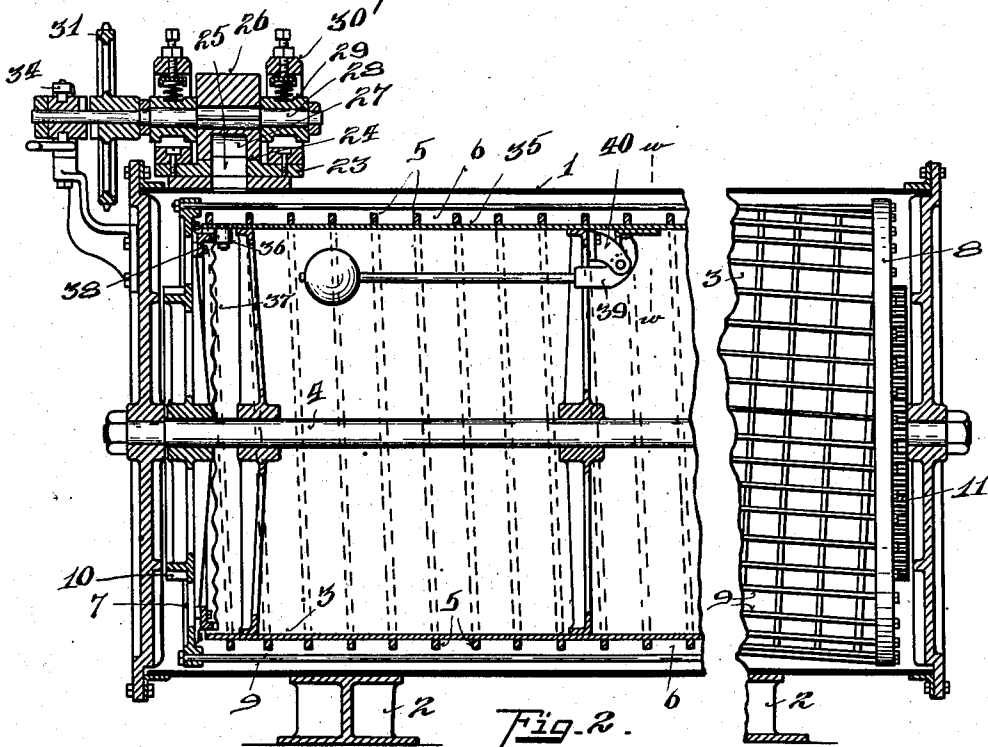
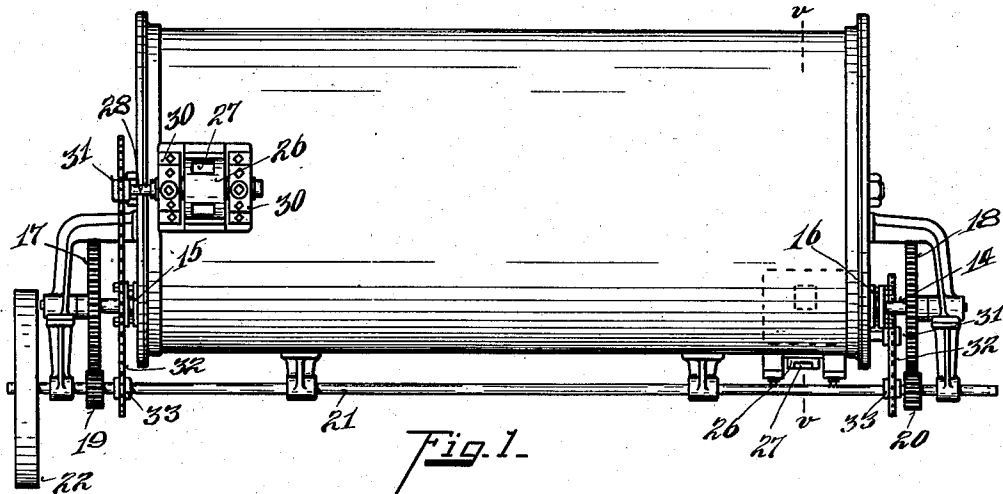


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 APPARATUS FOR STERILIZING CANNED GOODS.
 APPLICATION FILED AUG. 10, 1908.

932,629.

Patented Aug. 31, 1909.

2 SHEETS—SHEET 1.



Inventor

Witnesses

Chas. B. Kaiser
Arthur Paulhaber

By

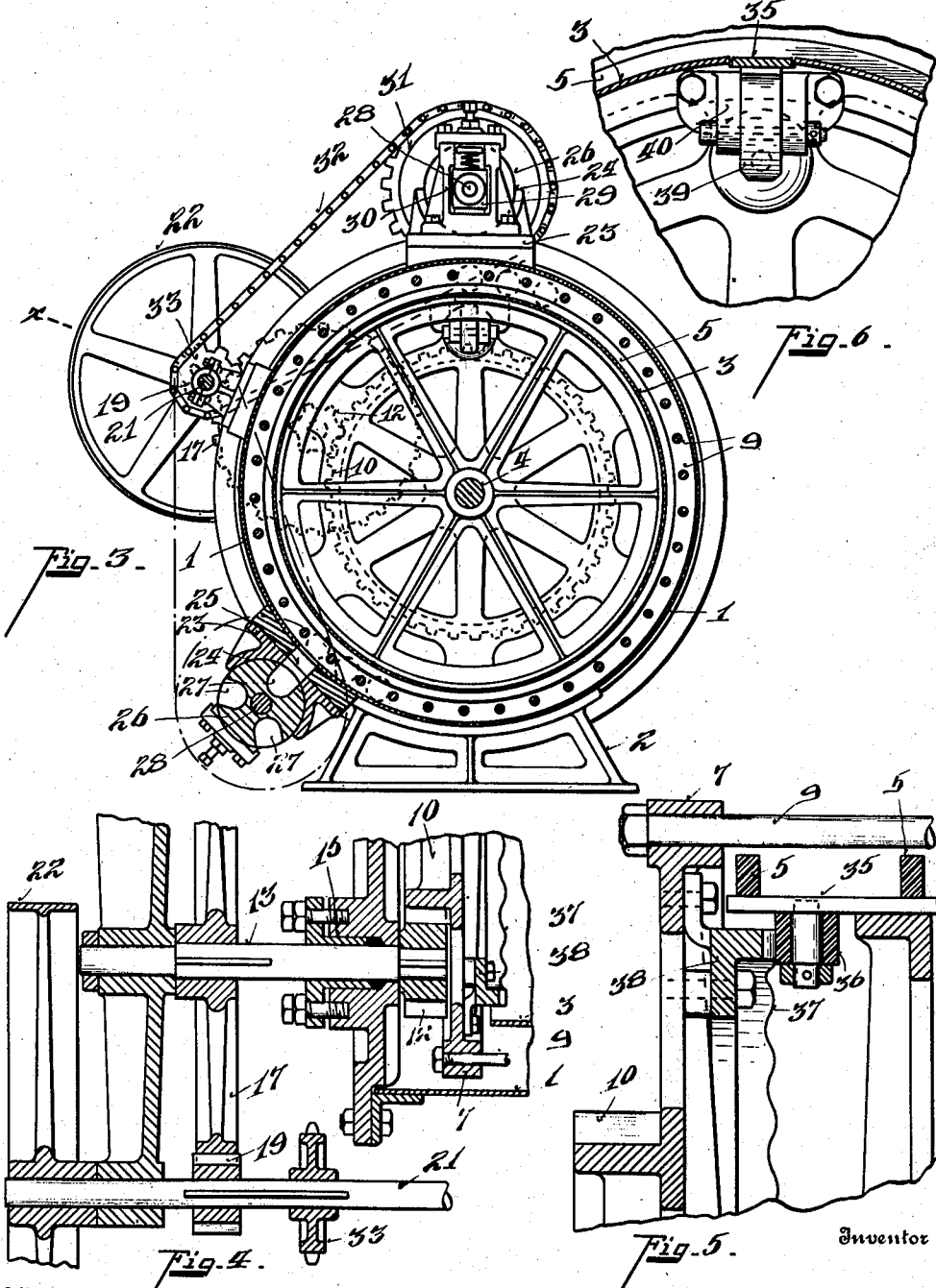
Anton Mill
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Witnesses

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UNITED STATES PATENT OFFICE.

ANTON MILL, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-THIRD TO HARRY HAYNER AND ONE-THIRD TO WILLIAM B. HAYNER, OF SOUTH LEBANON, OHIO, AND ONE-THIRD TO CARRIE MILL, OF CINCINNATI, OHIO.

APPARATUS FOR STERILIZING CANNED GOODS.

932,629.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed August 10, 1908. Serial No. 447,889.

To all whom it may concern:

Be it known that I, ANTON MILL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Apparatus for Sterilizing Canned Goods, of which the following is a specification.

My invention relates to an improved apparatus for sterilizing canned goods.

One of the objects of my invention is to provide an apparatus whereby canned goods in hermetically sealed packages, preferably cans, can be continuously fed into and out of a closed chamber, subjected to the action of steam or heat during its travel through the chamber, with means for continuously rotating or revolving the cans during their course of travel through the chamber.

Another object of my invention is to provide means for laterally agitating the cans during their course of travel through the chamber.

Another object of my invention is to provide a sterilizing apparatus, having a sealed steam or heating chamber with an inner cylinder upon which the cans travel during a portion of their travel from the inlet to the outlet, and a series of bars between which the cans are fed and carried in a spiral course.

Other features of my invention relate to special details of construction, more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a top plan view of my apparatus. Fig. 2 is a central vertical section, partly in elevation. Fig. 3 is an enlarged section on line *v, v*, Fig. 1. Fig. 4 is an enlarged section on line *x, x*, Fig. 3. Fig. 5 is an enlarged detail section of means for laterally agitating the cans. Fig. 6 is a detail section, enlarged, on line *w, w*, Fig. 2.

1 represents a steam tight chamber or cylinder, suitably supported by the legs 2.

3 represents a cylinder supported upon the rod or axle 4 within the cylinder or chamber 1, said rod and cylinder being fixed against rotation.

5 represents a rib projecting from the inner cylinder 3 and spirally around the same, from one end to the other, forming a continuous passage 6 around the inner cylinder 3.

7, 8, represent wheels loosely mounted or journaled upon the rod 4 at each end of the cylinder 1 and provided with a series of rods 9, extending from one wheel to the other and suitably spaced from each other to receive the cans between them, and preferably at right angles to the ribs 5.

To move the cans from one end of the cylinder 1 to the opposite end in the spiral groove-way 6, the rods are rotated carrying with them the cans, permitting of a continuous feed into and out of the cylinder 1. These rods are carried around the inner cylinder, as follows:—10, 11, represent gear wheels fixed to or formed integral with the wheels 7, 8, respectively, meshing with pinions 12, see Fig. 4, the pinion meshing with gear 11, not being shown in the drawings; said pinions being fixed to shafts 13, 14, which project through the stuffing-boxes 15, 16, to prevent the escape of steam from the cylinder 1. 17, 18, represent gear wheels fixed respectively to the shafts 13, 14, meshing with the gears 19, 20, respectively fixed to the shaft 21. 22 represents a main driving pulley fixed to shaft 21 for driving the same.

In apparatus of this kind it is essential to maintain steam tight connections at the inlet and outlet to prevent the escape of steam as the cans are fed into and out of the cylinder or chamber 1. To accomplish this, suitable valve mechanism is employed and controlled by the main driving shaft, whereby the action may be continuous and in time movements with the bars within the cylinder, so as to feed each can between the bars.

23 represents a valve support fixed to the cylinder 1, upon its outer periphery provided with a cylindrical seat 24, and an orifice 25 through which the cans pass leading into the cylinder 1.

26 represents a cylindrical valve provided with a series of can receiving pockets 27, said valves being fixed to the shaft 28, journaled in the slide-boxes 29, carried by the projecting frames 30 of the valve support 23. A downward pressure is exerted upon the slide boxes 29 by means of springs whereby the valve 26 is at all times maintained in its seat under pressure forming an efficient seal against the escape of steam.

31 represents a sprocket wheel loose on the valve shaft 28, carrying a sprocket chain 32,

in mesh with a sprocket wheel 33 fixed to the shaft 21.

34 represents clutch mechanism fixed to the shaft 28, adapted to be thrown into clutching engagement with the sprocket wheel 31 for revolving the same. By this clutch arrangement the rotation of the inlet valve can be controlled. The outlet valve is provided at the opposite end of the cylinder 1, being of duplicate construction as that described for the inlet valve, like reference letters describing like parts.

It has been found desirable to agitate the cans during their travel from one end of the cylinder to the other laterally as well as rotatively, and this I accomplish by the following instrumentalities:—35 represents a slide plate loosely mounted upon the arms supporting the inner stationary cylinder, its top surface being alined with the periphery of the cylinder 3, see Figs. 2, 5, 6, and extending preferably the entire length thereof. 36 represents a roller fixed upon the plate, adapted to engage the cam surfaces 37, of the cam wheel 38, fixed to the wheel 7 revolving therewith. 39 represents a weighted bell crank lever pivotally supported upon the bracket 40, engaging the plate 35 to maintain the roll 36 in alinement with the surface of the cam wheel 38. This cam surface is preferably of undulating form, causing a reciprocating action to the slide plate 35. The spiral groove-way 6 is preferably of a width slightly larger than the cans, and as they are moved upon the slide-plate they will be reciprocated from one end of the groove to the other, causing a lateral agitation.

In the apparatus shown, but one slide-plate is provided, but more can be employed without departing from the features of my invention, if desired. Again, a spring may be employed in place of the weighted lever.

Operation:—The cans are fed one at a time, preferably, into the pockets 27 of the inlet valve, which is continuously rotated, dropping the can between the bars 9 of the interior feeding mechanism, when the cans aline with the orifices 25, resting and traveling upon the upper periphery of the inner cylinder 3, and during the revolution around the lower portion of the cylinder 3, the cans will ride upon the inner periphery of the outer cylinder. This action to and from the inner cylinder to the outer has an agitating effect upon the contents of the cans, and as the cans frictionally bear upon the respective peripheries of the inner and outer cylinders, the cans will be continuously revolved during their travel from the inlet to the outlet of the cylinder, and whenever the cans pass upon the slide-plate 35 they will be laterally agitated as heretofore described.

Having described my invention, I claim:—

1. In an apparatus of the class described,

a main cylinder provided with inlet and outlet ports, valves controlling said ports adapted to receive and distribute cans or similar vessels into and out of the said cylinder, a stationary cylinder supported within the said main cylinder, provided with a spiral can-way around its periphery, and means rotatably supported within the cylinder for receiving the cans and causing the same to roll upon said inner and outer cylinders from the inlet to the outlet, and means for driving the several rotative parts from a single source of power, substantially as described.

2. In an apparatus of the class described, a main cylinder provided with inlet and outlet ports, valves controlling said ports, adapted to receive and distribute cans or similar vessels into and out of said cylinder, an inner stationary cylinder provided with a spiral can-way around its periphery for guiding cans from the inlet to the outlet, means supported within said cylinder for receiving cans and carrying the same around said inner cylinder, means for agitating said cans at intervals laterally with respect to their path of motion, means for driving said valves and inner can carrying means, substantially as described.

3. In an apparatus of the class described, provided with inlet and outlet ports, valves controlling said ports, means for yieldingly maintaining said valves against their seats, pockets formed in said valves for receiving cans at intervals, and means for rotating said valves, substantially as described.

4. In an apparatus of the class described, a main steam tight cylinder provided with inlet and outlet ports, valves controlling said ports adapted to receive and distribute cans or similar vessels into and out of said cylinder, an inner stationary cylinder provided with a spiral can-way around its periphery, a can carrier rotatively mounted around said inner cylinder, means for driving said can carrier, means for agitating said cans at intervals laterally with respect to their path of motion, and means carried by said can carrier for actuating said laterally agitating means, substantially as described.

5. In an apparatus of the class described, a cylinder provided with inlet and outlet ports and valves for controlling them, a support for the cans within said cylinder, means within said cylinder for carrying the cans from said inlet to said outlet and revolving the same in their course of travel, and means for agitating said cans at intervals laterally with respect to their path of motion, substantially as described.

6. In an apparatus of the class described, a main cylinder provided with inlet and outlet ports, and valves controlling them, a second cylinder supported within said main cylinder, having a continuous spiral can-way

extended around its periphery, can carrier means journaled within said main cylinder, comprising a series of bars extended between said cylinders spaced to receive cans between
5 them, and means for revolving said can carrier whereby the cans at each revolution of the carrier are caused to roll upon the inner and outer cylinders respectively for rotatively agitating the same, substantially as
10 described.

7. In a device of the class described, an outer and an inner fixed cylinder one of which is formed with a continuous spiral can-way,

and an intermediate rotary member adapted to force the cans along said way whereby 15 they are caused to roll upon their sides upon the outer and inner surfaces of said cylinders at different periods in their revolution, substantially as described.

In testimony whereof, I have hereunto set my hand.

ANTON MILL.

Witnesses:

OLIVER B. KAISER,
LUISE BECK.