No. 676,869. Patented June 25, 1901.

J. D. BOURDEAU.

CANNING PROCESS.

(Application filed Mar. 12, 1900.)

(No Model.)

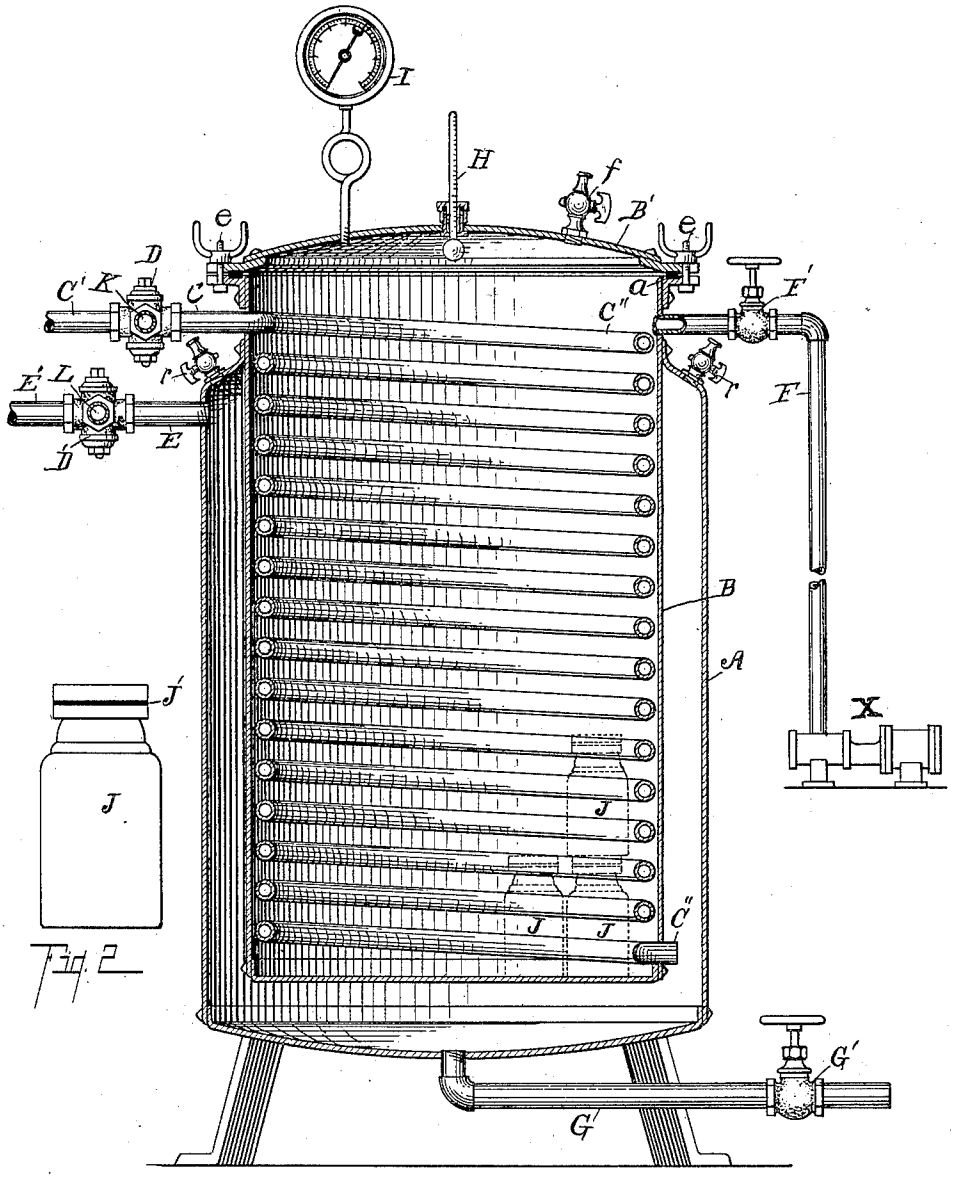


Fig. 2

Fig. 1

Witnesses:

S. Alice Earl

Otis A. Earl

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By Fred L. Campbell

Att'y.

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UNITED STATES PATENT OFFICE.

JESSE D. BOURDEAU, OF BATTLECREEK, MICHIGAN.

CANNING PROCESS.

SPECIFICATION forming part of Letters Patent No. 676,869, dated June 25, 1901.

Application filed March 12, 1900. Serial No. 8,418. (No model.)

To all whom it may concern:

Be it known that I, JESSE D. BOURDEAU, a citizen of the United States, residing at the city of Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Canning Processes, of which the following is a specification.

This invention relates to improvements in canning processes, its objects being to provide an efficient and rapid process of canning fruits, vegetables, or meats in glass without danger of breaking the glass and also by hastening the process preserving more completely than is otherwise possible the distinctive characteristics of the fruit, vegetable, meat, or whatever substance it is desired to preserve in this way.

A further object than those above enumerated is to provide an efficient means in the process of sealing the covers to the cans without the necessity of providing special clamps for the purpose and yet at the same time secure a perfectly tight and satisfactory joining of the tops to the same, which will not permit the entrance of air in the slightest degree to cause deterioration of the contents.

Further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention and carry out the process by the means described in the following specification.

The invention is clearly defined and pointed out in the claim.

I carry out my improved process by use of the apparatus illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional elevation through an improved retort for accomplishing the objects of my invention. Fig. 2 is an illustration of a glass fruit-jar of the style which I prefer to use when carrying out my invention.

Similar letters of reference refer to similar parts in each view.

Referring to the lettered parts of the drawings, A is the outer casing of the retort, and B the inner casing, which are suitably joined together at the top to form an annular chamber between. Petcocks *r* are provided for this chamber. E is a supply-pipe for this chamber, L is a water-pipe, and E′ is a steam-pipe, which are connected by a suitable three-way cock D′ to the supply-pipe E, so that it is possible to turn either steam or water into this jacket.

Within the inner casing B is a coil C‴, extending close to the outside of the inner receptacle. This is connected with a supply-pipe C. C′ is a steam-pipe, and K is a water-pipe connected thereto by the three-way cock D. The lower end C″ of the coil extends through the inner casing B and discharges at C″ in the annular chamber between the two casings. An exhaust and air-discharge pipe G is at the bottom of the outer casing A and is controlled by a globe-valve G′, all of the parts being air-tight.

A cover B′ is provided for the retort, and a gasket *a* is between the cover and the retort to form a perfectly tight joint at that point, and this cover is retained in position by bolts *e*, having winged nuts. In the top of the cover I place a thermometer H, and a pressure-gage I is also connected. A petcock *f* is also preferably provided at this point, though it might be connected to the retort in any other position.

Connecting to the inner casing B to supply air or gas or vapors under pressure within that casing is a pipe F, controlled by a globe-valve F′, the air being provided either by an air-pump or drawn from some other source under pressure. I desire to remark that it is preferred to use heated air, though it is obvious that if cold air is pumped into the retort it will soon become heated. Heated air hastens the process. Any other gas could be used with the same effect.

This describes the apparatus by which I carry out my improved canning and preserving process. I make use of glass jars J, having suitable covers, also preferably of glass, with rubber gaskets J′ between. These are filled with fruit, vegetables, meat, or whatever it is desired to preserve, the covers are pressed onto the same, the rubbers or gaskets being fresh and sound, and these are set inside the retort, as appears by the dotted lines in Fig. 1. When the retort is filled, the cover B′ is put on and clamped air-tight. Steam is then turned on from pipes C′ E′, filling the annular chamber and also the coil C″. Air under pressure is then admitted from the pipe

F, and the temperature is raised to any required degree, the pressure and temperature being properly regulated to each other. The thermometer indicates the exact temperature and the pressure-gage the exact pressure. The pressure is increased above the normal pressure for a given temperature in order to retain the covers on the cans and hold them tight against the gaskets and insure proper action. The heat is then regulated by the admission of steam until it reaches the desired temperature, 212°, 230°, 240°, 250°, and higher, as may be required for particular materials or substances undergoing the canning process. This temperature is regulated according to rules for each different article being canned, fruits requiring a comparatively low temperature and pressure, and some vegetables and meats requiring a very high pressure and temperature. By means of the steam-jacket and steam-coil I am able to raise this temperature very quickly within the retort, the pressure being controlled by the petcock *f* where it becomes too heavy and the steam-supply being controlled by the valves.

When the cans have been treated the required length of time for any given product, the steam is shut off and cold water is turned through the coil and into the jacket, rapidly cooling the contents of the retort. This merely cools down the air contained in the retort, and as no steam or vapor is in the retort no water condenses to drop down upon the heated glass and cause its breakage. The retort can thus be cooled very quickly, and as the temperature is reduced evenly there is no strain on the glass, and consequently no breakage whatever in the retort. Therefore with a comparatively small retort a great many cans can be processed in a short period.

The intense dry heat possible to be secured in this way softens the rubber gaskets J'. The extra pressure of air forced into the retort forces the covers securely into position, and as the rubber is thus made very soft and is vulcanized by the heat the tops of the cans are forced down into the soft rubber and sealed, making the joint perfectly air-tight.

By my improved process the heating and cooling of the cans can be done so rapidly that there is no disintegration of fruits, vegetables, or other substances due to the cooking process. There is no agitation of the contents of the cans from the heat, because the pressure of air in the retort is sufficient to hold the covers hermetically sealed, so that no bubbles of steam rise to pass away, causing agitation and disintegration of the contents. Furthermore, owing to the fact that there is no agitation and owing to the rapidity of the process, all juices and flavors of whatever is in the can are retained within the fruit, vegetable, or material and are not extracted out into the syrup or juice in which it is immersed in the can. It is a valuable feature of my invention that these cans are perfectly sealed by this process.

I desire to remark in this connection that in this patent I only claim the process and do not attempt to claim the apparatus by which the process is accomplished, as the process can be accomplished by other means.

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

The process of canning in glass consisting in applying heated air under pressure to the jars or receptacles having covers with rubber gaskets interposed, which softens the gaskets and forces the covers tightly into place and then vulcanizes the rubber, causing the covers to adhere.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

JESSE D. BOURDEAU. [L. S.]

Witnesses:

BURRITT HAMILTON,

MAUDE BARTON.