

UNITED STATES PATENT OFFICE.

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METHOD FOR REMOVING BULGES AND SWELLS FROM CANS AND TESTING THE SAME FOR LEAKS.

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Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, CHARLES E. FENLON, a citizen of the United States, and a resident of Grays Lake, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Methods for Removing Bulges and Swells from Cans and Testing the Same for Leaks, of which the following is a specification.

In the canning of food products the filled cans are placed in a sterilizer where they are subjected to a heat of about 240 degrees Fahrenheit under a pressure of about sixteen pounds to the square inch. This heat naturally causes the contents, both solid and fluid, to expand, thereby creating a pressure within the can which compels the ends of the can to bulge or swell when the sterilizing pressure is removed. As a result thereof, the manufacturers of canned foods have found it necessary to employ manual labor in forcing the ends of the cans back to their normal positions before marketing the same, due to the fact that the consumer invariably returns a can with a bulge or swell, apparently assuming that the same was caused by gases created by the decomposition of the contents thereof.

In addition to the foregoing, it has been necessary for the manufacturer or canner to store or retain his product for a period of time in order that cans with leaks may be discovered before shipment or delivery. The contents of a can with a leak, after a time decompose, creating a gas, which causes the can ends to bulge or swell so that at the end of a period of time all cans with leaks can be detected and destroyed. This obviously makes all cans with leaks and their contents total losses, because their contents are decomposed before the condition of the can was discovered.

It is the object of the method forming the subject matter of the present invention to remove the bulges and swells while the cans are still in the sterilizer and by the same method locate and detect all cans having leaks. By thus instantaneously locating and determining cans with leaks it is possible to either patch the cans or remove their contents in order that they may be placed in other cans and thus saved from being a loss.

In carrying out the canning or preserving operations the filled and sealed cans are

placed in a standard sterilizer where in the course of sterilization they are subjected to a heat of 240 degrees Fahrenheit under a pressure of sixteen (16) pounds to the square inch, which, as before stated, causes the can ends to swell or bulge when the sterilizing pressure is removed. After subjecting the filled and sealed cans to this heat and pressure for a predetermined period of time, the sterilizer is "blown off", that is— the sterilizer is opened, the pressure removed, and the steam allowed to escape.

At this point, the method or process constituting the subject matter of the present invention is used to remove the swells or bulges in the can ends and to simultaneously locate any cans with leaks either small or large. When the sterilizer has been "blown off", it is at once closed and compressed air admitted therein until a pressure of twenty (20) pounds to the square inch is reached, which is maintained for a brief period. This pressure of air forces in the bulges or swells of the cans not having leaks therein. In the case of cans with leaks, the air enters the can irrespective of the size of the leak and equalizes the pressure on the interior of the can and the pressure within the sterilizer, so that the ends of the can having leaks retain their bulges or swells and can thus be at once detected, and either patched or the cans cut open and their contents returned to the batch for placing in new cans.

In this manner, the cans having leaks can be at once selected and removed as soon as they are taken from the sterilizer and the remainder labeled, packed and shipped, without further labor thereon to remove bulges and swells or a storing or holding of the product for the leaks to show up by virtue of pressure within the cans caused by gas created through decomposition of the contents.

It has been found desirable to permit the rapid escape of the air under pressure within the sterilizer after the cans have been under the twenty pound pressure for a short time. This is accomplished by providing a relatively large escape aperture or apertures in the sterilizer which when opened permit a sudden and rapid escape of the air within the sterilizer.

In addition to the foregoing the present method also locates and discovers cans which have not been entirely filled, commonly

known in the art as "shallows". This is because of the fact that the pressure of the air within the sterilizer causes the cans which are not filled and which constitute "shallows" to collapse so that it is possible to immediately detect and remove the same before labeling or shipment.

What is claimed is:

1. A method of treating cans after sterilization consisting in subjecting them to air pressure in excess of the pressure within the cans, created by the sterilization, while the cans are still within the sterilizer.

2. A method of treating cans after sterilization consisting in subjecting them to air pressure in excess of the pressure within the cans, created by the sterilization, while the cans are still within the sterilizer and after the sterilizer has been "blown off".

3. A method of treating cans after sterilization consisting in subjecting them to air pressure in excess of the pressure within the

cans, created by the sterilization, while the cans are still within the sterilizer and after the sterilizer has been "blown off", and quickly removing such air pressure within the sterilizer.

4. A method of treating cans after sterilization for the removal of bulges and swells and the detection of leaks and shallows consisting in subjecting them while the cans are still within the sterilizer and after the sterilizer has been "blown off" to air pressure to an excess of the pressure created within the cans.

5. A method of treating cans after sterilization for the removal of bulges and swells and the detection of leaks and shallows, consisting in subjecting the cans while they are still within the sterilizer, and after the sterilizing pressure has been removed, to a pressure in excess of the pressure within the can.

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