No. 711,211. Patented Oct. 14, 1902.

W. H. HONISS.

JAR SEALING APPARATUS.

(Application filed Jan. 5, 1901.)

(No Model.)

Fig. 2.

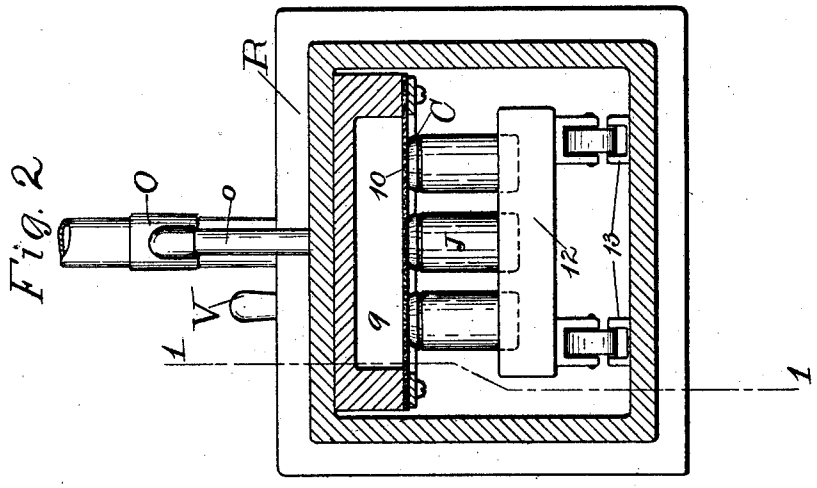
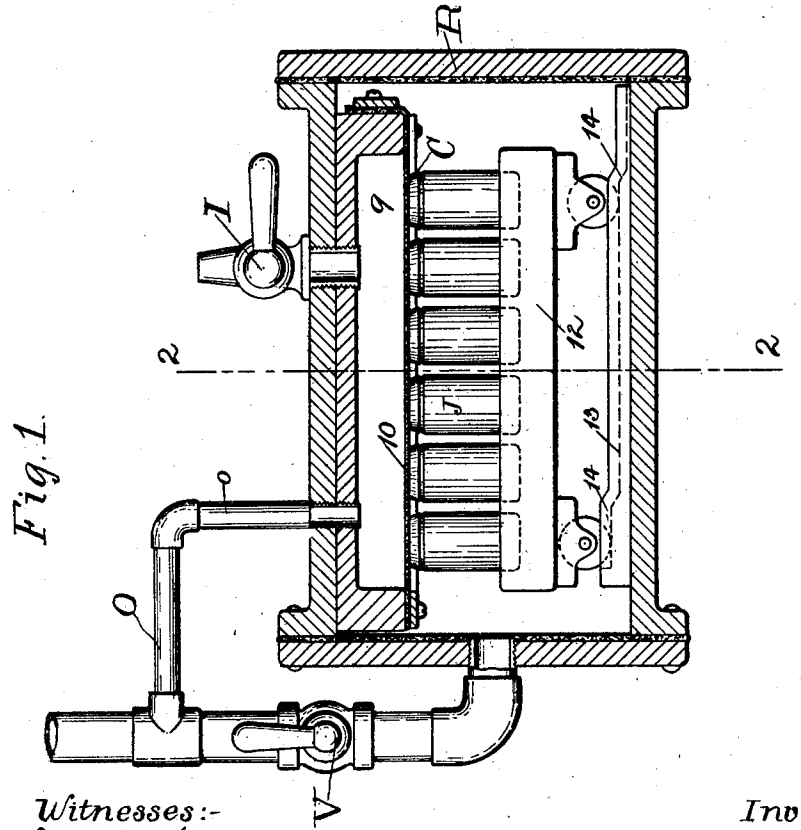


Fig. 1.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HONISS, OF HARTFORD, CONNECTICUT, ASSIGNOR OF THREE-FOURTHS TO BEECH-NUT PACKING COMPANY, OF CANAJOHARIE, NEW YORK, A CORPORATION OF NEW YORK, AND WILLIAM A. LORENZ, OF HARTFORD, CONNECTICUT.

JAR-SEALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 711,211, dated October 14, 1902.

Application filed January 5, 1901. Serial No. 42,176. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HONISS, 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 is an improved apparatus for exhausting and hermetically sealing jars, cans, and similar receptacles.

Figure 1 is a side view of this improved apparatus in section, taken substantially along the line 1 1 of Fig. 2. Fig. 2 is a front view of the apparatus in section, taken along the line 2 2 of Fig. 1.

Hermetically-sealed jars and similar receptacles are usually closed by means of a cap, an air-tight closure-joint being made between the jar and cap by means of an annular gasket of rubber or similar material. In order to allow of the ready exhaustion of the air from the interior of the jars during the exhausting operation, so as to insure a substantially uniform vacuum in all of the jars equal to that obtained in the receiver, it is desirable to have the caps rest lightly upon their gaskets during that operation, and while in this condition it frequently happens that the caps rest only upon the higher or larger portions of their gaskets, due to inequalities and irregularities almost inseparable from the manufacturing of the jars, the gaskets, or the caps, or all together, thereby leaving intermediate openings, which, while favorable for the ready exit of the air from the jars during the exhausting operation, are liable to allow the subsequently-readmitted air-pressure to enter the jars to some extent before forcing the caps down hard enough or far enough to close those openings. Moreover, the caps are for the same reason liable to become tilted, so that they do not finally bear with a uniform pressure around the gasket, even though they may be forced down sufficiently to seal the jar for the time being, and in such cases are liable sooner or later to become unsealed, and thus allow the contents of the jar to be spoiled by contact with the air.

The object of this invention is to provide an apparatus whereby the caps may, if desired, be allowed to rest loosely upon their gaskets without becoming tilted during the exhausting operation and whereby the external air-pressure may be readmitted and utilized to force the caps squarely down upon their gaskets with uniform, ample, and positive pressure without allowing the readmitted air to reënter the closure-joint.

This apparatus in the preferred embodiment illustrated in the drawings is employed as an adjunct to an ordinary air-exhausting receiver R, having an outlet-pipe O for connecting with any suitable air-exhausting pump. The presser-chamber 9 is supported in any suitable way within the receiver R. One of the walls of the chamber is a flexible diaphragm 10, substantially impervious to air, and therefore forming a substantially air-tight separation between the chamber 9 and the remaining interior portion of the receiver, which thus constitutes a jar-chamber. The chamber 9 is connected with the outlet-pipe O by means of a branch pipe *o*, a shut-off valve V being interposed in one of these two pipes between their junction with each other and with the apparatus. The chamber 9 is also provided with an inlet-valve I, which is closed during the exhausting operation. The jars J to be sealed are placed within the receiver R, with one end, which is ordinarily the capped end, as herein shown, located substantially in the plane of the diaphragm 10. As a convenient way of transferring these jars to and from the receiver, especially when operated upon in large numbers, they may be mounted upon a truck 12, the wheels of which rest upon the tracks 13, having inclines 14 for elevating the truck to bring the jars into suitable relation to the diaphragm 10 when they reach their exhausting position, the inclines leading to lower levels, upon which the wheels travel while entering and leaving the receiver and which allow the jar-caps to clear the diaphragm.

In the operation of this machine the filled jars having their caps placed in position upon their respective gaskets are placed in the re-

ceiver in the position shown in the figures. The front of the receiver is then hermetically closed and the exhausting operation begins, during which time the valve V is open and the inlet I is closed, thereby permitting the air to be exhausted equally from the chamber 9, the interior of the receiver R, and the interiors of the jars. When a suitable vacuum has been thus obtained, the valve V is closed and the inlet-valve I is opened, thus permitting air to reënter the chamber 9 while excluding it from the interior of the receiver R, and thereby enabling the atmospheric pressure to have its full effect upon the diaphragm 10, which thus becomes a flexible presser, serving to force the caps firmly down with all the force afforded by the atmospheric pressure, its flexibility enabling it to conform to the variations in the heights of the jars, so as to press equally upon each. The valve V is then opened, so as to readmit the air to the interior of the receiver from the chamber 9 by the way of the branch *o* and the outlet O. The front of the receiver may now be removed, the truck 12 withdrawn, and the sealed jars replaced with a new lot to be treated in the same way.

This apparatus may obviously be modified as to construction, arrangement, and mode of operation in many ways which will suggest themselves to those skilled in the art to suit the number and kind of jars to be operated upon or to suit other conditions of service. Where the nature of their contents permits, the jars may be inverted or may be turned upon their sides. Under some circumstances it may be more convenient to have the presser bear against the bottom ends of the jars, it being immaterial which end receives the pressure so long as the effect is to press each jar and cap together with sufficient force to seal the jar before readmitting air to the closure-joint. The valve V may be omitted if the size and length of the connecting-passage O *o* between the presser-chamber 9 and the interior of the receiver R be made of proportions which will prevent the air from reaching the jars until after the caps have been closed down.

I claim as my invention—

1. In a jar-sealing apparatus, the combination of a jar-chamber, and an expansible presser-chamber, provided with a movable wall between the two chambers for pressing against the jars when the presser-chamber is expanded, and means for expanding the presser-chamber by atmospheric pressure.

2. In a jar-sealing apparatus, the combination of a jar-chamber, a presser-chamber separated from the jar-chamber by a flexible wall, and means for expanding the presser-chamber with air-pressure, whereby the flexible wall is pressed with substantial uniformity and independence upon all of the jars.

3. In a jar-sealing apparatus, the combination of a jar-chamber, and a presser-chamber adjacent thereto, provided with a movable wall interposed between the two chambers, means for exhausting air from both chambers, and means for readmitting air to the presser-chamber.

4. In a jar-sealing apparatus, the combination of a jar-chamber, and a presser-chamber adjacent thereto, provided with a flexible wall separating, and hermetically sealing one chamber from the other, means for exhausting air from both chambers, and means for readmitting the air to the presser-chamber.

5. In a jar-sealing apparatus, the combination of a jar-chamber, and a presser-chamber adjacent thereto, provided with a flexible wall located between the two chambers substantially in the plane of the jar ends, and sealing one chamber from the other, means for exhausting air from both chambers, and means for readmitting air to the presser-chamber.

Signed at Hartford, Connecticut, this 29th day of December, 1900.

WM. H. HONISS.

Witnesses:
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