S. L. BERRY.

VALVE FOR PRESSURE COOKERS.

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1,432,953.

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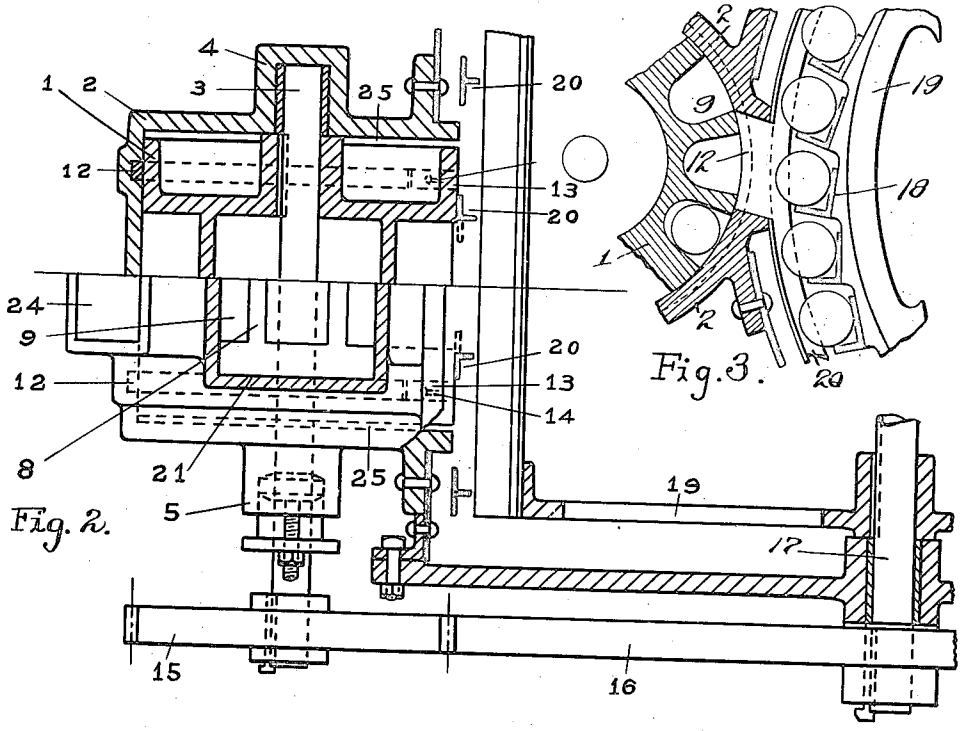


Fig. 2.

Fig. 3.

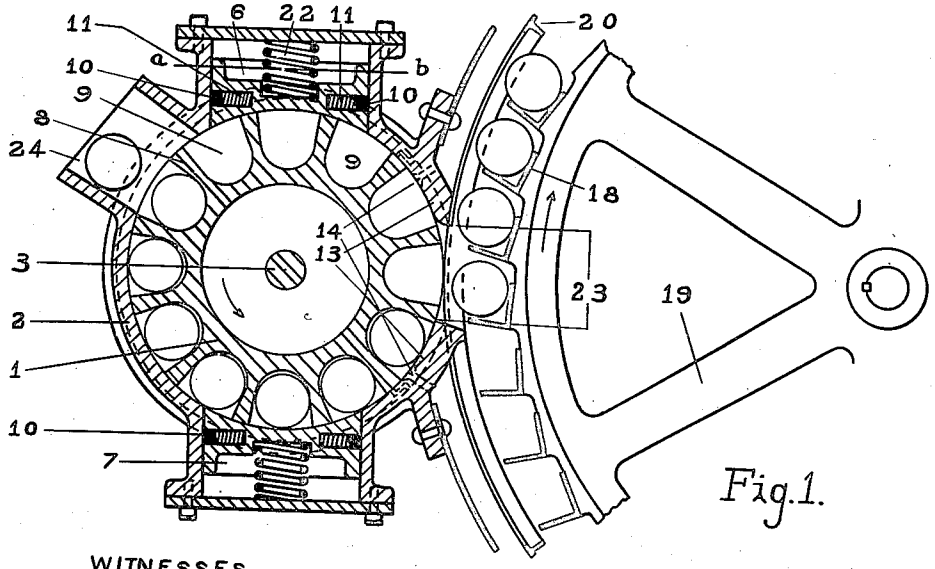


Fig. 1.

WITNESSES.

Anna Berry.

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UNITED STATES PATENT OFFICE.

SENECA LUCIEN BERRY, OF SUNNYVALE, CALIFORNIA.

VALVE FOR PRESSURE COOKERS.

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To all whom it may concern:

Be it known that I, SENECA LUCIEN BERRY, a citizen of the United States, residing at Sunnyvale, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Valves for Pressure Cookers, of which the following is a specification.

My invention relates to that part of pressure cookers which passes the cans of fruit, vegetables or other food into and out of the tank wherein the cooking or processing takes place. Some articles of food may be properly cooked by steam at atmospheric pressure while others, notably vegetables, require the higher temperatures which accompany steam under greater than atmospheric pressure. In the latter case it is necessary to provide some means of passing the cans into and out of the tank without permitting the steam pressure to be dissipated. It is well known that a definite temperature accompanies each unit of pressure of saturated steam, and that the maintenance of a fixed pressure insures a fixed temperature.

The object of my invention is to provide such means, of simple construction, so arranged that the various temperatures to which the different parts are exposed will not prevent smooth, certain action and supplied with packing means to prevent the loss of pressure in the cooker.

The mechanism by means of which this object is attained is fully described hereinafter and shown in the drawings, in which:-

Fig. 1 is a cross section of a valve embodying my improvement and shows its relation to the mechanism of the cooker;

Fig. 2 a partial section on the line *a*—*b* of Fig. 1 with the pressure plate removed and a partial section on the center line of the valve, showing also its relation to the cooker and one method of driving to maintain the timed relation of the valve and cooker.

Fig. 3 is a partial sectional view showing a modified construction as hereinafter explained.

The description herein applies more particularly to the inlet valve, but the construction of the outlet valve is closely the same as may be seen by reversing the drawing.

My improved valve consists of a rotatable, pocketed drum or cylinder 1, fitted somewhat loosely in the housing 2, secured to shaft 3 which is carried in bearing 4 at one end and stuffing box 5 at the other, pressure plates 6—7 held in contact with the rotating drum by bolts or springs and of sufficient width to cover two or more of the walls or plates 8 between can pockets 9, said pressure plates having packing strips 10 along their axial sides pressed outwardly by springs 11; packing rings 12 let into housing 2, partly encircling and pressing upon drum 1 and held at their ends by strips 13 fitted within the grooves formed to receive said rings 12 and secured to housing 2 by screws 14.

The relation of this valve to the cooker is maintained by the gear 15 mounted on shaft 3 and driven by gear 16 secured to cooker shaft 17 which supports and drives the can carrying bars 18 through the wheels 19. The bars 18 and the spirally arranged T bars 20 form the canway of the cooker.

The packing plates 6—7 are fitted within their respective chambers and are grooved along their axial sides to receive the packing strips 10 which are pressed outwardly by the springs 11. The transverse sides may or may not have similar packing strips. Ordinarily sufficient packing on these transverse sides will be obtained from the packing rings 12 which have side contact with said transverse sides as shown at 21, Fig. 2. The packing plates 6—7 may be held in place by means of bolts or with springs 22. The packing rings 12 are fitted into grooves turned in the housing 2, which grooves terminate in the opening 23 of housing 2 through which the cans pass. As the packing rings 12 are not required between the packing plates 6—7 and the opening 23, they may be terminated at the strips 13, which, being secured to the housing 2 by screws 14, serve to block the grooves and to hold the rings 12.

In a slightly altered construction, wherein the rotating elements of the valve and cooker are spaced at a greater distance, as shown in Fig. 3, the packing rings 12 would fully encircle the drum 1, the grooves for said rings would not terminate in the opening 23 as this would be confined to the length of the can and the strips 13 would not be required.

The drum 1 fits rather loosely in the housing 2, both on its ends and periphery, to allow for the varying expansion due to unequal heating of the various parts by the steam used in the cooker. The drum 1 is

held truly in place by the shaft 3 supported in bearings 4—5.

In operation the cans are fed in at the inlet 24, roll into the pockets 9 of drum 1, are carried around to and pass into the can transporting element of the cooker. It is evident that the steam in the cooker will fill the outgoing pockets of the drum and will escape at the inlet 24, but the amount so lost may be easily calculated and will not be great enough to dissipate the pressure within the cooker. The object of my improvement is to prevent the steam from blowing through the valve and so causing a serious loss of steam and pressure.

In the construction shown the steam is free to enter the spaces 25 at the ends of the drum 1, but is prevented from passing between the periphery of said drum and the inner wall of the housing 2 by the packing rings 12—12, while the packing plates 6—7, by covering a relatively wide transverse section of the periphery of drum 1 between packing rings 12—12, will prevent it from escaping around the periphery of drum 1.

An advantage of considerable importance to be found in my improved valve construction is that the wear caused by the cans on the inner surface of the housing 2 will not cause leakage, and that part of said surface, namely the packing plate 7, which is necessary for packing against steam leakage, can be easily renewed, and can be lined with hard metal.

I am aware that pocketed valves have been used for passing cans into and out of cookers but not the method of packing the valve shown herein.

What I claim is:—

1. In a device of the character described, the combination with a valve housing provided with entrance and exit openings, of a rotatable, pocketed drum; packing plates embracing two or more axial pocket walls of said drum; and peripheral packing rings in contact with ends of said packing plates.

2. In a device of the character described, the combination with a valve housing provided with entrance and exit openings, of a rotatable pocketed drum; and packing plates embracing two or more axial pocket walls of said drum and provided with packing strips along their axial sides.

3. In a device of the character described, the combination with a valve housing provided with entrance and exit openings, of a rotatable, pocketed drum; packing plates embracing two or more axial pocket walls of said drum; peripheral packing rings in contact with the ends of said packing plates and terminating between said packing plates and said exit opening in said valve housing; and retaining strips filling the remainder of the grooves provided for the said peripheral packing rings.

4. In a device of the character described, the combination of a valve housing having entrance and exit openings; a rotatable drum having pockets for the reception of cans; one or more packing plates each embracing two or more axial pocket walls of said drum; and peripheral packing rings embracing the ends of said drum.

5. In a device of the character described, the combination with a valve housing having entrance and exit openings, of a rotatable, pocketed can carrying drum supported on a central shaft; and spring controlled packing plates embracing two or more axial pocket walls of said drum.

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

SENECA LUCIEN BERRY.

Witnesses:
ANNA BERRY,
JOHN FAULDS.