J. S. BAKER.

CAN COOKING MACHINE.

APPLICATION FILED AUG. 10, 1915.

1,315,072.

Patented Sept. 2, 1919.

3 SHEETS—SHEET 1.

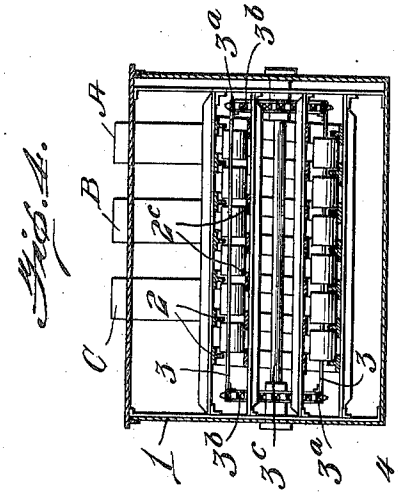


Fig. 4.

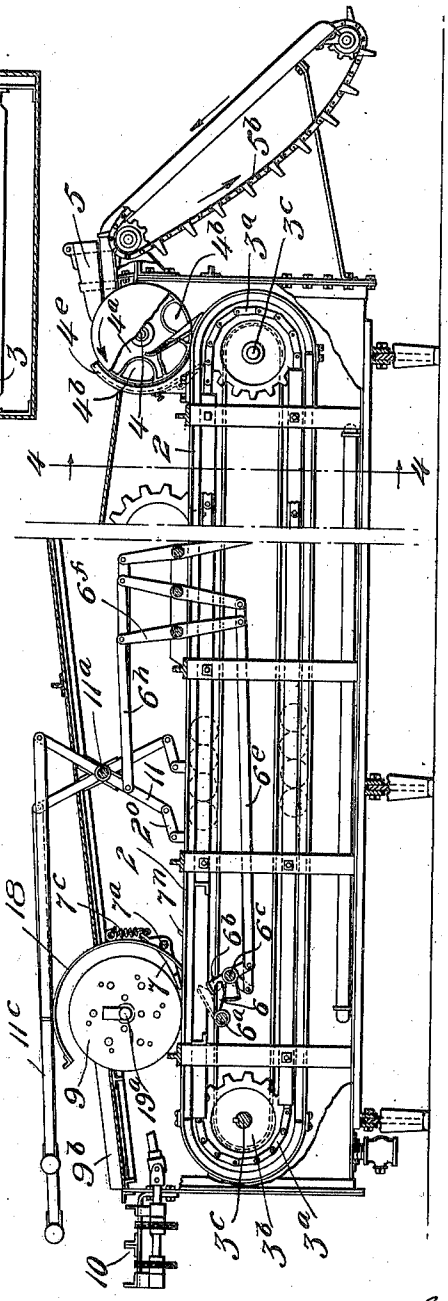


Fig. 1.

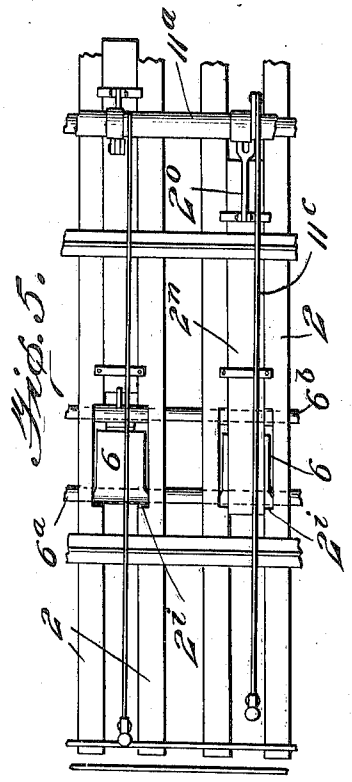


Fig. 5.

Witnesses

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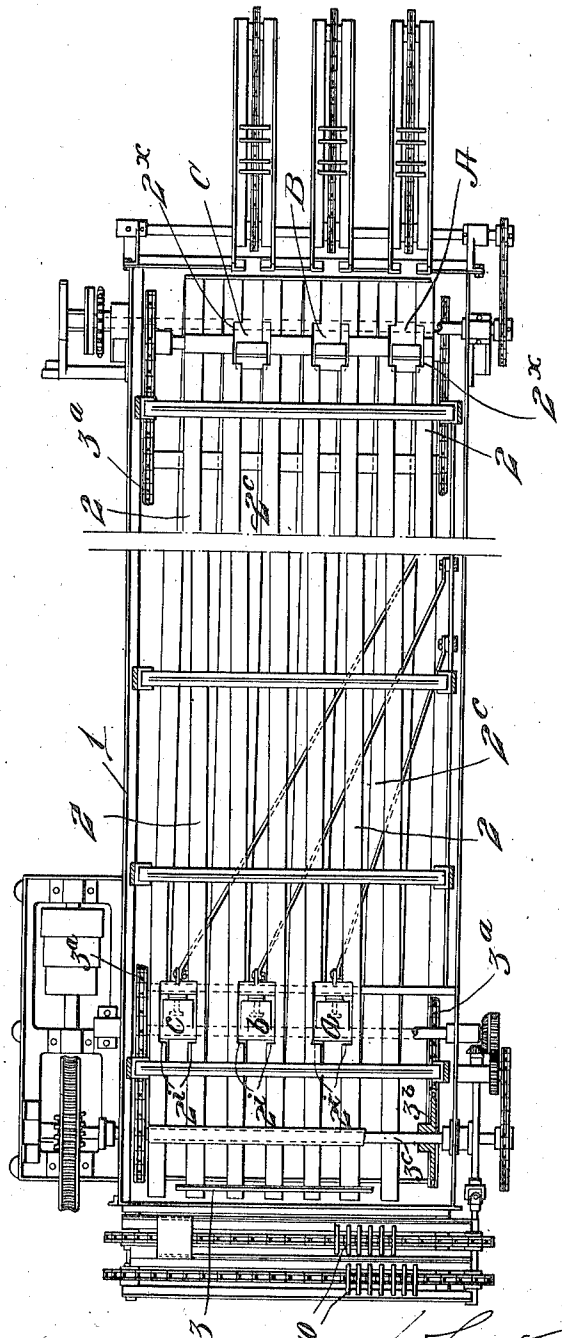


Fig. 2.

Witnesses

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3 SHEETS—SHEET 3.

Fig. 3.

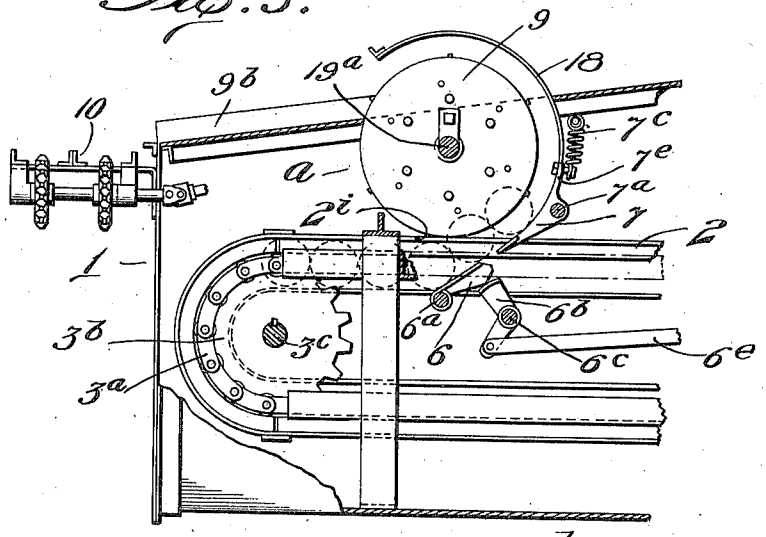


Fig. 6.

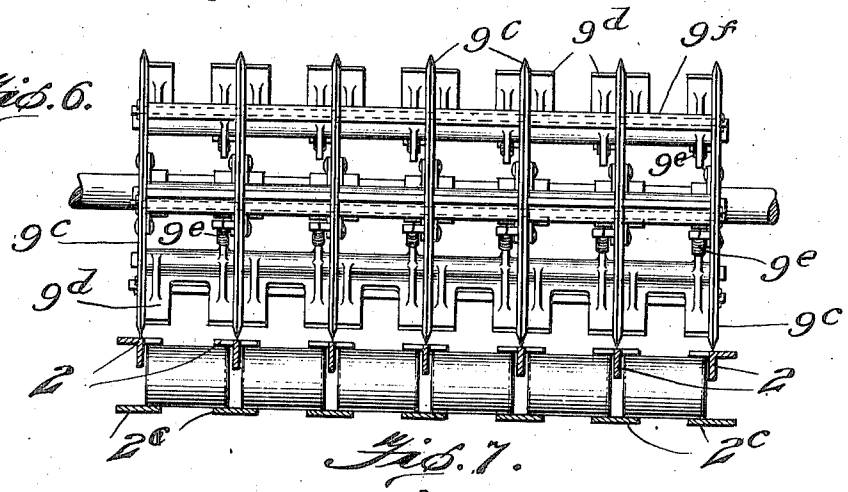
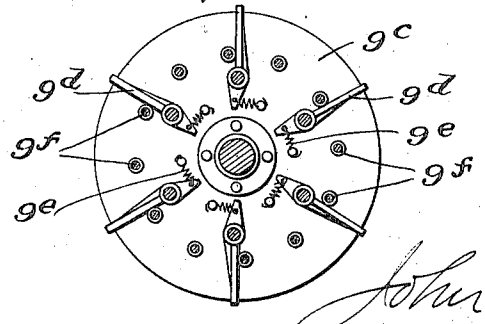


Fig. 7.



Witnesses

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CAN-COOKING MACHINE.

1,315,072. Specification of Letters Patent. Patented Sept. 2, 1919.

Application filed August 10, 1915. Serial No. 44,789.

To all whom it may concern:

Be it known that I, JOHN S. BAKER, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Can-Cooking Machines; 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 relates to machinery for treating packaged goods and is especially adapted for use in sterilizing and cooking foods contained in ordinary cylindric cans; and the object of the invention is to produce a cooker wherein a plurality of series of cans or packages may be simultaneously fed to and moved through the cooking chamber and moved for greater or less distances therein between their points of entry and discharge; so that two or more "cooks" can be performed at the same time in the same cooking chamber; and whereby also it will be possible to perform simultaneously two or more "cooks" requiring different lengths of time for treatment.

It is well known that different kinds of canned goods require different lengths of time for proper cooking or treatment, and my invention will enable the same apparatus to be utilized simultaneously for treating or cooking two or more series of packages containing the same kind of goods simultaneously in the apparatus; and also for simultaneously treating or cooking two or more different kinds of goods for different lengths of time. These several different operations and novel and useful capabilities of operation of a single apparatus are accomplished by my invention which, specifically speaking, comprises a preferably so-called spiral pathway or can way and a plurality of feed devices whereby packages may be introduced onto different runs of said pathway or onto said pathway at different points thereof.

The invention further includes a plurality of delivering devices whereby the packages may be discharged from said pathway at different points.

The main feature of the present invention is the provision of a plurality of feeds whereby packages may be introduced at different points into a common pathway, so that with one terminal discharge the packages may be caused to traverse different distances along said pathway; and by employing a plurality of feeds and a plurality of discharges the utility of the apparatus is greatly enhanced, as it enables two or more "cooks" to be simultaneously performed in the same chamber, and each "cook" retained therein for the desired length of time, by feeding packages containing different goods to different points of the pathway, and discharging the different "cooks" at different points.

The details of construction of the feeding and delivering devices and of the pathway and means for moving packages along such way are subordinate to the principal features of the invention; and in the accompanying drawings I have illustrated a practical apparatus which embodies the invention, and a description of which will enable those familiar with the art to construct and use the invention.

I will explain the apparatus illustrated in such drawings, and summarize in the claims the essential features and combinations for which protection is desired.

In said drawings:

Figure 1 is a longitudinal elevation partly broken away of an apparatus embodying the invention;

Fig. 2 is a top plan view of Fig. 1;

Fig. 3 is an enlarged detail vertical sectional view of the discharging devices;

Fig. 4 is a detail transverse sectional view on line 4—4 of Fig. 1;

Fig. 5 is an enlarged detail plan view of part of the can discharging devices;

Fig. 6 is a detail plan elevation of the discharge means; and

Fig. 7 is a detail sectional view of one of the discharge wheels.

In said drawings, 1 designates a tank or treating or cooking chamber which is preferably substantially closed and is ordinarily made of metal. The form and size of such tank can be varied to suit the builder, and the capacity of the machine.

Within this tank is a preferably spiral pathway for packages, which may be formed of T-bars as shown in the drawings,

such pathway being known in the art and not *per se* claimed herein. The packages or cans may be caused to traverse this spiral pathway from one end thereof to the other by means of pusher bars 3 extending transversely across the series of runs of the pathway and connected at their outer ends to endless chains 3^a running over sprockets 3^b, attached to transverse shafts 3^c at the opposite ends of the tank. Said shafts may be driven, by suitable gearing, substantially as indicated in the drawings, so as to cause the chains to move the pusher bars 3 and cause them to push the packages along said spiral pathway in a well known manner.

At the receiving end of the tank are arranged a plurality of package feeding devices, which may be of any suitable construction. To avoid confusion in the drawings I have shown only three such feeds in the apparatus illustrated in the drawings, in which the pathway has about six complete spirals. The first feed A delivers cans to the first run of the spiral pathway; the second feed B delivers cans to the third run of the pathway; and the third feed C delivers cans to the fifth run of said pathway. The feeding devices may be constructed alike and the description of one will explain the others, similar parts being similarly lettered.

For simplicity I will describe the machine as adapted to handle cans, but of course the word "cans" or "packages" is merely illustrative and not definitive of the invention.

Each feeding mechanism may comprise a rotatable feeding disk 4^a mounted on a transverse shaft 4, and provided with pockets 4^b each adapted to receive a package or can, as the disk rotates, from a chute 5, to which the cans may be fed, either by hand or by an endless chain feed 5^b of the usual construction.

The feeding disk 4^a is shown as located directly over the top of the related run of the spiral canway, and may be partially closed by a housing or casing 4^e (Fig. 1); and as the disk rotates in the direction indicated by the arrows the pockets 4^b each receives a can from the chute, and as this pocket reaches the lower side of the disk the can drops by gravity into the canway; the top bars 2 of this canway being notched or cut away as at 2^x to permit the cans to freely drop into the adjacent related run of the canway. The can drops in front of one of the pusher bars 3 and is moved thereby around the canway in the usual manner until it reaches the point of discharge.

It will be obvious that if an apparatus having three feeds had but one terminal discharge, cans or packages could be passed through such machine for either of three different periods of time, assuming the pusher bars 3 to be always traveled at a uniform rate of speed; *i. e.* if cans were fed at C they would have about one-third the length of time and travel that they would if fed at A; if they were fed at B they would have two-thirds the length of time and travel that they would if fed at A; thus in such a machine with three feeds and one delivery any one of three different kinds of treatment or "cooks" might be obtained.

In order to increase the efficiency of the machine and enable more than one kind of treatment or "cook" to be performed at one time on different series of cans, I propose to also use a plurality of discharges; and have shown three discharges in the drawings, at *a*, *b*, *c*, respectively.

Preferably, in the machine shown, discharge *a* is arranged at the end of the second coil of the canway; discharge *b* at the end of the fourth coil of the canway; and discharge *c* at the end of the sixth coil of the canway; the length of the canway and locations of the feed and deliveries being of course merely illustrative and not definitive. These discharge mechanisms in the apparatus shown are constructed alike, and the description of one will explain all similar parts similarly lettered.

The discharges shown are located at the upper side of the pathway, at the end of the machine opposite the feed; and at each discharge point the bars 2^c of the pathway are notched as at 2^i to permit the passage of a can upwardly between and above said bars. Below the top run of the canway, and adjacent notches 2^i, is a horizontal lever 6, which may be pivoted on a shaft 6^a and is adapted to be swung upwardly into the path of the advancing can, as indicated in Fig. 3 so that the can must ride up on this lever.

Adjacent the lever 6 and above the top of the related run of the pathway is a lever 7, pivoted on a shaft 7^a and adapted to be tilted downward into line with the lever 6, when the latter is in can discharging position (see Fig. 3) so that the can, rolled up on lever 6 will pass onto lever 7. The levers 6 and 7 are so arranged that when they are in can discharging position they will not interfere with the movement of the can pusher bars 3 which can then pass between the adjacent ends of said levers 6 and 7. The movement of the pusher bars will cause the cans to first ride up on lever 6 and then onto lever 7.

The lever 7 directs the cans into a discharge chute formed between a curved plate 18 and the periphery of a rotatable discharge wheel 9 mounted on the transverse shaft 19^a, and driven by suitable means in a direction to cause the cans to pass on around and over the wheel 9 onto a discharge chute 9^b on which they may descend by gravity to a carrier 10 that conveyes them away to a suitable point.

The lever 6 may be raised into working

position, when it is desired to discharge cans, by means of a cam 6^b pivotally mounted on a transverse shaft 6^c, and connected by a link 6^e with a lever 6^f extending outside the machine.

When the lever 6 is lowered out of operative position the openings 2^i, through which the cans pass out to the discharge, may be closed by means of a slide 2^n that may be operatively connected by a link 2^o with a lever 11 pivoted on a transverse shaft 11^a mounted on top of the tank; and this lever 11 may be connected by a link 6^h with the outer end of the lever 6^f. When the slide 2^n is moved outward to close the opening 2^i it will engage the lower end of the lever 7 and tilt same upward and out of the canway into inactive position, as shown in full lines in Fig. 1; but when the slide 2^n is retracted the lever 7 will be thrown into operative position by means of a spring 7^c connected to the tail end 7^e of said lever, as illustrated in Fig. 3.

The lever 11 may be operated by a handle rod 11^c that may extend to a point convenient for its manipulation by the operator when at the discharge end of the machine. By throwing lever 11 to one position the slide 2^n will be retracted and the levers 6 and 7 shifted to operative position so that the cans will be discharged thereby. By throwing the lever 11 to the opposite position the lever 6 will be lowered, and the opening covered, and lever 7 raised.

A discharge wheel 9 is preferably provided at each exit opening; these wheels are preferably constructed of opposite disks 9^c, between which are hinged pivoted radially disposed pusher plates 9^d that are adapted to engage the cans as they reach the point of discharge and move the cans up under the shield 18 and discharge them over the wheel onto the chute 9^b. These hinged plates 9^d are normally yieldingly held in operative position by means of springs 9^e, see Fig. 7, so in case they should not properly engage a can they could yield and prevent injury to either the can or the discharge wheel. The discharge wheels may be provided with transverse rods 9^f intermediate the plates 9^d to prevent the cans dropping between adjacent plates.

In the drawings for simplicity of illustration I have only shown every other run of the canway provided with a discharge opening, but the number of such openings can be varied according to the number or variety of cooks to be obtained for each series of cans fed thereto.

In Fig. 6 I have indicated how each run of the canway might be provided with discharge openings and how the discharge wheels are provided for each canway. While I do not consider the invention restricted to the employment of any particular number of discharge openings, a plurality of discharges is most desirable for reasons above stated.

It will be seen that the invention is not limited to any particular construction or number of feeding and delivering devices; nor to any particular construction of the pathway. The utility of the invention and the great flexibility of the apparatus constructed in accordance therewith is obvious, and when treating goods requiring only a very short time in the cooker or chamber the apparatus shown can handle about three times the quantity of goods that could be handled in ordinary machines of the same size, having but a single feed and delivery.

The feeds and deliveries can be adjusted so that a plurality of goods or packages, or similar kinds, of different kinds, may be simultaneously treated or cooked in the same apparatus.

The tank is preferably substantially closed and for high pressure cooking would have to be practically substantially steam-tight; and the feed and discharge devices also substantially steam-tight.

It will be seen that in the machine shown there is one spirial canway and a plurality of means for feeding the cans to different parts of the same canway; and the cans fed in at the first feed may if desired be caused to travel through the entire machine, the other feeds being out of operation; and by putting one or more of the feeds out of operation, and properly adjusting the discharge devices, the cans can be caused to move for any desired distance in the canway from the point where they enter the same to the point of discharge. This feature of feeding cans at different points to the same canway, thereby enabling such canway to be used either for one long cook or for a plurality of shorter cooks, is one of the novel features of the invention.

It will be seen from the foregoing description that cans can be fed at A and discharged at *a*, *b*, or *c*; they can be fed at B and discharged at *b*, *c*; or can be fed at C and discharged at *c*; and also that cans may be simultaneously fed at A and discharged at *a* or *b*; while simultaneously cans can be fed at C and discharged at *c*; also cans can be fed at A and discharged at *a* and simultaneously fed at B and discharged at *b* or *c*. In short, in the apparatus shown with three feeds three series of cans of similar cooks may be fed through the machine and cooked at the same time; or two series of cans can be simultaneously fed through the machine and cooked for different lengths of time; or a single series of cans can be fed through the machine and cooked for any one or two or three different periods of time, assuming that the cans are traveling in each instance along the canway

at the same rate of speed. Of course the number of feeds and deliveries may be varied according to the wishes of the constructor and the size and capacity of the machine desired and the minimum and maximum length of time of desired cooking operations.

I do not herein claim broadly providing a cooker with a plurality of discharges or means for discharging cans at a plurality of points, as that is shown in my Patent No. 1,181,057, of April 25th, 1916.

What I claim is:

1. In combination with a chamber and means for moving cans therethrough, of means for discharging the cans therefrom comprising a discharge wheel provided with a series of pivoted radially disposed plates and springs for holding said plates in normal position.

2. A discharge wheel for the purpose specified comprising opposite disks radially disposed plates pivoted between said disks, and springs for holding said plates normally in yielding position.

3. In combination with a chamber and means for moving cans therethrough a discharge wheel comprising opposite disks radially disposed plates pivoted between said disks, and springs for holding said plates normally in yielding position.

4. In combination a canway, means for moving cans around the way a discharge wheel above the canway switch levers for directing cans from the canway to said wheel, and means for operating said levers to direct the cans to the discharge wheel or allow them to pass thereby.

5. In combination with a canway a discharge wheel for the canway, a switch lever in the lower part of the canway below said wheel a second switch lever above the canway adjacent the wheel and means for shifting said levers in position to direct the cans out of the canway to said wheel, or to retract said levers and permit the cans to remain in the canway and move past said wheel.

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

JOHN S. BAKER.

Witnesses:
HAZEL YEAGER,
JAMES D. WATSON.