Sept. 24, 1940. R. RÜTTIMANN 2,215,729

DEVICE FOR PASTEURIZING LIQUIDS

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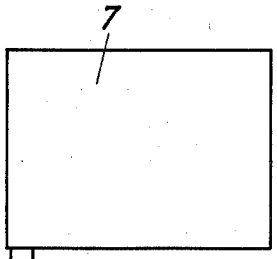

Fig.1

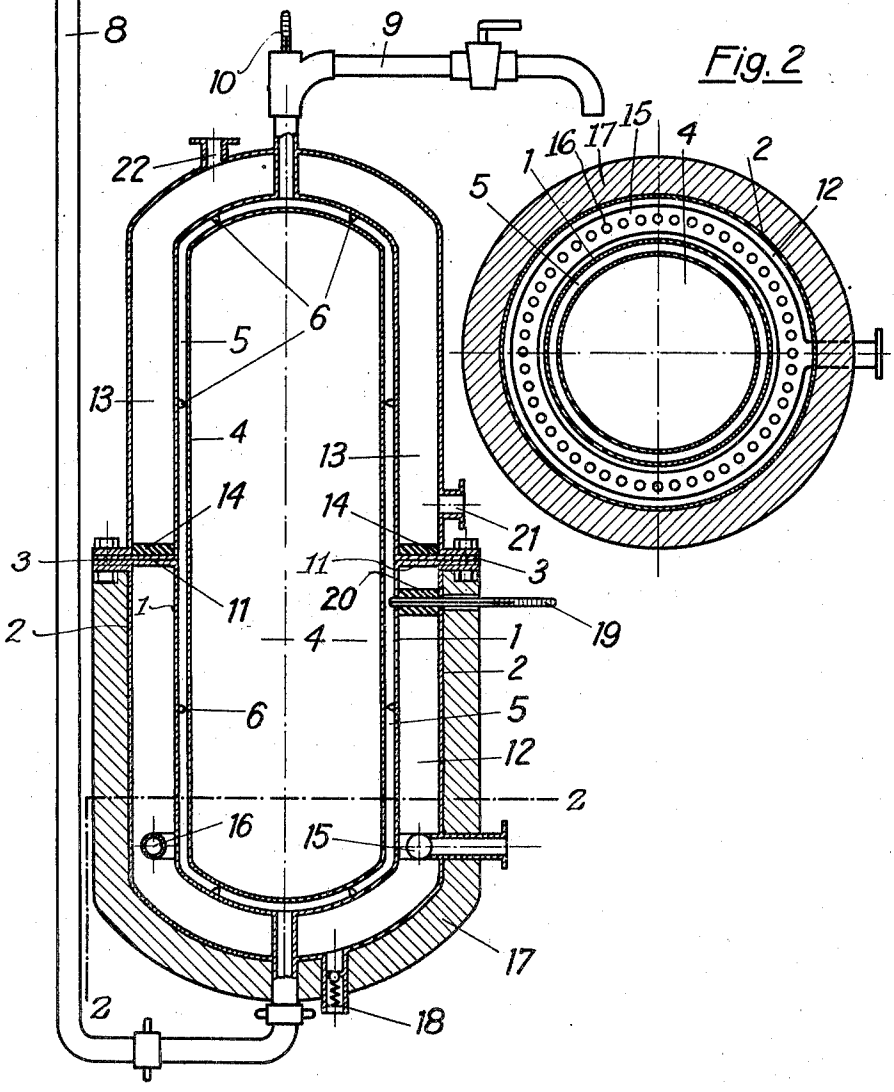

Fig.2

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DEVICE FOR PASTEURIZING LIQUIDS

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1 Claim. (Cl. 257—10)

This invention relates to an improved device for pasteurizing liquids, consisting of a vertical cylindrical container with double walls inside of which there is placed a core-body in such a way that its cylindrical outside surface will form with the inside surface of the container a narrow space for the passage of the liquid to be pasteurized, for which latter an inlet is arranged at the bottom and an outlet at the top thereof.

The accompanying drawing shows an example of the device according to the invention, in which:

Fig. 1 represents a vertical sectional view, and Fig. 2 a horizontal section taken on the line 2—2 of Fig. 1.

1 is the inner and 2 the outer wall of a cylindrical vertical container, each consisting of two similar sections provided with flanges which are connected together as at 3. Inside this container is set a hollow cylindrical core-body 4 forming together with the inside wall of the container a continuous and comparatively narrow space 5 of the same width throughout. The width of this space varies according to the size of the device. Formed with or connected to the inner face of the wall 1 is a plurality of spaced projections, ribs or the like 6, which latter support and retain the core-body 4 from the wall 1 in order to establish a comparatively narrow space 5 through which pass the liquids to be sterilized or pasteurized. The space 5 is designed for the circulation of the liquid to be pasteurized, which is introduced into the space 5 from a receiver 7 through a pipe conduit 8 leading to the bottom of the container and taken off from the upper end of this space 5 by means of the outlet pipe 9 in which is preferably installed a temperature measuring device 10. The flanges which project from the sections of the inner wall 1 when connected together, as is shown in Fig. 1 of the drawing, provide a circular disc or partition 11, which latter not only supports the inner wall in spaced relation to the outer wall 2 but separates the space established between the walls 1 and 2 into an upper cooling chamber 13 and a lower heating chamber 12. The bottom chamber 12 is heated by means of steam introduced through a circular pipe 15 with perforations 16. The heat is transmitted through the inner wall 1 to the liquid to be pasteurized circulating in the space 5. In order to prevent loss of heat to the outside through the wall 2, the latter is covered by an insulation 17. The condensed steam is collected at the bottom and taken off by means of a suitable trap, preferably through an orifice 18 in which may be mounted a spring valve. The pasteurizing temperature can be controlled with a thermometer 19 leading through a heat-insulating mantle 20. The chamber 13 serves for the cooling of the liquid to be pasteurized, which preferably may be done by the circulation of cold water. To effect this latter, inlet and outlet connections 21 and 22 are provided. 14 is a temperature-insulating ring on top of the circular disc 11 to prevent a profuse heat transmission between steam and cold water.

The device thus described serves for the pasteurizing of liquids, which, after having been heated to the required temperature, are to be cooled off again rapidly. This is especially required in the case of milk. Wherever a fast cooling of the liquids is not essential, the top half of the container designed for cooling may be dispensed with. Such latter arrangement can be used for the treatment of cider.

To start the apparatus, steam is introduced to the double bottom chamber 12 and thus the temperature of the container is increased. As soon as the latter is sufficiently heated up, the liquid to be pasteurized is fed through the pipe line 8 to the space 5. The correct pasteurizing temperature is attained by regulating the feed or the steam, or both. The refrigeration is done by means of the water circulation and can be checked by the thermometer 10.

In most cases, the insulation of the top half of the container can be spared since the difference in the temperature between the cold water and the outside temperature is, in most cases, insignificant.

From the foregoing, it is quite obvious that by providing a hollow core-body 4, the liquids to be pasteurized will be caused to be distributed over a comparatively large area and that by retaining these liquids in the comparatively narrow space 5, they may be easily and more economically pasteurized. Furthermore, that by forming the walls 1 and 2 in sections, these sections may be easily and readily disassembled whereby access may be gained to the interior of the apparatus for cleaning the same and the several parts may be again easily and readily assembled for use.

Manifestly, the construction herein shown is capable of considerable modification and such modifications as come within the scope of my claim, I consider within the spirit of my invention.

I claim:

An apparatus for pasteurizing liquids compris-

ing an outer sectional wall, flanges formed with each section of said wall, an inner sectional wall, flanges formed with each section of said inner wall and extending therefrom for supporting said inner wall and retaining the same in spaced relation with said outer wall, means for detachably connecting the flanges of the sections of said inner and outer walls, a plurality of lugs projecting from the inner face of said inner wall, a hollow core-body seated within said inner wall and supported in spaced relation thereto by said lugs for forming a comparatively narrow liquid circulating conduit entirely about said hollow core-body, inlet and outlet pipes communicating with said conduit, and heating and cooling chambers arranged between said walls substantially as and for the purpose specified.

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