

UNITED STATES PATENT OFFICE.

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JAR-SEALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 789,699, dated May 9, 1905.

Application filed February 3, 1902. Serial No. 92,329.

To all whom it may concern:

Be it known that I, WILLIAM A. LORENZ, a citizen of the United States of America, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Jar-Sealing Apparatus, of which the following is a specification.

This invention relates to improvements in apparatus for exhausting and hermetically sealing jars, cans, and similar receptacles, and particularly relates to that class of apparatus in which the seal is made automatically by the readmitted atmospheric pressure after the desired vacuum is obtained.

My preferred embodiment of this invention is shown in the drawings, in which similar letters refer to similar parts, and in which—

Figure 1 is a side view in section taken along the line 1 1 of Fig. 2, the right-hand presser 11 not being included in the section, but shown unsectioned in order to represent its external appearance and to show the gasket 15. Fig. 2 is an end view in section taken along the line 2 2 of Fig. 1. Fig. 3 is an end view similar to that of Fig. 2 except that the movable parts are shown in another position.

Vacuum jars of the type herein shown for the preservation of food and other products are usually closed by means of a gasket and a cap having a flange which compresses the gasket upon the jar, thereby making a hermetic joint, the cover being firmly held upon the jar by atmospheric pressure after a suitable vacuum has been obtained in the jar and the closure sealed. In order to obtain the best results, the covers of the jars should be maintained loosely upon the gaskets during the exhausting operations; but in that case it is necessary to seal the closure-joints securely after a suitable vacuum has been obtained in the jars before readmitting the air to the joints; otherwise the air would be liable to reënter the jars and destroy or at least impair the vacuum therein.

The object of this invention is to provide a simple apparatus which is operated automat-

ically to make the seal by the readmitted atmospheric pressure after the required vacuum has been obtained in the receiver without allowing the readmitted air to reach the joints.

This apparatus, comprising my preferred embodiment of this invention as illustrated in the drawings, is employed in connection with an air-exhausting receiver R, forming a jar-chamber, having an outlet-pipe O, connected with any suitable air-exhausting pump. One or more platform-chambers 10 are formed in the lower portion of the receiver, separated from the jar-chamber R by means of the vertically-movable jar-platforms 11, fitted in guides 12, which encompass these platforms. The movement of the platforms 11 is limited in any convenient way, being herein shown to rest upon the bottom 8 of the receiver R at their lowest position and being stopped at their upward limit of movement by the abutments 14 colliding with the shoulders 13. The platforms 11 may be provided with packing 15 along its edges, making a close joint with the guides 12. When the platforms 11 are in their downward position, their upper surfaces are approximately in the same plane, and their front edges are preferably beveled, as shown at 16, to allow the jars or the trays to slide over easily. The jars J to be sealed are placed in the receiver R, either directly upon the platforms 11 or upon trays 9. The platforms 11 or the trays 9 are made with such reference to the top 17 of the receiver that the covers C of the jars J will clear that top, leaving a space above the caps sufficient to permit of their being displaced vertically during the exhausting operation. This space may be sufficient to allow of this movement even if the jars are of slightly-differing height. I prefer that the caps shall not touch the top 17 during the exhausting operation in order that no pressure shall be brought upon that cap.

The platform-chambers 10 are connected with the outlet-pipe O by means of the branch pipe S, a shut-off valve V being placed in the pipe O between its junction with the receiver

R and the pipe S. The pipe S is provided with an inlet-valve I. The pipe S may have branches below each one of the platforms 11, or, as shown in the drawings, these chambers 5 10 may be connected by means of openings 18, thereby permitting the readmitted air to reach all of the platform-chambers.

In the operation of this apparatus the filled jars, having their covers in position upon their 10 respective gaskets, are placed upon trays 9 or are placed directly upon the platforms 11, as shown in Figs. 1 and 2, the jars and trays being pushed into the receiver upon the platforms, as many of the platforms being employed 15 as may be required. The front of the receiver is then hermetically closed and the exhausting operation begins, during which operation the valve V is opened and the inlet I is closed, thereby permitting the air to be ex- 20 hausted from the platform-chambers 10, the jar-chamber R, and the interior of the jars. When a suitable vacuum has thus been obtained, the valve V is closed and the inlet I is opened, thus permitting the air-pressure to be 25 readmitted to the platform-chamber, while temporarily excluding it from the jar-chamber R, thereby enabling the readmitted atmospheric platforms to have their full effect upon the pressers 11, and thus elevating them 30 from the position shown in Figs. 1 and 2 to that shown in Fig. 3. The upward movement of these platforms forces the jars and their covers against the top 17 of the receiver, thereby leveling the caps and compressing 35 them upon their gaskets and closing all openings in the closure-joints of the jars. The valve V is then opened, so as to readmit the atmospheric pressure to the interior of the receiver R, thereby balancing the atmospheric 40 pressure above and below the platforms 11, whereupon the platforms will fall by reason of their own weight and that of the jars to

the position shown in Figs. 1 and 2. The receiver is then opened and the jars withdrawn and replaced by others for the succeeding op- 45 eration.

I claim as my invention—

1. In a jar-sealing apparatus, in combination with a jar-chamber, a platform-chamber be- 50 neath and adjacent to the jar-chamber, means for exhausting air from both chambers, means for readmitting atmospheric pressure to the platform-chamber, and a platform forming a movable wall between the two chambers to support the jars, and to substantially exclude 55 air passing from the platform-chamber to the jar-chamber.

2. In a jar-sealing apparatus, in combination with a jar-chamber, a platform-chamber be- 60 low and adjacent to the jar-chamber, a movable platform for supporting the jars, forming a movable wall between the two chambers, a guide encompassing the platform and forming a substantially close joint with it, means for 65 exhausting air from both chambers, and means for readmitting air first to the platform-chamber and then to the jar-chamber.

3. In a jar-sealing apparatus, in combination with a jar-chamber, a series of platform-cham- 70 bers below and adjacent to the jar-chamber, movable platforms for supporting the jars and forming close-jointed movable walls between the platform-chambers and the jar-chamber, means for exhausting air from all 75 the chambers, and means for readmitting air first to the platform-chambers and then to the jar-chamber.

Signed at Hartford, Connecticut, this 1st day of February, 1902.

WILLIAM A. LORENZ.

Witnesses:

E. H. LORENZ,
JOSEPH MERRITT.