J. A. PICKENS.

CAN FOR PRESERVES.

APPLICATION FILED JAN. 29, 1920.

1,428,705.

Patented Sept. 12, 1922.

Fig 1.

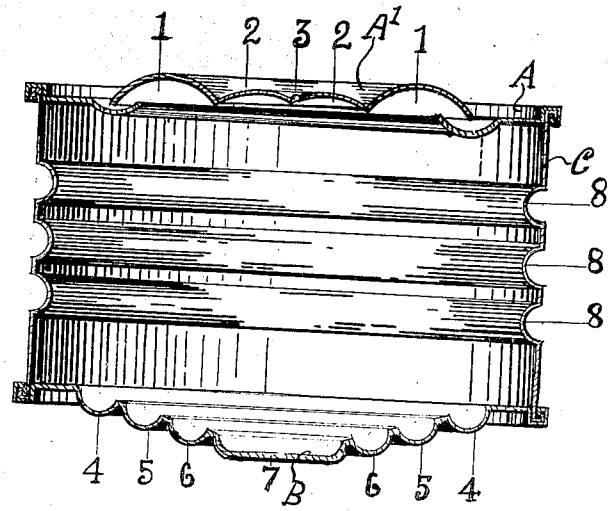


Fig 2.

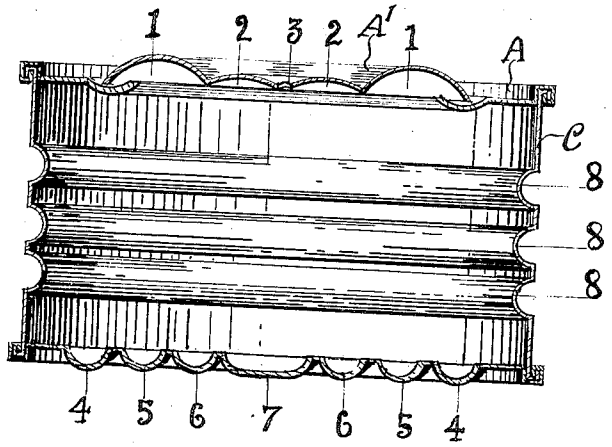
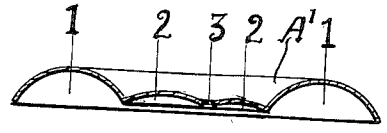


Fig 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JULIUS A. PICKENS, OF EASLEY, SOUTH CAROLINA.

CAN FOR PRESERVES.

Application filed January 29, 1920. Serial No. 354,977.

To all whom it may concern:

Be it known that I, JULIUS A. PICKENS, a citizen of the United States, residing at Easley, in the county of Pickens and in the State of South Carolina, have invented certain new and useful Improvements in a Can for Preserves, of which the following is a specification.

In this invention the process, said process being designated as the "steam vacuum process" relates to a method of preserving, in hermetically sealed metal containers, foods and other articles whose preservation is dependent on sterilization of, and isolation from bacteria.

The primary object of this invention is the elimination of any and all deteriorating elements or organisms that facilitate the propagation of spores of ferments.

Another object, is the evacuation of practically all of the free ammonia evolved when organic matter is treated by heat.

A further object is, after the aforementioned objects are achieved, the reduction of the cubical volume of the container without distorting its labeling surface, said reduction of the filled container being to the extent that its contents practically occupy its entire reduced cubical volume.

In the present processes relative to the art of canning in metal containers, the step in the processes designated as the "exhaust process" can not be carried to the degree of rarefaction necessary to remove all air and gas from the can, because when condensation of the imprisoned steam within the can takes place, a partial vacuum is formed that permits the atmospheric pressure to crush and distort the can. Therefore a certain percent of free air and gas is allowed to remain in the can to counterbalance the atmospheric pressure.

This gas containing oxygen and free ammonia tends to combine with the metal of the container and the chemical elements of the preserved article with deleterious results. Therefore, to eleminate the aforedescribed disadvantages and to achieve the objects of this invention, it is necessary to provide a special arrangement of the mechanical construction of the metal container, said container being so designed that any of the canning apparatuses used at present in the art may be used conjointly with said container to effect the herein described process.

The mechanical design of the container utilized to achieve the herein described invention is illustrated in the accompanying drawing, similar numerals of reference denominating similar parts throughout the different figures, and said drawing forming a part of this specification.

In the drawing—Fig. 1 illustrates a diametrical view, being a vertical section of the mechanical construction of the container before it is subjected to the exhaust process, said exhaust process being the first step of the herein described invention, and as shown in this illustration, the container has its normal cubical volume.

Fig. 2 illustrates a diametrical view of a vertical section of the container after the first step of the herein described invention has been completed, and as shown in this figure illustrates the shape the container has assumed after passing through the first step of the herein described process, i. e. the cubical volume has been reduced by the bottom passing from the convex position to a surface conforming with a plane.

Fig. 3 illustrates a horizontal, sectional view of the sealing-cap, in which is shown the steam-ring, the gas-ring and the vent.

In explaining the novelty of this process, it will be seen by those skilled in the art to which it appertains, that a variety of methods of generating steam in the herein described container may be utilized, the usual parts of said container being designated as—the top A, the sealing-cap A^1, the bottom B and the wall C, and that its novelty does not reside in any of the methods used in raising the contents of the container to a steaming heat, but that the physical changes taking place within the contents of the can resulting from a steaming heat acting through the mechanical construction of the can, constitute the novelty of this invention.

Therefore it being understood that any method of generating a steaming temperature within the contents of the can may be used. In explaining the herein described process I will refer to only that method designated as "processed in vacuo".

And the herein described process being so operated functions in the following manner:—

The normal shape of the container as illustrated in Fig. 1 shows the concavity of flexible B equipped with annular corruga-

tions 4, 5, 6, and 7: the cubical volume of the container being at its maximum. And while at its cubical maximum, the container is filled with the product to be preserved as near full as practicable, the sealing-cap is then applied and with the exception of the vent 3 the can is sealed, a sufficient degree of heat is then applied to the container to raise its contents to a steaming temperature. Steam being thus generated within the contents of the container, and as steam is lighter than air, it rises and fills the larger, annular corrugation 1, of the sealing-cap A^1 designated as the steam-ring. The air and evolved gas being pressed between a cushion of steam and the surface of the contents of the can is urged into the gas-ring 2 of A^1 from which they flow through 3 from the can.

This, the above described step, being the first step, of the herein described process, is to continue by means of a regulated temperature conjointly with the "vacuum-box" until practically all of the ammonia evolved from the contents of the can, together with the air and other gases are eliminated. After the first step of the herein described process, 3 is sealed in the usual way, and in the usual way sterilization of the contents of the container is effected.

After the exhaust process, or first step, of this invention is completed and condensation of the imprisoned steam within the can takes place, a very rare vacuum remains in the unfilled portion of the can, and to prevent the atmospheric pressure from distorting and crushing the can, the labeling-surface is reinforced by means of internal corrugations of C and designated by the numeral 8 8 8.

To counterbalance the atmospheric pressure, the annular corrugations 4, 5, 6, 7 permit the convexity of B to pass to a plane or concave position, thereby reducing the cubical volume of the can to the extent that its packed contents occupy its entire reduced cubical volume.

After the air and evolved gases are eliminated, by the herein described first step of this invention, the flexion of B from convexity to concavity may be facilitated by mechanical pressure.

The reduction of the cubical volume of the packed container, after sterilization is effected, by either atmospheric or mechanical pressure comprises the last step of this invention and accomplishes the objects aforementioned.

The achieving of said objects results in a hermetically sealed, sterilized product, free from ammonia, other gases or air, and said product occupying the reduced cubical volume of a flexible, corrugated bottom container.

Having thus described this invention, I would have it understood that forms of cans other than the cylindrical may be utilized as a mechanical agent in carrying out the novelty resident In the spirit of this invention, and that mechanical changes in the design or in the shape of the container for the purpose of achieving the herein described process, be contemplated as coming within the scope of claims appended hereunto.

I claim,

1. A packing can having a top constructed with a steam-cavity, said steam-cavity surrounding and converging into a gas-cavity and said gas-cavity opening into a vent, substantially as described.

2. A packing can having a flexible convex bottom, built out by broken corrugations, each of the said broken corrugations being bounded with and divided from its fellow corrugations by marginal planes, substantially as specified.

3. In a packing can, the combination of a top equipped with a steam-cavity, a gas-cavity opening into a vent, a conical bottom bounded by a marginal plane and walls having internal corrugations, substantially as described.

In testimony whereof I hereunto set my hand.

JULIUS A. PICKENS. [L. S.]

Witnesses:
WALTER F. HESTER,
F. E. PICKENS.