No. 615,108. Patented Nov. 29, 1898.

E. C. DE SEGUNDO.

APPARATUS FOR STERILIZING MILK, &c.

(Application filed Aug. 20, 1898.)

(No Model.) 3 Sheets—Sheet 1.

FIG. 1.

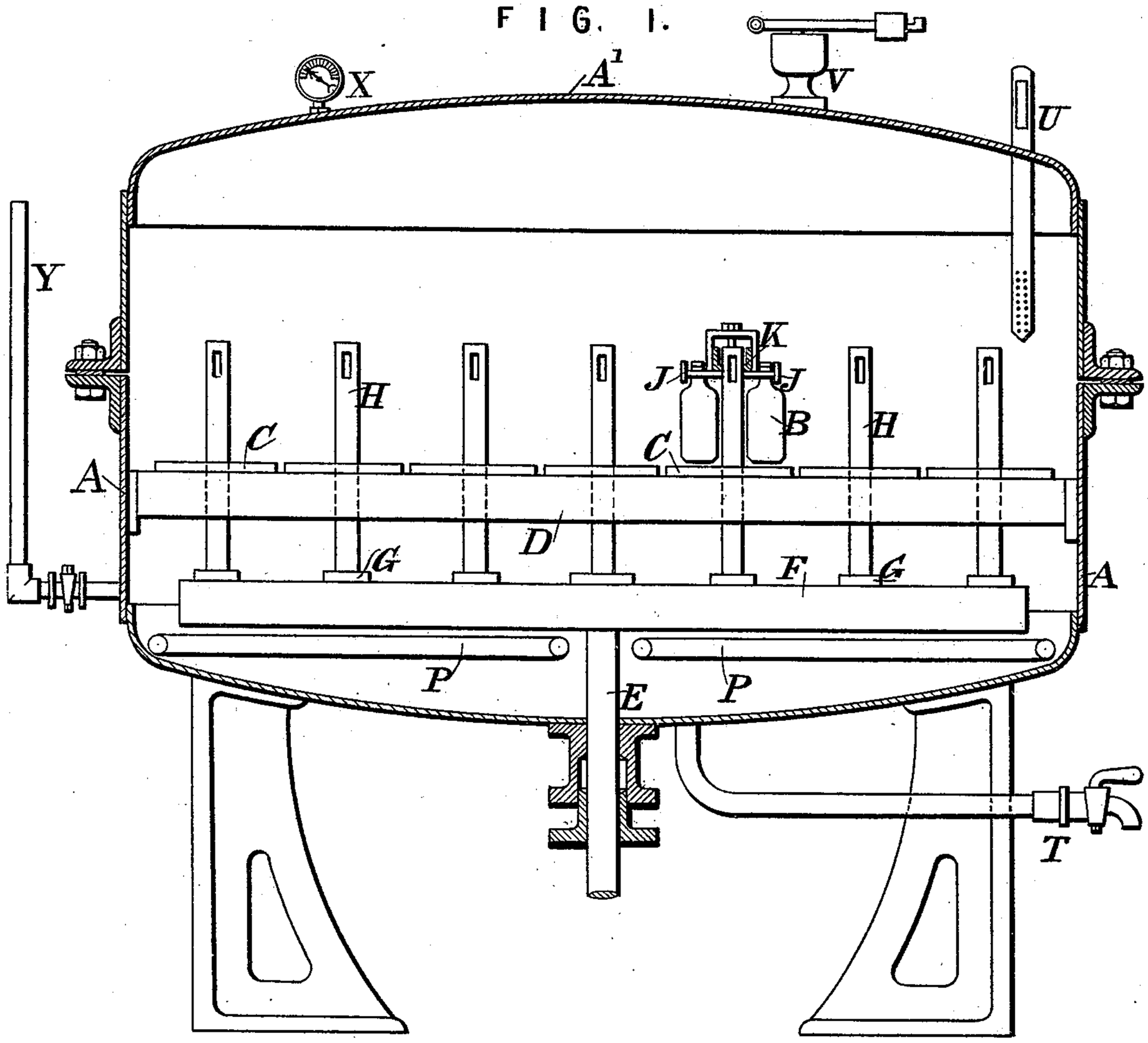

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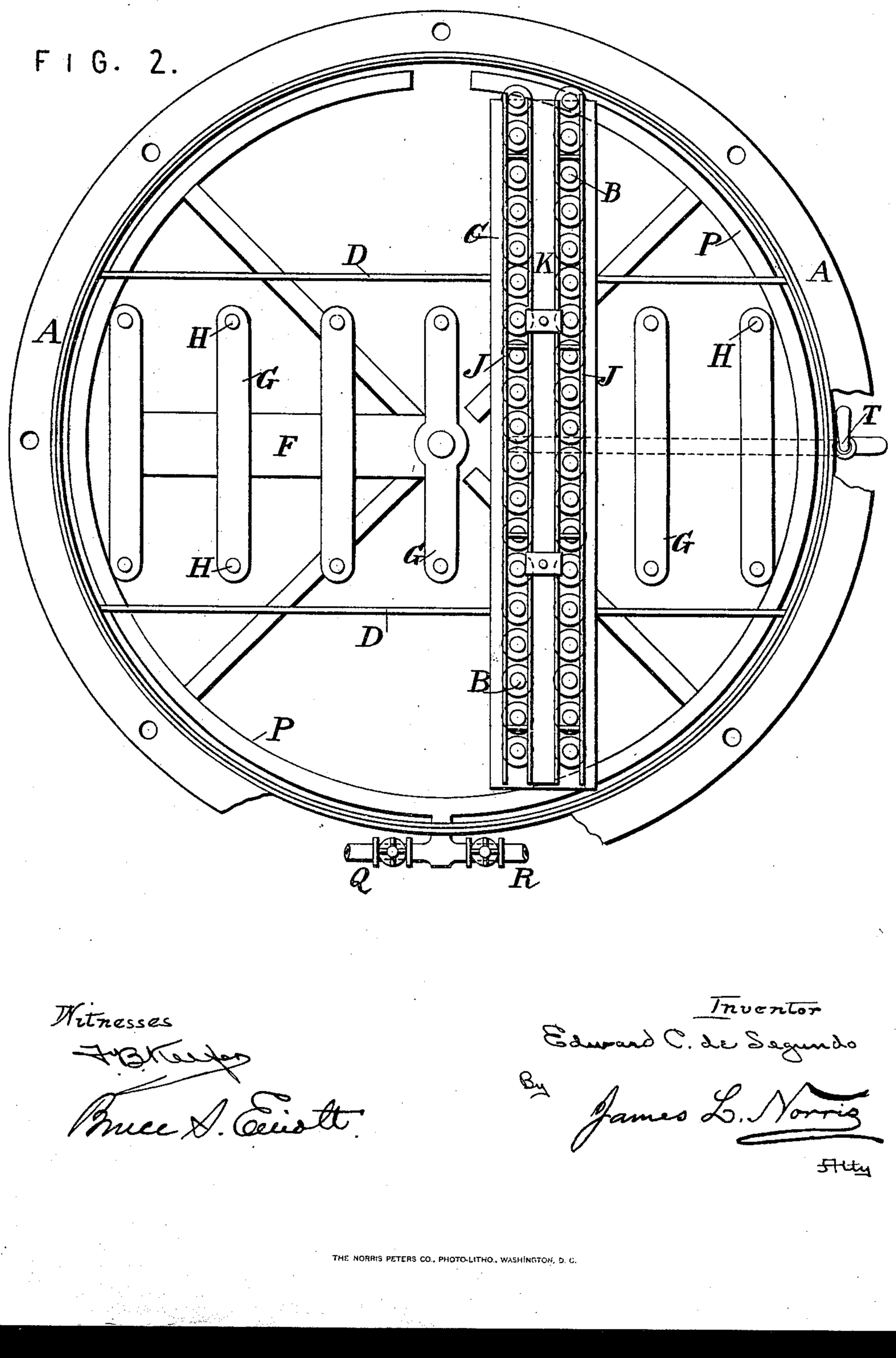
FIG. 2.



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(No Model.) 3 Sheets—Sheet 3.

FIG. 3.

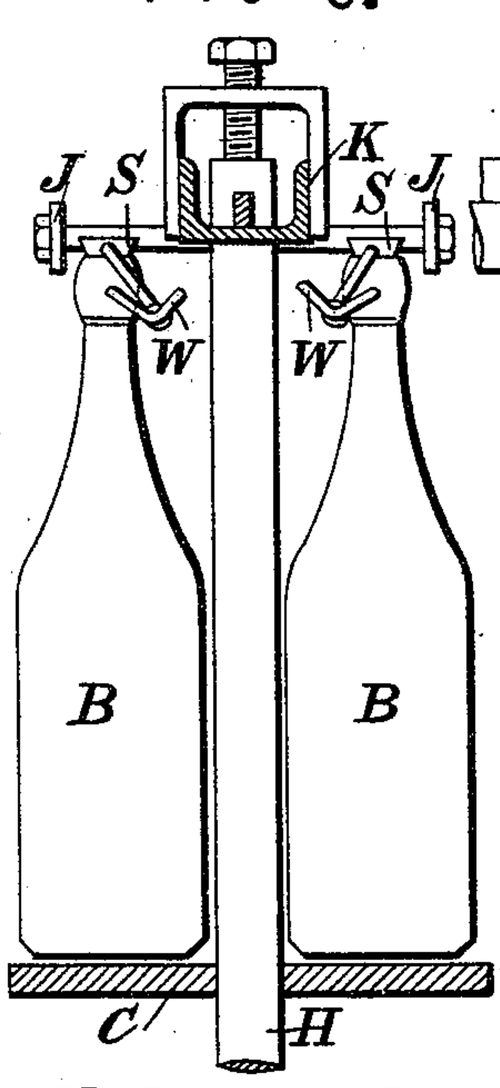

FIG. 4.

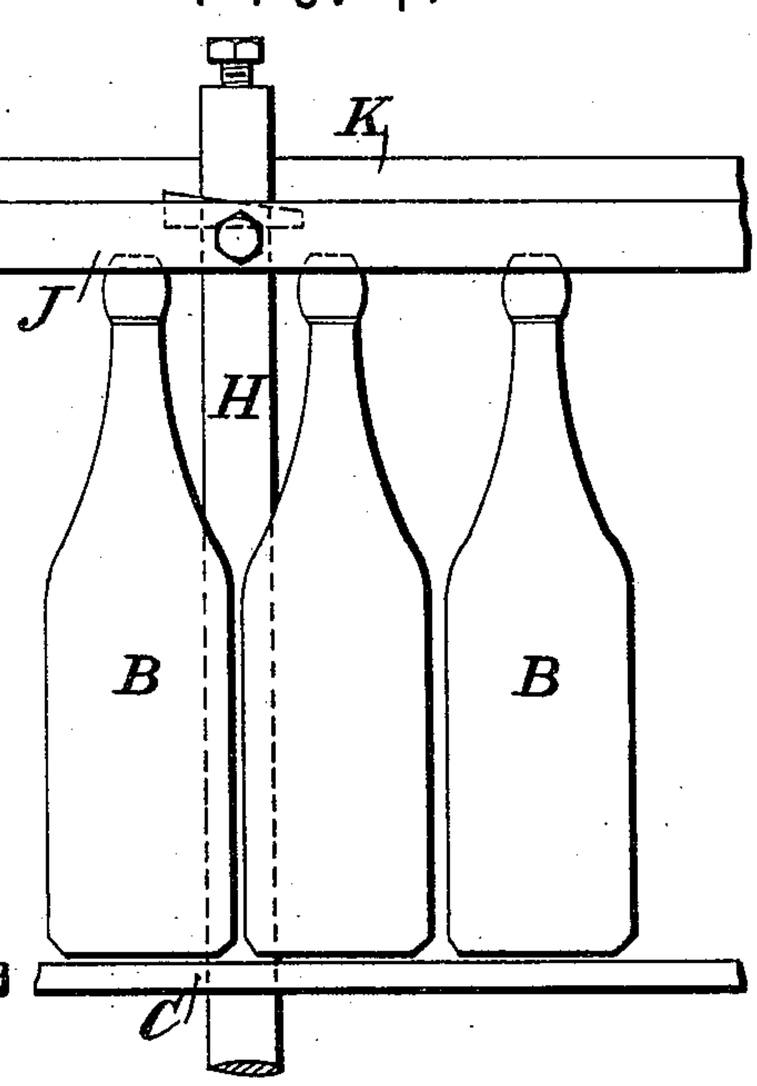

FIG. 5.

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UNITED STATES PATENT OFFICE.

EDWARD C. DE SEGUNDO, OF LONDON, ENGLAND.

APPARATUS FOR STERILIZING MILK, &c.

SPECIFICATION forming part of Letters Patent No. 615,108, dated November 29, 1898.

Application filed August 20, 1898. Serial No. 689,112. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CARSTENSEN DE SEGUNDO, a citizen of England, residing at 28 Victoria street, Westminster, London, England, have invented certain new and useful Improvements in Apparatus for Sterilizing Milk and other Nutritious Substances, (for which I have made applications for patent in Canada, Serial No. 81,090, and in Great Britain, No. 3,926, dated February 16, 1898,) of which the following is a specification.

Milk and other nutritious substances are sterilized by heating and cooling while the vessels containing them are inclosed in chambers to which no air has access.

My invention relates to apparatus for conveniently and effectively carrying on this process, as I shall describe, referring to the accompanying drawings.

Figure 1 is a vertical section, and Fig. 2 is a plan, with cover removed, of a sterilizing-chamber according to my invention arranged for sterilizing the contents of bottles provided with wire-fastened stoppers of a known kind. Fig. 3 is a transverse section. Fig. 4 is a part longitudinal section; and Fig. 5 is a part plan showing, to an enlarged scale, the arrangement for fastening the stoppers.

A is the lower part, and A′ the removable cover, of the sterilizing-chamber, in which a number of bottles B containing the milk or other substance to be sterilized are placed in parallel rows on plates C, carried on girders D, the stoppers S being placed in the mouths of the bottles, but not fixed.

Through a stuffing-box in the bottom of A passes a rod E, carrying a cross-head F with arms G, from which project upward pairs of rods H, these rods passing through holes in the plates C and each pair carrying two guide-bars J and a bar K of trough-section, which can be adjusted in height by a wedge and screw. In the lower part of A a circular perforated pipe P is carried nearly all around, its ends being closed, and its middle communicates with two branches having stop-cocks or valves Q and R, the one leading from a steam-boiler and the other from a water reservoir or service. From the middle of A leads a discharge-pipe with stop-cock or valve T.

V is a safety-valve.

U is a thermometer.

X is a pressure-gage, and Y is a glass water-gage which can be shut off by a stop-cock.

The charged bottles B being placed in parallel double rows on the plates C, their mouths being within the guide-bars J and the projecting parts W of the wires for fastening their stoppers being immediately under the sides of the bar K, the cover A′ is put on and fixed, the joint being made air-tight by suitable packing between the flanges of A and A′. Steam is then admitted, by which the air is expelled, and the contents of the bottles are heated to about 100° centigrade. After a certain time the supply of steam is cut off and water is admitted until it attains a level a little below the bottle-mouths. To prevent the breakage of the bottles due to sudden admission of cold water, the temperature of the water can at first be regulated by the simultaneous admission of steam. When the contents of the bottles are thus cooled, the water is run off, and steam is again admitted, raising the temperature to about 106° centigrade. After a certain time the rod E is pulled down by any convenient mechanism, such as a rack and pinion or lever, and thus the projecting wires W are all simultaneously pushed down, securely fastening the stoppers. The supply of steam being now cut off, the bottles are allowed to cool a little and then more rapidly cooled by admitting water, and, after running it off, the cover A′ is raised, and the bottles, having their contents sterilized, are removed.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

1. In sterilizing apparatus the combination with a chamber adapted to receive the vessels which contain the substance to be treated, of a removable cover, valve-controlled inlets and outlet for steam and water and for discharge, supports arranged within said chamber for the vessels containing the substance to be treated, a movable cross-head arranged transversely to said supports and carried by a rod packed through a stuffing-box said cross-head having transverse arms provided with vertical rods at their ends, a presser-bar mounted on each pair of said rods, and guide-bars mounted upon supports carried by the presser-bar and arranged one on each side

of the latter to push down the projecting wires which fasten the stoppers in said vessels, substantially as described.

2. In sterilizing apparatus the combination with a chamber of a removable air-tight cover, valve-controlled inlets and outlet for steam and water and for discharging the same, horizontal supports arranged in said chamber for the vessels containing the substance to be treated, a movable cross-head arranged transversely to said supports, and provided with transverse arms having vertical rods at their ends, a presser-bar mounted on each pair of said rods, guide-bars one on each side of and parallel with the presser-bar, said guide-bars being supported by arms transverse to said presser-bar, means for adjusting the latter vertically and a rod packed through the bottom of the chamber to operate the cross-head, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD C. DE SEGUNDO.

Witnesses:
FRED C. HARRIS,
W. M. HARRIS.