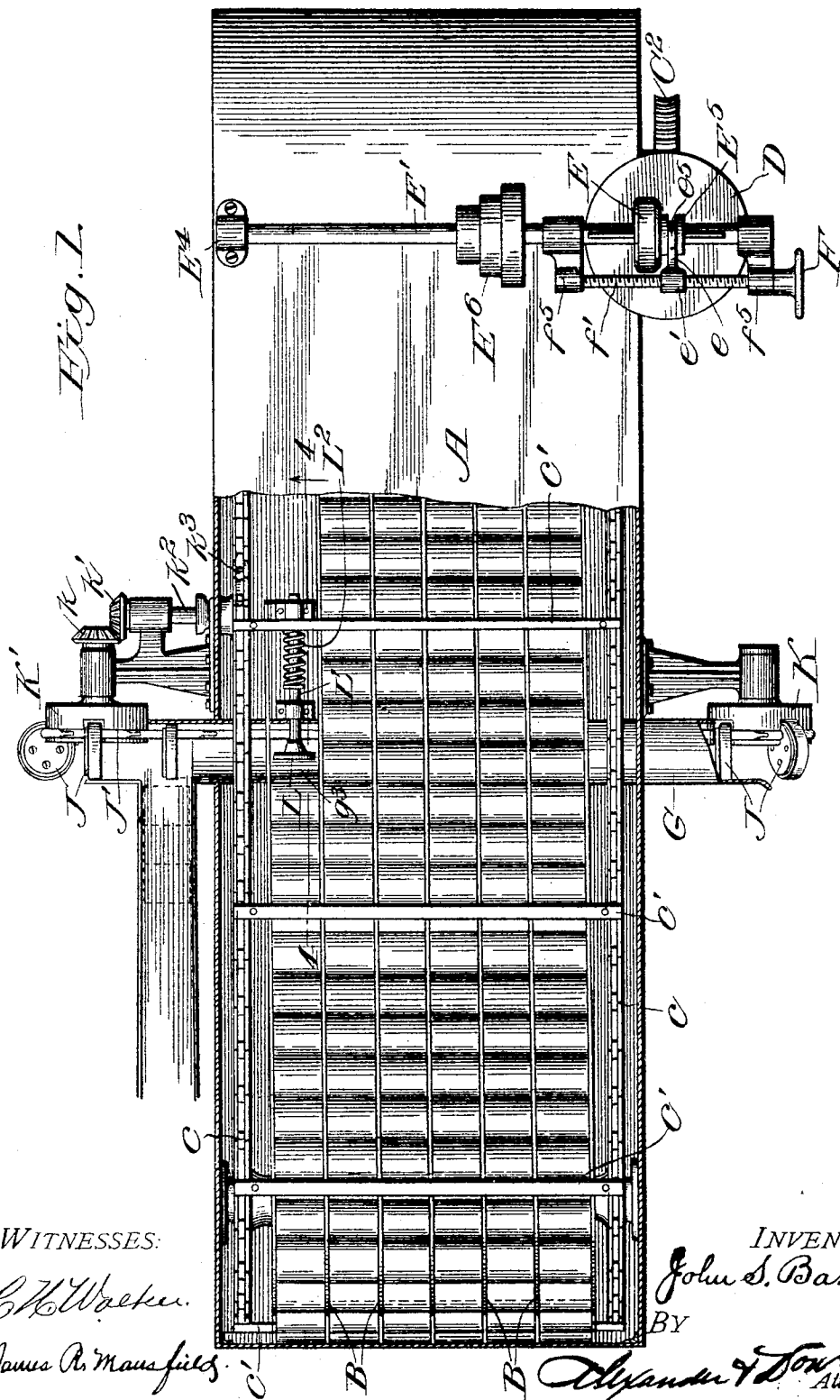


No. 805,184.

PATENTED NOV. 21, 1905.

J. S. BAKER, JR.
CANNING APPARATUS.
APPLICATION FILED MAY 20, 1905.

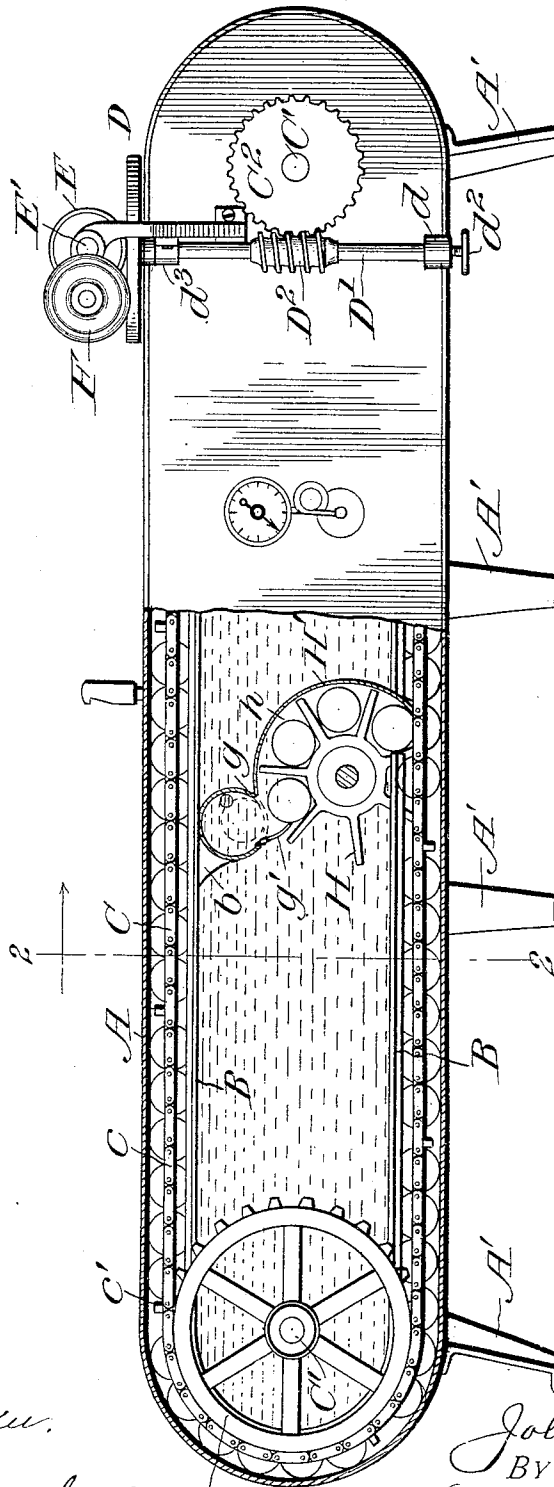
4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

Fig. 2.



WITNESSES:

C. H. Walker.

James R. Mansfield

INVENTOR

John S. Baker, Jr.
BY

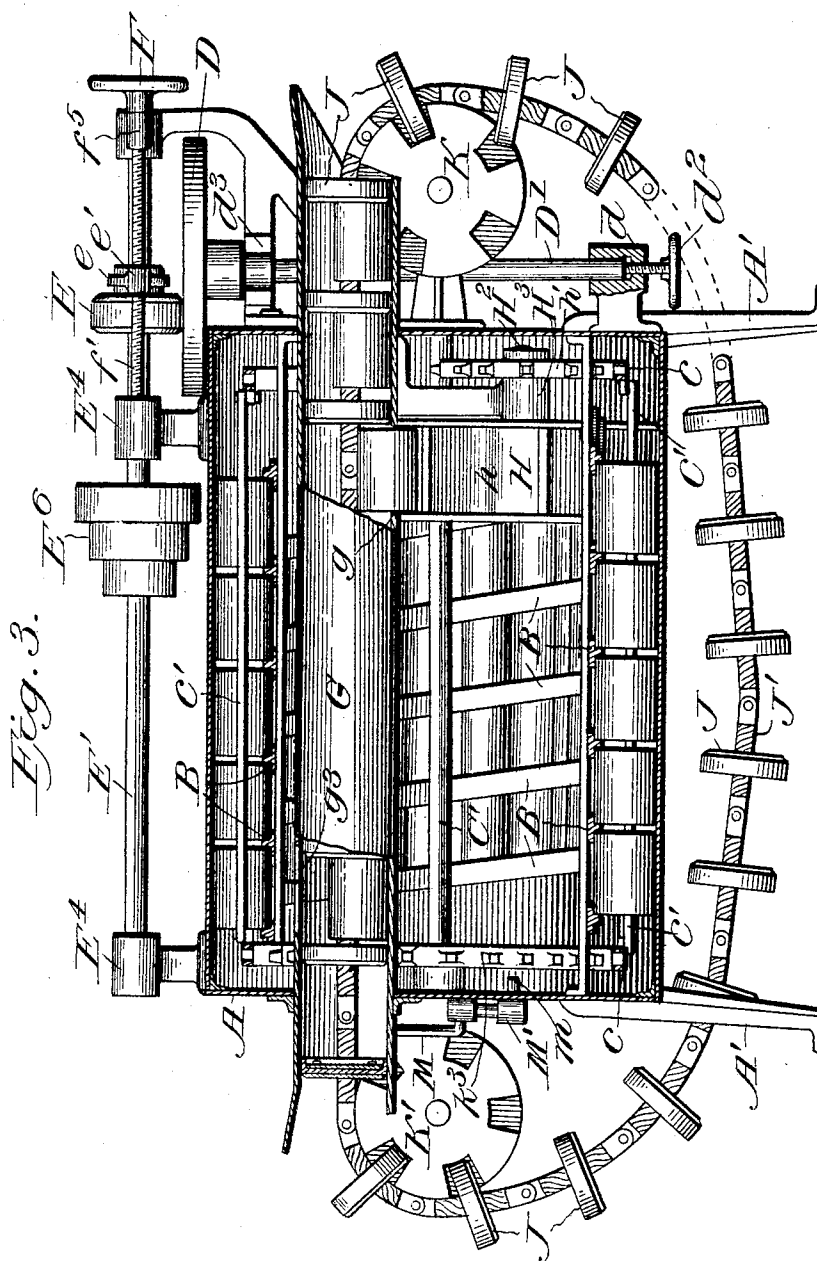
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4 SHEETS—SHEET 3.



WITNESSES:

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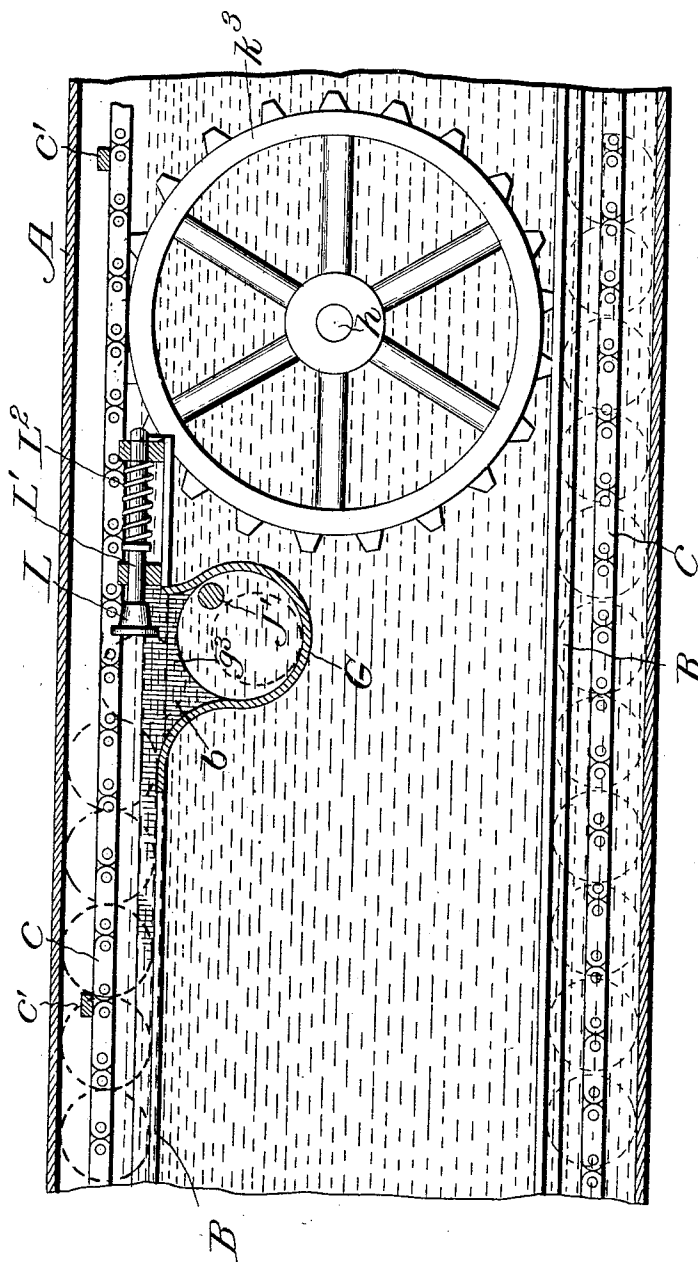
BY

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4 SHEETS—SHEET 4.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN S. BAKER, JR., OF MUSCATINE, IOWA

CANNING APPARATUS.

No. 805,184.

Specification of Letters Patent.

Patented Nov. 21, 1905

Application filed May 20, 1905. Serial No. 261,413.

To all whom it may concern:

Be it known that I, JOHN S. BAKER, Jr., of Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Canning Apparatus; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improved apparatus for cooking, heating, or sterilizing canned goods by steam or hot water, or both; and its object is to provide a compact apparatus wherein a number of cans may be simultaneously treated and kept constantly in motion while in the apparatus, so that the contents of the cans shall be thoroughly agitated or stirred, and uncooked cans may be continuously fed to the machine and cooked cans continuously delivered therefrom during its operation.

The invention comprises novel means for feeding cans into the apparatus, novel means for delivering the cans therefrom, novel arrangement and combinations of the canways and can feeding and delivering devices, and novel details of construction and combination of parts in the apparatus, all of which will be hereinafter explained in detail.

In the accompanying drawings I have shown the preferred form of the apparatus, without, however, attempting to delineate the proper dimensions thereof; but said drawings, in connection with the following description, will impart a sufficiently clear understanding of the invention to enable those skilled in the art to construct and use cooking apparatus embodying the same.

I refer to the claims for summaries of the particular features and combination of parts for which protection is desired.

In the drawings, Figure 1 is a top plan view, partly broken, of the apparatus. Fig. 2 is a part side elevation and part longitudinal section thereof. Fig. 3 is an enlarged transverse section on line 3 3, Fig. 2. Fig. 4 is an enlarged section on line 4 4, Fig. 1.

A designates a tank or receptacle, which is preferably oblong and horizontal and practically steam and water tight. The particular material and construction thereof are not essentials of the invention. For convenience this tank may be supported in a horizontal position upon legs A'. Within this tank is arranged a spiral canway, the longitudinal runs of which may be straight and the ends

curved, as indicated in the drawings, the total length of the canway being great as compared with the length of the tank. The spiral canway preferably is arranged horizontally rather than vertically, and this canway may be formed of T-iron bars B. The upper runs of said bars support the cans at the top of the tank, and the lower runs of said bars merely form guides to keep the cans in alignment, the cans in the example shown running upon the bottom of the tank while traversing the lower portion of the spiral canway. The cans are moved along this canway by means of pusher-bars *c'*, attached to opposite parallel sprocket-chains *c*, running over sprockets C, attached to horizontal shafts C' at the opposite ends of the tank. The pusher-bars *c'* serve to move the cans along the horizontal portions of the canway and to move the cans from the lower to the upper part of the canway at one end of the machine. One end of one of the shafts C' is extended outside of the tank and carries a worm-gear C² on its outer end meshing with a worm D² on a vertical shaft D', the lower end of which is journaled in a step-bearing *d* at bottom attached to the side of the tank, and the upper end of shaft D' passes through a bearing *d*³, also attached to the side of the tank, as shown.

On the upper end of shaft D' is a friction-disk D, which may be contacted by a friction-pulley E on a shaft E', journaled in suitable bearings E⁴ on the top of the tank. The pulley E is splined on shaft E' and can be adjusted longitudinally of said shaft and radially of the disk D by means of a shifter *e*, having a bifurcation *e*⁵ engaging a grooved collar E⁵ on the hub of pulley E, shafts *e* also having a nut portion *e'* transfixed by a threaded rod *f'*, which is rotatably but not longitudinally immovably mounted in bearings *f*⁵ beside the shaft E', as shown. The screw-rod *f'* may be rotated by a hand-wheel F, so as to adjust the pulley E radially of disk D, and thus vary the speed at which the can-pushers and cans are moved within the tank.

The shaft E' may be driven from any suitable source of power. As shown it is provided with a cone-pulley E⁶, which can be belted to any suitable driver.

The disk D can be raised or lowered into engagement with the pulley E by means of a hand-screw *d*², tapped into the bottom of the step-bearing *d* and supporting the lower end of the shaft D'. I do not, however, restrict myself to the particular means of bring-

ing or holding the friction-pulley E and disk D into contact nor to the particular driving mechanism shown.

Passing transversely through the tank at any suitable point below the upper run of the canway is a tube G, which may be water-tightly connected with the walls of the tank. This tube is provided near one side of the tank with an opening g in its lower side large enough to permit a can to drop therethrough; but said opening can be partly closed by a flap g' , which may be held in closed position by a feed-wheel H, as hereinafter explained. Directly below this opening g and above the outermost lower run of the canway is the feed-wheel H, which is provided with a series of pockets h , each sufficiently large to receive a can. The said wheel is mounted on a shaft H^2 , journaled in a bracket H^3 , depending from the tube, which may be attached to a suitable adjacent stationary part of the apparatus. The pockets in said wheel receive cans from the opening g and deliver them into the lower run of the canway, as indicated in Figs. 2 and 3. The cans are prevented from escaping from the pockets at the descending side of the said wheel by means of a guard H' .

On the outer end of shaft H^2 is a sprocket-wheel h' , which meshes with the adjacent sprocket-chain c of the can-pusher, so that the feed-wheel H is rotated synchronously with the movement of the cans and is therefore adapted to receive and deposit cans in proper sequence into the canway. The blades of the wheel H serve to close the flap g' and hold it closed until a can has been brought into position thereover, as hereinafter explained, and when the blades pass the flap the latter drops by gravity and permits the can resting thereon to drop into the subjacent pocket of the wheel. The cans are moved forward in the tube in proper number and time by means of a series of conveyers J, flexibly connected by chains or links J' , so as to form an endless chain. The said conveyers J may be formed very much like ordinary cup-valves and are adapted to tightly close the tube as they pass therethrough, and thus prevent escape of steam or liquid from the entrance end of the tube. The cans are fed between the successive adjacent conveyers as they enter the tube G and are pushed along by said conveyers until they arrive at the opening g , and by the time they are directly over this opening the feed-wheel H is so timed as to allow flap g' to drop and the superimposed can is deposited by gravity in a pocket of the feed-wheel.

As shown, the endless series of conveyers J run over suitably-constructed guide-pulleys K and K', journaled in suitable bearings attached to the opposite sides of the tank and lying adjacent to the opposite ends of the tube G.

The pulley K' at the delivery end of the

tube G has a bevel-gear k on its rear end meshing with a similar bevel k' on the end of a short shaft k^2 , journaled in suitable bearings, as shown, and projecting into the tank and having a sprocket k^3 on its inner end meshing with the upper run of the adjacent sprocket-chain c' , so that the conveyers are caused to traverse the tube G in time or unison with the movement of the cans along the canway. The series of conveyers outside of the tube may be returned beneath the tank from the pulley K' to the pulley K, as indicated in the drawings.

The conveyers which are used to feed the cans into the tube, as described, are also utilized to deliver cans therefrom, as follows: At the other side of the machine the tube G is provided with an opening g^3 in its upper side below the upper run of the last lead of the canway, so that the cans moving forward along this run will drop by gravity into a passage b , by which it is directed to the opening g^3 , through which it passes into the tube G and between adjacent conveyers J passing therethrough. As the parts all move in time, the cans will be dropped properly between the successive conveyers J; but in order to prevent a can rolling ahead of the pusher or dropping too quickly into opening g^3 I provide a retarder or detainer L, which is mounted above the canway-passage b and opening g^3 and is connected to a longitudinally-movable rod L', playing in suitable guides attached to the top of the tank. Said rod is provided with a spring L^2 , which forces the pusher in a direction opposite the movement of the cans, and this retarder prevents the cans rolling into the passage b and passing to opening g^3 , until the cans are pushed forward by the pusher sufficiently to permit the foremost can to pass under the pusher and into opening g^3 . The cans thus enter the tube in proper order between the adjacent conveyers J, by which they are moved out and delivered from the tube exterior to the tank. In case any water should pass between any two adjacent conveyers as they pass out of the tube G it can be drained back into the tank by means of the pipe M, connected with a steam injector or pump M' of any suitable sort, which is adapted to return the water into the tank at m .

It will be observed from the foregoing that the endless series of conveyers forms both the means for feeding the cans into the tank and the means for removing them therefrom through the tube G; but the cans do not pass straight through the tube, but instead drop at the inlet side into a lower run of the canway and then must travel entirely through the canway until they finally reach the opening g^3 at the opposite side of the machine, where they drop into the tube and are fed out by the same conveyers which have just previously served to feed in cans.

The use of a tube intermediate the runs of a canway and through which cans may be fed into or delivered from the canway or both fed and delivered to and from the canway I consider an important and novel feature of the invention. I also consider the employment of an endless series of conveyers moving in one direction through the tank another important feature of the invention. The use of such a tube with such a series of conveyers is still another important feature of the invention. The construction by which the moving parts are all practically driven from one shaft and kept in unison I also consider a valuable improvement.

I do not wish to be restricted to the exact construction or dimension of parts herein shown, and while I prefer the horizontal arrangement of the spiral canway I do not wish to restrict myself thereto, as the apparatus would operate if stood on edge; and it is obvious that by properly dimensioning the parts the canway can be made so long that the cans could be cooked for any length of time desired during their travel through the tank, while cans are fed continuously to and from the machine.

Operation: The operation of the apparatus will be sufficiently obvious from the foregoing description to those skilled in the art, but in brief is as follows: The cans are fed into the tube G at one end and are moved forward therein by means of the conveyers J until they come over the opening g, through which they are dropped into the feed-wheel H, by which they are delivered into the first lower run of the canway. The cans are then moved along through this canway by means of the pusher-bars c', and finally reënter the tube G through the opening g³ and are moved out of the tube by the conveyers J and delivered.

All the parts have continuous movements, and the operation can be made more or less rapid by varying the relative positions of the frictional drive-wheel.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a can-cooking machine, the combination of a tank or heating-chamber and a tube communicating therewith; with an endless series of conveyers entering said tube and adapted to feed cans thereinto.

2. In a can-cooking machine, the combination of a tank or heating-chamber and a tube communicating therewith; with an endless series of conveyers extending into said tube and adapted to deliver cans therefrom.

3. In a can-cooking machine, the combination of a tank or heating-chamber, and a tube communicating therewith; with an endless series of conveyers passing through said tube and adapted to feed cans thereinto at one point and to remove cans therefrom at another point.

4. In a can-cooking machine, the combination of a tank, a canway therein and means for moving cans along said way; with an endless series of conveyers entering the tank and adapted to feed cans to said canway.

5. In a can-cooking machine, the combination of a tank, a canway therein and means for moving cans along said way; with an endless series of conveyers entering the tank and adapted to receive cans from said canway and remove them from the tank.

6. In a can-cooking machine, the combination with a tank or heating-chamber, a canway therein, and means for moving cans along said way; with an endless series of conveyers passing through said tank and adapted to feed cans to the canway at one point and to receive cans from the canway at another point and deliver them from the machine.

7. In a can-cooking machine, the combination of a tank, a canway therein, a tube entering the tank, and an endless series of conveyers traversing said tube adapted to move cans thereinto and discharge them into the tank.

8. In a can-cooking machine, the combination of a tank, the canway, a tube entering the tank and having an opening through which the cans are discharged into the canway, and an endless series of conveyers traversing said tube adapted to move cans thereinto.

9. In a can-cooking machine, the combination of a tank, a canway therein, a tube entering the tank, and an endless series of conveyers traversing said tube adapted to move cans thereinto and discharge them into the tank; with means for moving the cans along said canway, and a feed-wheel below the tube adapted to receive cans from the tube and deliver them into the canway.

10. In a can-cooking machine, the combination of a tank, the canway, a tube entering the tank, and having an opening through which the cans are discharged into the canway, and an endless series of conveyers traversing said tube adapted to move cans thereinto; with means for moving the cans along said canway, and a feed-wheel below the opening in the tube adapted to receive cans from the tube and deliver them into the canway.

11. In a can-cooking apparatus, the combination of a tank, a canway therein, a tube entering said tank, means for directing cans from the canway into said tube, and an endless series of conveyers traversing said tube and adapted to remove the cans therefrom.

12. The combination of a tank, a canway therein, a tube extending into the tank adjacent to the canway, and into which the cans are discharged from the canway, means for moving the cans along the canway, an endless series of conveyers moving through said tube and adapted to discharge the cans therefrom, and a retarding device adjacent to the tube to prevent premature dropping of the cans thereinto.

13. The combination of a tank, a canway therein, a tube extending through the tank adjacent to the canway, and provided with an opening through which the cans are discharged from the canway into the tube, means for moving the cans along the canway, an endless series of conveyers moving through said tube and adapted to discharge the cans therefrom, and a retarding device adjacent to the opening of the tube to prevent premature dropping of the cans thereinto.

14. The combination of a tank, a canway therein, means for moving cans along the canway, a tube passing between the runs of the canway, and provided with openings respectively adapted to discharge cans from the tube into the canway and to receive cans from the canway into the tube, and means for moving cans into and out of the said tube.

15. In a can-cooking apparatus, the combination of a spiral canway, means for moving cans along the said way, a tube passing through the canway, and provided with openings through one of which cans may be fed into the canway, and through the other of which cans are received from the canway, and means for moving cans into and out of said tube.

16. In combination, a tank, a canway therein, means for moving cans along said way, a tube extending through the tank, and provided with an opening through which cans are discharged into the tank, another opening in said tube through which cans are received into the tube from the canway, and means adapted to move the cans into and from the tube.

17. In combination, a tank, a canway therein, means for moving cans along said way, a tube extending through the tank and canway, and provided with an opening through which cans are discharged into the tank, another opening in said tube through which cans are received into the tube from the canway, an endless series of conveyers traveling through said tube, adapted to move cans into the tube to feed same to the canway, and then to remove the cans delivered into the tube from the canway.

18. In a can-cooking apparatus, the combination of a tank, a canway therein, a tube extending through the tank, and provided with openings, a feed-wheel within the tank adapted to receive cans at one opening and deliver them to the canway, and the other opening in said tube communicating with the last run of the canway through which cooked cans are delivered into said tube, and means to first feed cans to the feed-opening in said tube, and remove the cooked cans from the tube.

19. In a can-cooking apparatus, the combination of a closed tank, a canway therein, a tube extending through the tank and canway, and provided with openings, a feed-wheel within the tank adapted to receive cans at one opening and deliver them into the first run of

the canway, the second opening in said tube communicating with the last run of the canway through which cooked cans are delivered into said tube, and an endless series of conveyers traversing said tube and adapted to first move cans to the opening above the feed-wheel, and then to remove the cooked cans from the tube.

20. In combination, a tank, a canway therein, means for moving cans on said canway, a tube extending into said tank adjacent to the canway, provided with an opening, a flap for closing said opening, and a feed-wheel in the tank adjacent to said opening in the tube, adapted to receive cans from the tube and deliver them into the lower run of the canway, substantially as described.

21. In combination, a tank, a spiral canway therein, means for moving cans around said canway, a tube extending through said tank adjacent to the canway, and provided with an opening, a door for closing said opening, a feed-wheel in the tank adjacent to the opening in the tube adapted to receive cans and deliver them into the lower run of the canway, and means for operating said wheel from the can-pushing means.

22. In combination, a tank, a canway therein, means for moving cans on said canway, a tube extending into said tank adjacent to the canway, and provided with an opening, a flap for closing said opening, and a feed-wheel in the tank adjacent to said opening in the tube adapted to receive cans from the tube and deliver them into the lower run of the canway; means for directing cans from the last run of the canway into said tube, and an endless series of conveyers traversing said tube and adapted to alternately move cans to the feed-opening and to remove the cooked cans, substantially as described.

23. In combination, a tank, a spiral canway therein, means for moving cans around said canway, a tube extending through said tank adjacent to the canway, provided with an opening, a door for closing said opening, a feed-wheel in the tank adjacent to the opening in the tube adapted to receive cans and deliver them into the lower run of the canway, and means for operating said wheel from the can-pushing means; means for directing cans from the last run of the canway into said tube, and an endless series of conveyers traversing said tube and adapted to alternately move cans to the feed-opening and to remove the cooked cans, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN S. BAKER, JR.

In presence of—

JOHN W. MILLER,
AARON JOHNSON.