

Feb. 13, 1923.

S. L. BERRY.
COOKER.
FILED APR. 22, 1920.

1,445,196.

2 SHEETS—SHEET 1.

Fig. 1.

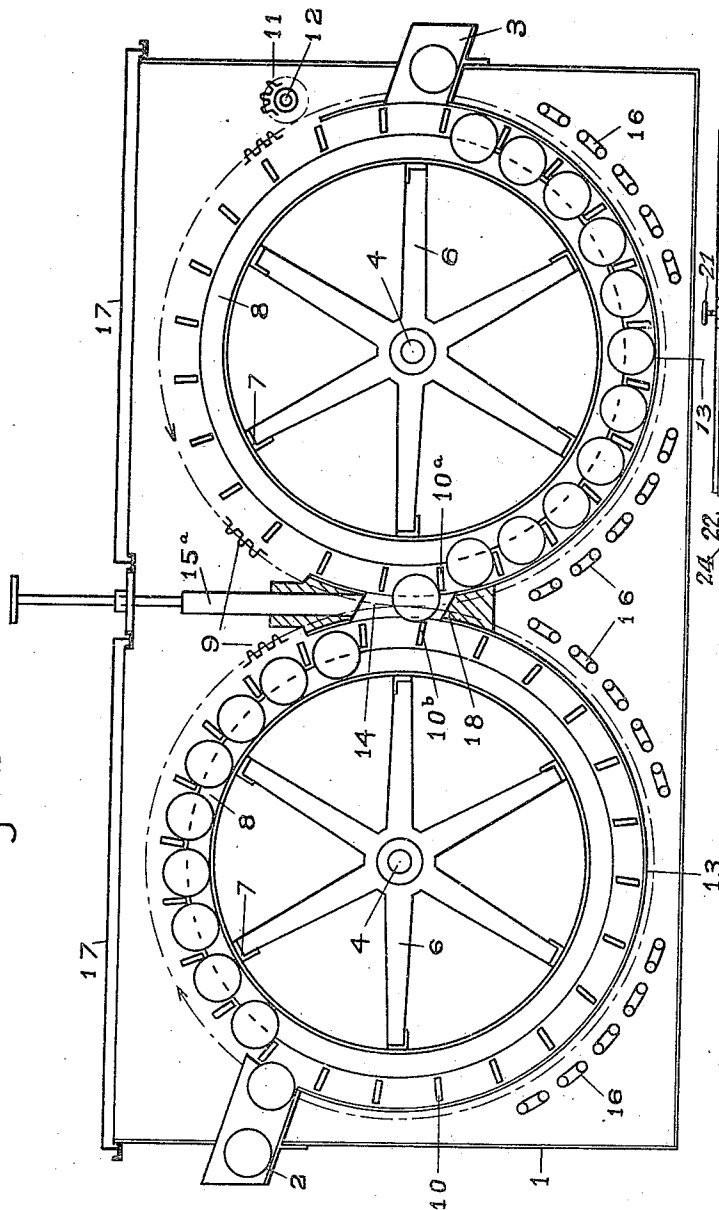
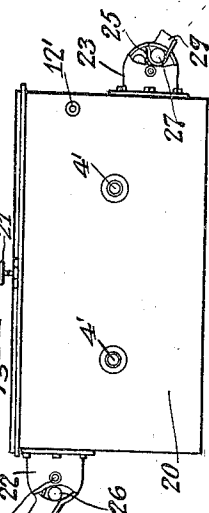


Fig. 3.



WITNESSES.

Anna Berry
John T. and Co.

INVENTOR.

Seneca Lucien Berry.

Feb. 13, 1923.

S. L. BERRY.
COOKER.
FILED APR. 22, 1920.

1,445,196.

2 SHEETS—SHEET 2.

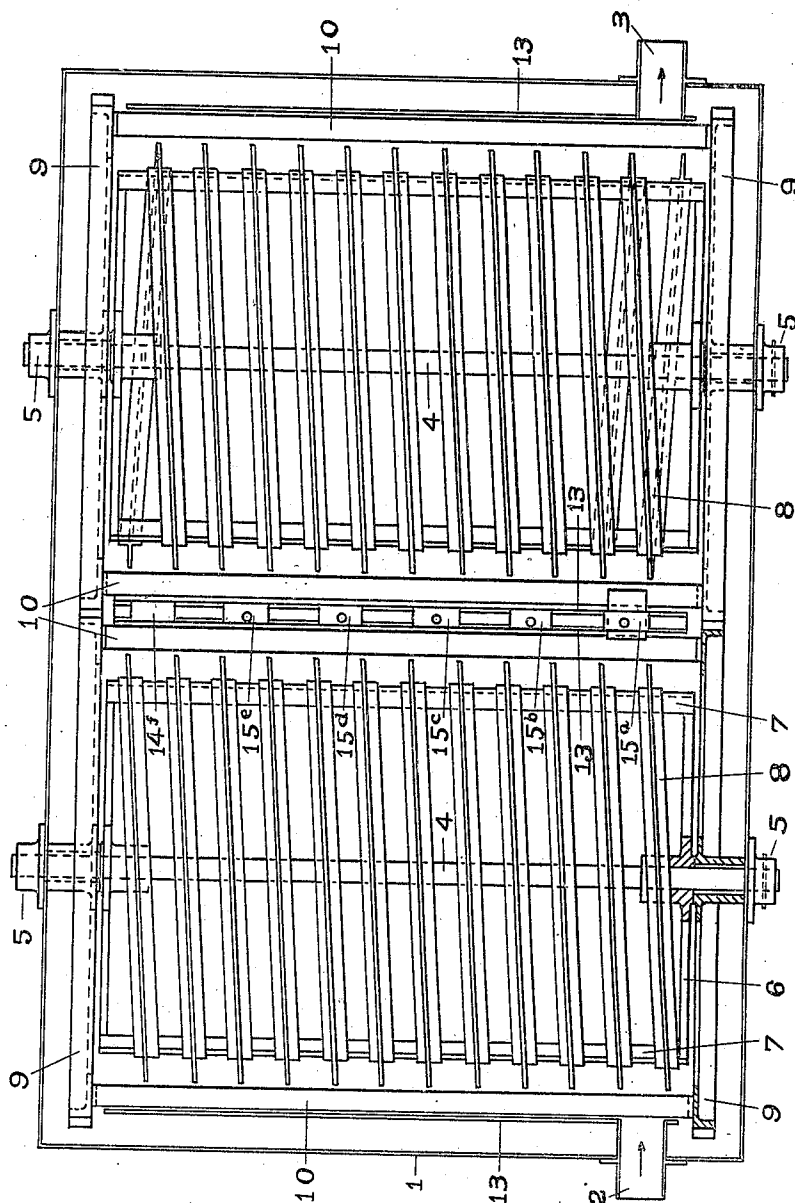


Fig. 2.

WITNESSES.

Anna Berry.
John G. Mills.

INVENTOR.

Seneca Lucien Berry

UNITED STATES PATENT OFFICE.

SENECA LUCIEN BERRY, OF SUNNYVALE, CALIFORNIA, ASSIGNOR TO ANNA E. BERRY,
OF SUNNYVALE, CALIFORNIA.

COOKER.

Application filed April 22, 1920. Serial No. 375,366.

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 Cookers, of which the following is a specification.

My invention relates to that class of machines, used in canning fruits, vegetables and other articles of food, through which the cans, after being capped and sealed, are passed for the final cooking or processing, which may or may not include the operation of cooling.

Another object of this invention is to provide a machine in which the can path is variable without unduly increasing the length of the carriers.

Another object of the invention is to enable the time of cooking to be varied at will with any given batch of cans, to provide for cooking different kinds of fruits or vegetables without changing the speed of rotation of the can carrier. The rate of delivery of the cans to and from the cooker is aimed to be kept as nearly as possible the same as all of the other can handling apparatus of the plant.

Another advantage of this apparatus lies in the fact that while the time of cooking may be varied at will that the cooker receptacle has only two openings for the loss of steam.

The mechanism by means of which this object is attained is fully described herein-after and shown in the drawings, in which—

Fig. 1 is a cross section in elevation of a cooker embodying my invention, showing a two cylinder unit;

Fig. 2 a plan view of the same;

Fig. 3 is a side elevation of this cooker showing conventional pressure valves at the inlet and outlet.

The machine, in the form chosen for illustration, consists essentially of a tank 1, an inlet opening 2, an outlet opening 3, stationary shafts 4 held in supports 5, said shafts carrying supports 6 to angle bars 7, to which are secured the spiral can tracks 8, intermeshing gears 9 revolving on said shafts 4 and carrying between pairs the can driving bars 10, pinions 11 meshing with two of said gears 9, pinion shaft 12 supported in bearings on tank 1, curved plates

13 encircling the lower major part of the rotating elements and provided with openings 14 in line with certain portions of the can track 8 and between the two cylinders of the unit, gates or doors 15^a to 15^e adapted to close said openings 14 except that one shown at 14^f, heating coils 16 and tank covers 17.

In describing the operation of this mechanism the rotating element next to the inlet 2 will be called the first cylinder and its spiral the first spiral.

To obtain the maximum time of cook the gates 15^a to 15^e inclusive are closed, when the cans, fed in at the inlet 2 and driven by the bars 10, traverse the full length of the first spiral, pass through opening 14^f, return the full length of the second spiral and pass out at outlet 3. For the shortest time, gate 15^a is opened, when the cans will traverse a portion of a turn on each spiral and discharge at outlet 3. For intermediate cooks the appropriate gate is opened, the cans passing through the first opening encountered in the canway, unless prevented by a can in the corresponding pocket in the second spiral.

In lengthening the time of cook the proper gate is opened and the preceding ones closed, when the new condition will be promptly attained, but when shortening the time, it is necessary to stop feeding cans until both spirals are cleared of cans beyond the gate to be opened, otherwise the attainment of the new condition will be dependent upon the accidental omission of cans.

Fig. 1 shows the relative positions of the can driving bars 10 in the first and second cylinders of a unit, that shown at 10^a being lower than that at 10^b, thus forming a drop and an obstruction which prevents a can from rolling back into the first cylinder and holds it in such a position that the point 18 will force it into the second cylinder. Should a can, in trying to pass through an opening 14, into the corresponding pocket formed by the second cylinder and its spiral, encounter a can in that pocket, it will be held in the first cylinder and pass on until it finds an unobstructed opening, which may not be until it reaches 14^f which is always unobstructed.

This feature of my invention is very important to the practical operation of the

machine as it insures that no damage will be done to the cans although a gate should be opened while there are cans in the canway beyond it, and permits the opening of the gates at will. The gates 15^a to 15^e may be closed properly and without damage to cans by allowing the said gates to follow a can which may be passing through the opening 14 as shown in Fig. 1.

10 While the cooker shown consists of two cylinders with their spirals, forming a unit, it is evident that a number of such units may be employed. In such a case the cans, instead of passing out of the tank at 3, would pass into a third and fourth cylinder, and so through the entire machine.

Any method of heating the cans in this cooker may be employed, the preferable ones at the present time being boiling water with superimposed steam and steam alone.

The machine as described may be used as a cooler by substituting cooling means for the heating means, or a single cylinder may be used, receiving cans at 3.

25 Though the mechanism is shown in connection with a tank suitable for steam at atmospheric pressure, it is evident that it is equally well adapted to operate with steam under greater pressure when installed in a proper tank supplied with inlet and outlet valves, which are shown in Fig. 3.

In Fig. 3 the cooker enclosing casing is illustrated at 20 and it has the shafts 4' for the support of the can driving drums, said drums being driven from the shafts 12'.

One of the gate handles is shown at 21. The inlet valve is installed in a casing 22 and consists of a rotary valve 24 receiving the cans 26 from a suitable receiving trough 28.

The discharge valve consists of a casing 23 within which is the pocketed valve 25 discharging the cans 27 upon the trough 29. The construction of these valves is similar to the construction shown in Patent No. 1,198,510 September 19, 1916.

Means for driving pinion shaft 12 are not shown as any sufficient method may be used.

50 What I claim is:—

1. In a cooker the combination with a tank having an inlet and an outlet opening, of two adjacent rotary drum can carriers in said tank, slidable gates between the two carriers for discharging cans from the first carrier to the second carrier at a plurality of places along the circumference of both of the carriers, and a support between the carriers to prevent the cans from falling down between the carriers.

2. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent can carrying elements therein, means to time the can carrying elements so that a can will be discharged from the

pockets of one of said elements to the pockets of the other, and a plurality of movable gates side by side along the circumference of the can carrying elements to control the passage of cans from one to the other of said elements.

3. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent rotary can carrying elements therein, means to time said can carrying elements so that a can may be discharged from one of said elements to the other at a plurality of places, a plurality of movable gates side by side along the circumference of the can carrying elements to control the passage of cans from one element to the other, and an incline between the carriers over which the cans roll from the first carrier to the next carrier.

4. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent rotary can carrying elements in said tank, each of said can carrying elements including a plurality of longitudinally extending bars, a spiral track on which the cans travel, and means to time said elements so that the cans may be delivered from a higher pair of elements to a lower pair of the adjacent elements and means to control the position of such delivery along the length of the can carriers.

5. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent rotary can carrying elements therein, spiral guides within said can carrying elements, means to time the rotary elements so that a can may be delivered from one element to the other and means to effect such delivery at a plurality of points along the circumference of the can carrying element, and an incline between the two carriers over which the cans roll from one carrier to the other.

6. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent can carrying elements therein, means to time said elements so that a can may be delivered from one of said elements to the other at a plurality of places along the circumference of the can carrier, a plurality of slidable gates between the carriers to control the passage of cans from one of said carriers to another, and an incline over which the cans roll from one carrier to the other.

7. In a cooker the combination with a tank having an inlet and an outlet opening, of adjacent can carrying elements therein, a partition having a plurality of passageways between the can carriers, the bottom of said passageways being inclined downwardly from the preliminary carrier to the secondary carrier, a vertically slidable gate in each of said passageways whereby the length of time a can

will be carried by the preliminary carrier may be varied, and means in the inlet and outlet openings to retain a pressure of steam over atmospheric in the tank.

5 8. In a cooker the combination with a tank having an inlet and an outlet opening, heating coils therein, two series of fixed spiral guides in the tank, rotary can carrying bars surrounding the spiral guides, a
10 partition between the two carriers having a plurality of openings whereby cans may be discharged from one spiral to the other at a plurality of places, gates for the several
15 openings whereby the point of discharge may be varied, means projecting above the tank to operate the gates, and means in the inlet and outlet openings to retain steam pressure in the tank above atmospheric pressure.

20 9. In a cooker the combination with a tank having an inlet and an outlet opening, a pressure retaining valve in each of said openings, adjacent can carrying elements in the tank, two continuous spiral tracks
25 for guiding the cans as they travel through

the cooker, and vertically slidable gates whereby the cans may be discharged from one of said elements to the other at a plurality of places along the circumference of said can carrying elements.

30 10. In a cooker the combination of a tank, inlet and outlet pressure retaining valves for supplying the tank with cans and for removing them therefrom, a plurality of separate can carriers on parallel axes in said
35 tank, a continuous spiral track for each carrier for guiding the travel of the cans, means to time the carriers one to another, an incline between two of the carriers, and a series of gates along said incline whereby
40 the time the cans are retained in the cooker may be varied without varying the rate of rotation of the carriers.

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

SENECA LUCIEN BERRY.

Witnesses:

ANNA BERRY,
JOHN FAULDS.