe communicating with the central portion of said container at the bottom thereof for admitting milk into the container, a rotatable shaft extending centrally in said container, hubs on said shaft and engaging each other, disks integral with said hubs and extending outwardly between the said members of the container, ribs on the top and bottom faces of said disks, the upper surface of said container extending out of the steam chamber, and a discharge pipe connected with the top of said container near the periphery thereof for discharging milk therefrom.

Signed by me at Copenhagen, Denmark, this 15th day of July, 1911.

CHRISTEN PAULSEN.

Witnesses:
CHARLES HUDE,
DISBRAW WOLSING.