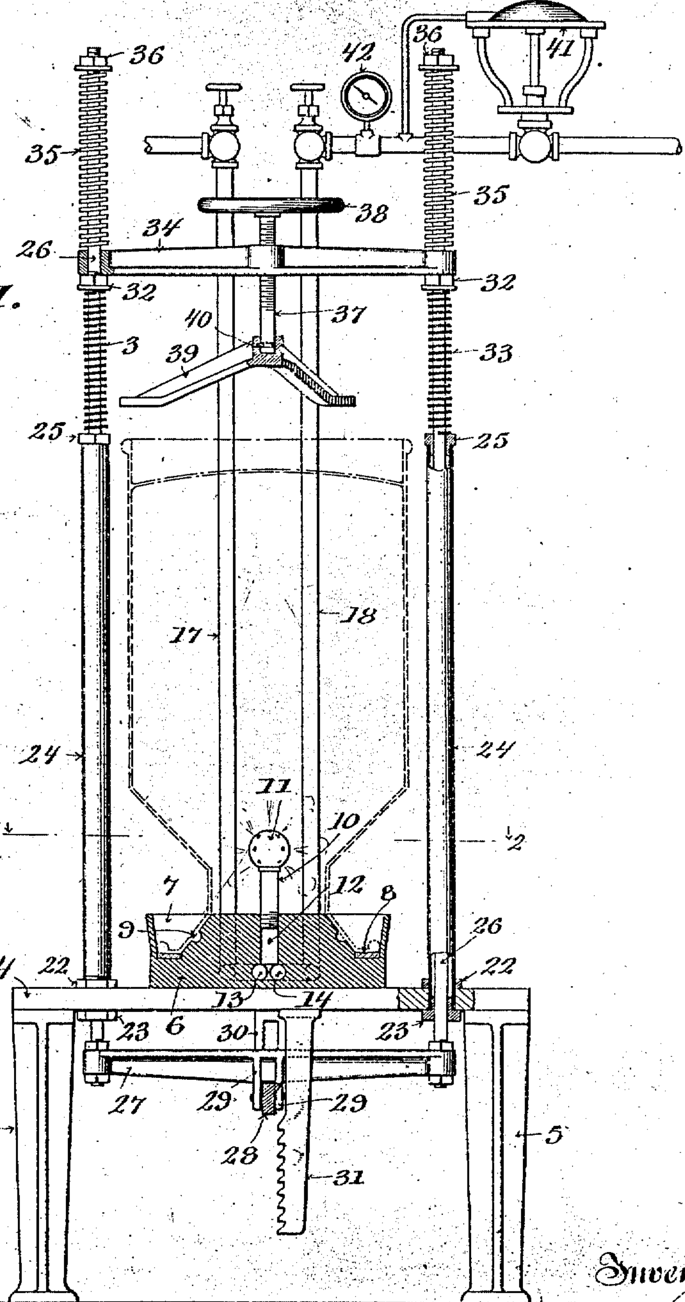
J. J. HEATHCOTE.
CLEANING AND STERILIZING APPARATUS.
APPLICATION FILED NOV. 22, 1909.

985,801. Patented Mar. 7, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

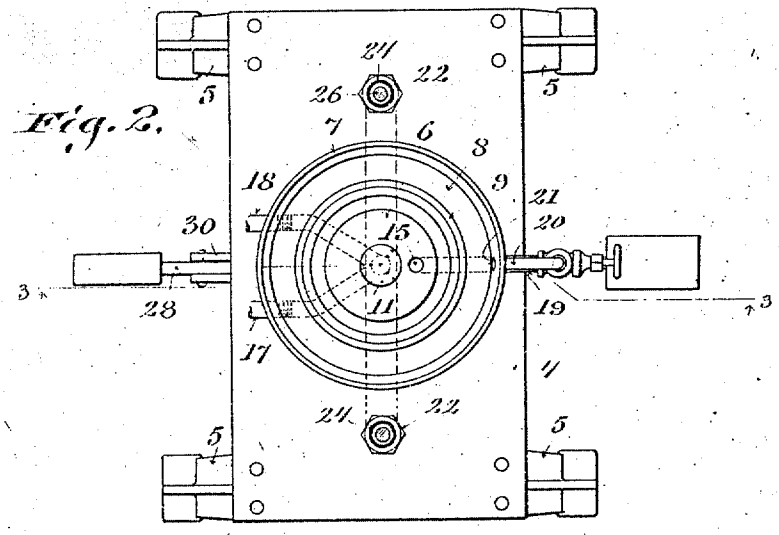
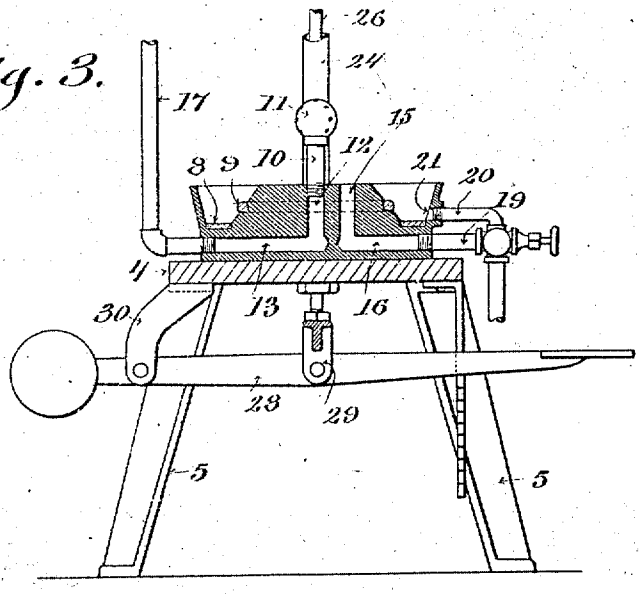


Fig. 3.



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UNITED STATES PATENT OFFICE.

JARED J. HEATHCOTE, OF MILWAUKEE, WISCONSIN.

CLEANING AND STERILIZING APPARATUS.

985,801. Specification of Letters Patent. Patented Mar. 7, 1911.

Application filed November 22, 1909. Serial No. 529,245.

To all whom it may concern:

Be it known that I, JARED J. HEATHCOTE, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Cleaning and Sterilizing Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in what is herein particularly set forth with reference to the accompanying drawings and pointed out in claims, its object being to provide simple, economical and efficient apparatus for thorough cleaning and sterilizing of milk-cans under pressure.

Figure 1 of the drawings represents a front elevation of apparatus in accordance with my invention partly in section; Fig. 2, a horizontal section of the same on the plane indicated by line 2—2 in Fig. 1, and Fig. 3, a vertical transverse section of a fragment of said apparatus on the plane indicated by line 3—3 in Fig. 2.

Referring by numerals to the drawings, 4 indicates the top and 5 the legs of a stand. Surmounting the stand is a partly conical centering-block 6 having an upper annular flaring flange 7, and seated in said block, between the flange and conical portion of same, is a packing-gasket 8. The conical portion of the block is annularly recessed for the reception of a packing-ring 9. The tubular shank 10 of a rose 11 is screw-threaded in a vertical center bore 12 of the block 6, and intersecting this bore are converging ports 13 and 14 with which the lower portion of said block is provided. These ports and the bore common to both constitute inlets to which reference is had in the claims. Parallel to the bore 12 is another bore 15 intersecting a drain-port 16 in the lower portion of the aforesaid block and therewith constituting an outlet to which reference is had in the claims. A cock-controlled water-induction pipe 17 connects with the port 13, a cock-controlled steam-induction-pipe 18 connects with the inlet-port 14, and a cock-controlled waste-pipe 19 connects with the outlet port 16, this pipe being provided with a branch 20 in connection with a port 21 in the block-flange 7.

Held in vertical apertures of the top 4 of the stand, by upper and lower nuts 22, 23 are tubes 24, and nuts 25 are run in the upper ends of the tubes. The nuts 23 and 25 are fashioned to constitute guide-sleeves for a pair of rods 26 that are rigidly secured at their lower ends to a yoke 27 below the top of the aforesaid stand. A counter-weighted treadle-lever 28 is pivotally connected to a pair of depending yoke-ears 29, between the same, and fulcrumed in a forked bracket 30 depending from the top of the stand above specified. Depending from the top of the stand is a rack-bar 31 with which to engage the lever and thereby lock the same out of normal position.

Supported upon the sleeve-nuts 25, under tension-nuts 32 on the rods 26, are spiral-springs 33, and at rest on said tension-nuts is a yoke 34 engaged by said rods. Opposing the yoke 34, above the same, are spiral-springs 35 on the rods 26 under tension-nuts 36 that are run on the upper ends of said rods. The rods and yokes aforesaid constitute a frame, and the yoke 34 is provided with a center bearing for a screw-threaded stem 37 fast at its upper end in a hand-wheel 38, the lower end of the stem being loose in a central socket of a spider 39. A screw 40 carried by the spider extends into an annular groove of the stem and thus said spider is held in detachable connection with said stem.

As herein shown it is preferable to fit a reduction-valve 41 and a pressure-gage 42 in connection with the steam-induction pipe above specified.

In practice, a milk-can is inverted on the block 6, as shown by dotted lines in Fig. 1, and the lever 28 depressed and engaged with the rack-bar 31 to clamp said can in place, by means of the spider 39 that is independently adjustable to compensate for cans of varying length, the internal pressure upon the can being variable in proportion to the depression of the lever. Because of the packing with which the block 6 is provided, the clamped-can has water and steam-

tight fit on said block, the gasket 8 being opposed to the usual flange of the mouth-end of the can, and the packing-ring 9 to the throat of said can inside of the same. To wash and rinse the can, positioned as aforesaid, water under pressure is let on from the pipe 17 to flow in jets from the rose 11, the pipe 19 being opened to permit escape of the waste water. The washing and rinsing having been accomplished, the water is cut-off, the waste-pipe closed and steam from the pipe 18 admitted to the can in jets through the rose 11 to sterilize said can, after which the steam is cut-off and said waste-pipe opened to permit the escape of water of condensation. On removal of the can any drippings therefrom within the confines of the block-flange 7 will find their way to the drain-pipe through the branch 20 of same. Should the pressure in the can at any time exceed the tension of the springs 35, said can will lift from its clamped position to relieve said pressure, said springs reacting to return said can to said position, and when the lever 28 is released from the rack-bar 31, the previously contracted springs 33 expand to return the movable parts of the apparatus to normal position.

By means of the apparatus above specified the washing and rinsing of milk cans can be rapidly and thoroughly accomplished and perfect sterilization of said cans effected in an economical way, said apparatus being susceptible of variation in matters of detail without departure from the scope of my invention as herein claimed, especial attention being called to the sterilization of the cans by steam under pressure within the same, whereby said cans are subjected to a much higher temperature than can be otherwise attained, provision being had for varying the external pressure upon the can at the will of the operator in proportion to the steam-pressure desired to be maintained within said can for an indefinite period to effect a thorough sterilization of the same.

I claim:

1. A milk-can sterilizing apparatus comprising a support provided with a packing and a steam passage, spring supported vertical rods and guides for the same, a lower lever-controlled yoke fast on the rods, an upper yoke loose on said rods, springs arranged to resist independent lift of the upper yoke, and a clamping device suspended in connection with said upper yoke to oppose a can inverted upon the packing of said support.

2. A milk-can sterilizing apparatus comprising a support provided with a packing and a steam passage, spring supported vertical rods and guides for the same, a lower lever-controlled yoke fast on the rods, an upper yoke loose on said rods, springs arranged to resist independent lift of the upper yoke, and a can-clamp having a screw-stem for which the upper yoke is provided with a bearing, the clamp being independently adjustable to insure steam-tight contact of inverted cans of varying length with the aforesaid packing.

3. A milk-can sterilizing apparatus comprising a support provided with a passage through which to discharge steam into a can inverted thereon, a packing arranged in connection with the support to oppose the mouth end of the can and the inside of the throat of the same, a pair of spring-supported vertical rods and guides for the same, a lower lever-controlled yoke fast on the rods, an upper yoke loose on said rods, springs arranged to resist independent lift of the upper yoke, and a clamping device suspended in connection with said upper yoke to oppose a can inverted upon the aforesaid packing.

4. A milk-can cleaning and sterilizing apparatus comprising a support provided with packing, as well as with water and steam inlets, a drain and a central rose common to said inlets; a pair of spring-supported vertical rods and guides for the same, a lower yoke fast on the rods, a lever connected to said yoke, and upper yoke loose on said rods, springs arranged to resist independent lift of the upper yoke, a clamping device suspended in connection with said upper yoke to oppose a can inverted on the support, and means for holding the lever in depressed position.

5. A milk-can cleaning and sterilizing apparatus comprising a partly conical centering block having an upper annular flaring flange and provided with water and steam inlets, a drain and a central rose common to said inlets; a packing-gasket arranged within the confines of said flange, a packing-ring on the conical portion of the said support, a waste-pipe in connection with said drain having a branch engaging a port in the aforesaid flange, a frame, means for reciprocating the frame, and a clamping device suspended in connection with the frame to oppose a can inverted on the block.

6. A milk-can cleaning and sterilizing apparatus comprising a stand, a centering block on the same provided with a packing as well as with water and steam inlets, a drain and a central rose common to said inlets; tubular guides in connection with the stand, a pair of spring supported rods extending through the guides, a lower yoke fast on the rods, a lever connected to said yoke, an upper yoke loose on said rods, springs arranged to resist independent lift of

the upper yoke, a clamping device suspended in connection with said upper yoke to oppose a can inverted on the block, and means for holding the lever in depressed position.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

JARED J. HEATHCOTE.

Witnesses:
N. E. OLIPHANT,
MARY DOWNEY.