Sept. 22, 1970 S. M. HIBBARD 3,529,977

STEAM PASTEURIZING ARTICLES

Original Filed April 12, 1966

Fig. 1.

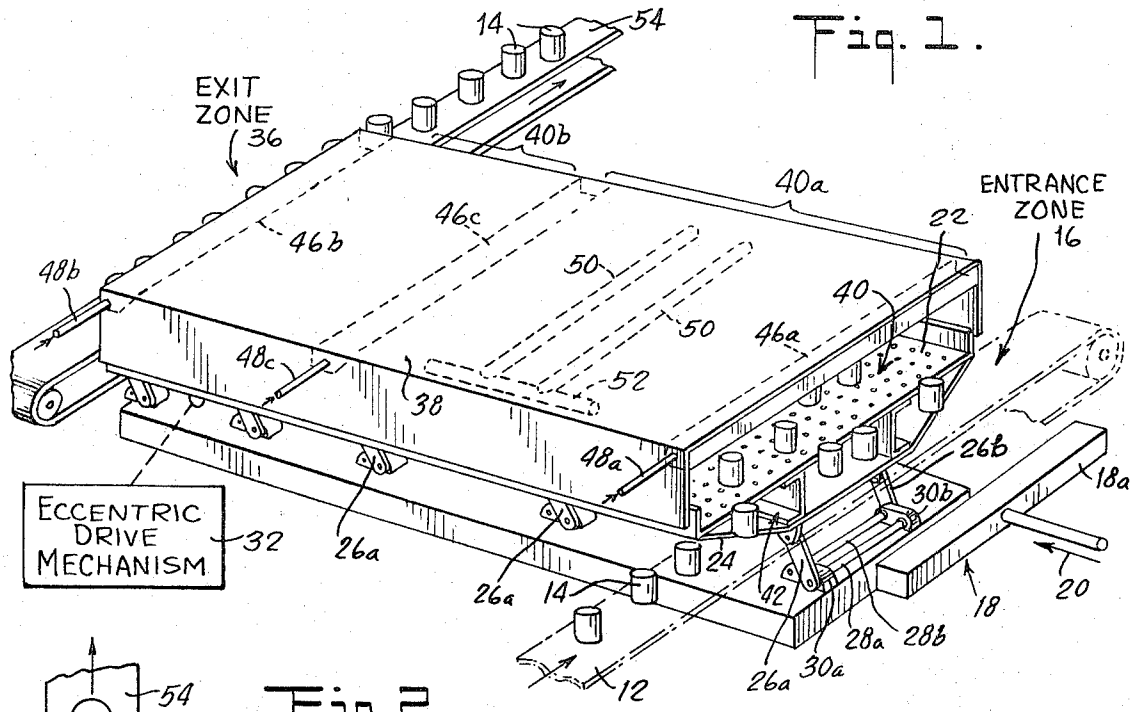
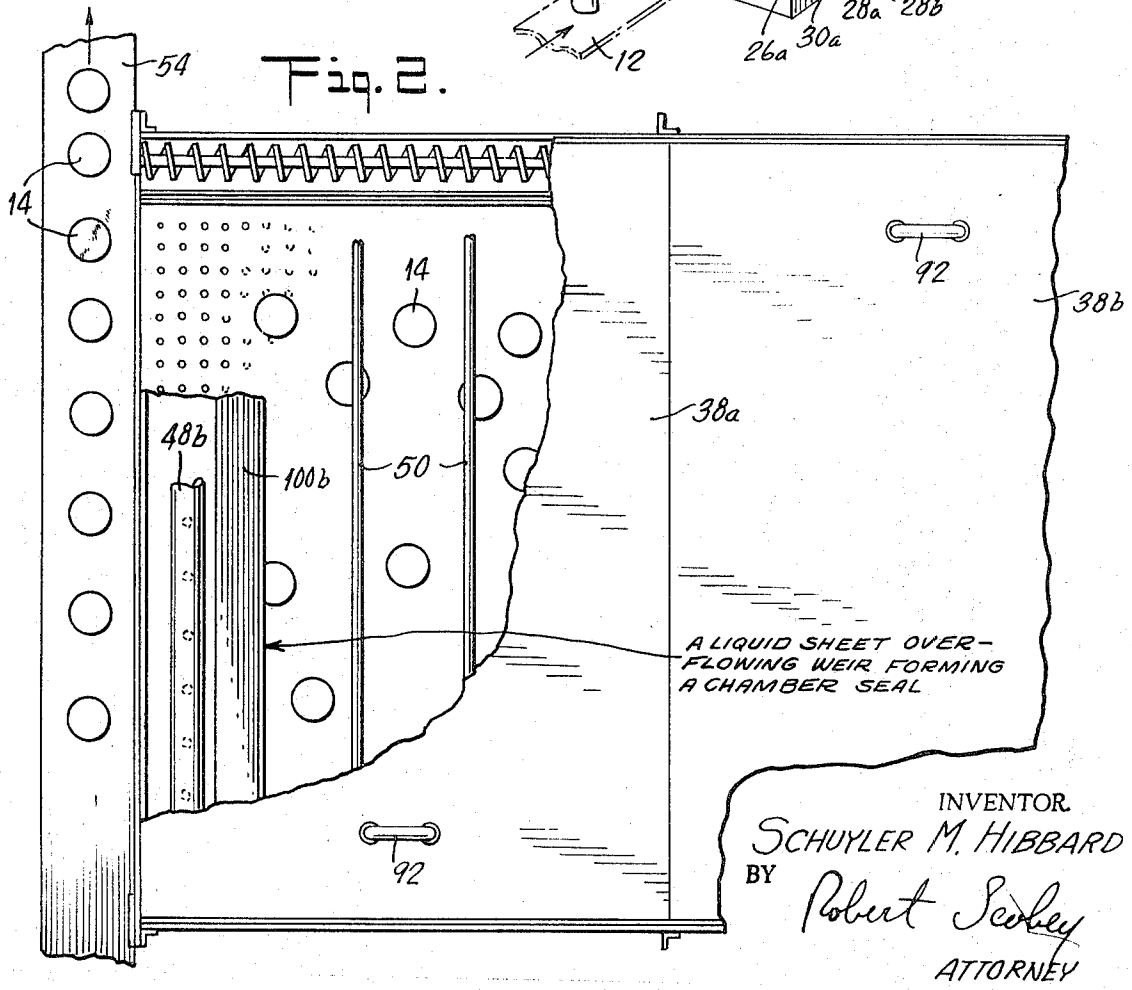


Fig. 2.



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STEAM PASTEURIZING ARTICLES

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Original application Apr. 12, 1966, Ser. No. 542,010, now Patent No. 3,457,851, dated July 29, 1969. Divided and this application Mar. 5, 1969, Ser. No. 804,507

Int. Cl. A23b 3/02

U.S. Cl. 99—216 3 Claims

ABSTRACT OF THE DISCLOSURE

A method of pasteurizing articles with steam involving the transportation of the articles through an open ended steam chamber which is sealed at its open end by the formation of an unrestrained curtain or sheet of liquid at the open end.

CROSS REFERENCE TO RELATED APPLICATION

This application is a division of allowed application Ser. No. 542,010, filed Apr. 12, 1966, for treatment apparatus, now Pat. No. 3,457,851, issued July 29, 1969. The present application is filed in accordance with 35 U.S.C. 121, as a result of a requirement for restriction issued in the parent application, and incorporates essential material by reference to the allowed parent application in accordance with the notice published in 34 F.R. 883 (Jan. 18, 1969).

BRIEF SUMMARY OF THE INVENTION

This invention relates to the treatment of articles, particularly the treatment of articles with a fluid medium such as steam for pasteurization. In such treatment, articles to be treated, such as canned goods, are passed through a treatment zone in which they are subject to the action of a pasteurizing fluid, such as steam or hot water. A disadvantage of most prior art devices is that they are subject to considerable heat loss out of the ends of the treatment chamber, which are normally left open to permit the continuous passage of articles through the chamber. Other prior art devices not involving open ended chambers include elaborate sealing arrangements which are complicated, cumbersome, and expensive to build.

An object of the invention accordingly is to provide for the improved pasteurization of articles subject to relatively little heat loss and not involving complicated heat sealing arrangements.

This and other objects of the present invention are attained by providing an open ended chamber into which steam is admitted for pasteurization, passing the articles for pasteurization into the chamber through an open chamber end, and forming an unrestrained curtain or sheet of liquid at the open chamber end so as to form an effective seal for the chamber. The chamber is typically open at entrance and exit ends thereof, and the articles are continuously transported into and out of the chamber, in which case unrestrained curtains or sheets of liquid are formed at both entrance and exit ends of the chamber so as to form effective seals for the chamber. Further, steam may be supplied only to one portion of the chamber, and coolant to another chamber portion. In such a case an unrestrained curtain or sheet of liquid may be formed within the chamber so as to separate these two chamber portions.

The allowed parent application referenced above discloses apparatus for carrying out the method of the present invention. The referenced application fully describes the method. In the present application the attached drawing of FIGS. 1 and 2, which has been taken from the referenced parent application, shows representative apparatus for carrying out the present invention. Reference should be made to the referenced parent application for a description of this apparatus, and particularly to FIG. 5 and the related description in the specification of the referenced application.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a representative treatment apparatus in accordance with the invention, shown in diagrammatic form.

FIG. 2 is a plan view of a portion of the apparatus shown in FIG. 1, partly broken away and to an enlarged scale, showing some of the details of the treatment apparatus.

In FIG. 2, a trough 100*b* receives water from a perforated pipe 48*b*. Water supplied to the pipe 48*b* passes through the perforations in the pipe and fills the trough so as to overflow the trough in a uniform unrestrained curtain or sheet of water. The curtain of water so provided effectively seals the end of the chamber 40.

What is claimed is:

1. The method of pasteurizing articles by steam comprising:
   (a) transporting the articles through an open-ended chamber into which steam is supplied for pasteurization, and
   (b) forming an unrestrained sheet of liquid flowing across an open end of the chamber so as to form an effective seal for the chamber.

2. The method as defined in claim 1, wherein the chamber is open at entrance and exit ends thereof and wherein the articles are continuously transported into and out of the chamber, and in which unrestrained sheets of liquid are formed at both entrance and exit ends of the chamber so as to form effective seals for the chamber.

3. The method as defined in claim 1, wherein the chamber has two portions, steam is supplied only to one portion of the chamber, and a coolant is supplied to the other portion of the chamber, and including the further step of forming an unrestrained sheet of liquid flowing across the chamber so as to separate said two portions of said chamber.

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U.S. Cl. X.R.

99—249; 165—110; 214—17.4; 34—37