

O. H. MOHR.
PRESERVING APPARATUS.
APPLICATION FILED DEC. 5, 1911.

1,073,276.

Patented Sept. 16, 1913.

2 SHEETS—SHEET 1.

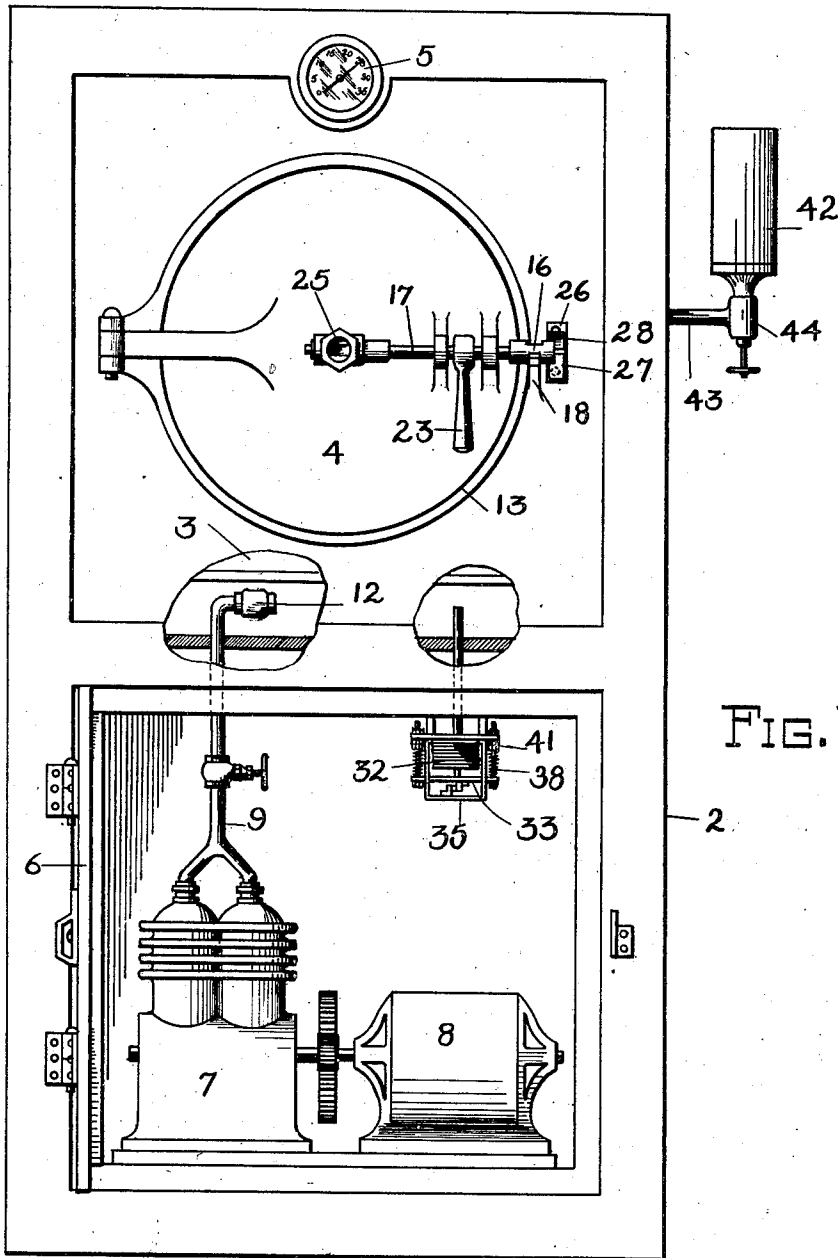


FIG. 1.

WITNESSES:

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INVENTOR

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BY

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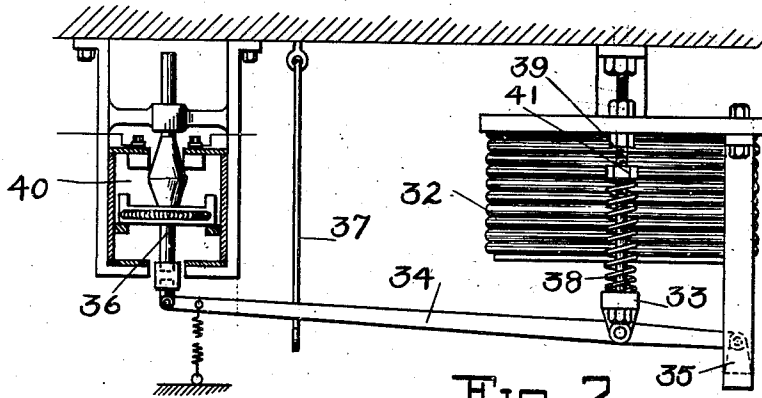


FIG. 2.

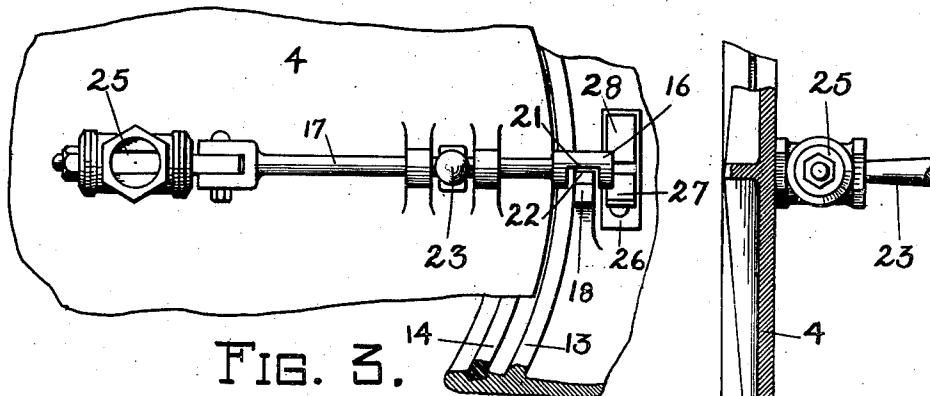


FIG. 3.

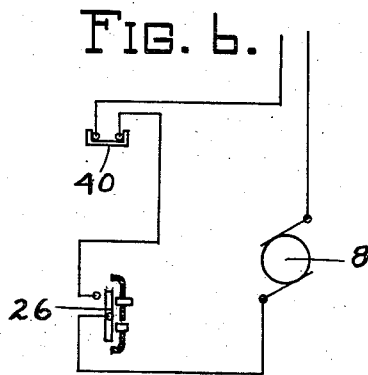


FIG. 6.

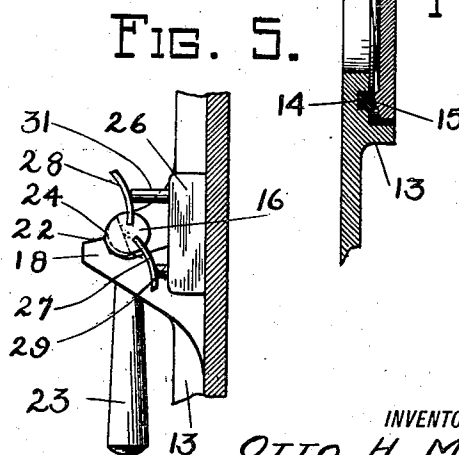


FIG. 5.

FIG. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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PRESERVING APPARATUS.

1,073,276.

Specification of Letters Patent.

Patented Sept. 16, 1913.

Application filed December 5, 1911. Serial No. 664,063.

To all whom it may concern:

Be it known that I, OTTO H. MOHR, a citizen of the United States, and a resident of the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Preserving Apparatus, of which the following is a specification.

The invention relates to preservers which are used for preserving food and other products by inclosing them in a vacuum chamber.

The object of the invention is to provide a preserver with means for throwing the vacuumizing apparatus into operation when the door of the preserving chamber is closed.

Another object of the invention is to provide means for automatically throwing the exhausting apparatus out of operation when the vacuum within the chamber has reached a predetermined value.

Another object of the invention is to provide means for automatically throwing the exhausting means into operation should the vacuum within the chamber be reduced, by leakage or other means.

A further object of the invention is to provide means for introducing dry air into the chamber.

This device possesses other advantageous features, which, with the foregoing will be set forth at length in the following description where I shall outline in full that form of embodiment of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. The novelty of the invention will be included in the claims succeeding said description. From this it will be apparent that I do not restrict myself to the showing made by such drawings and descriptions, as I may adopt many variations within the scope of my invention as expressed in said claims.

Referring to the drawings:—Figure 1 is a general front elevation of the preserver of my invention, several of the parts being broken away to disclose parts in the interior. Fig. 2 is a detail of the means employed for automatically opening and closing the circuit which furnishes the power to drive the exhausting means. Fig. 3 is a fragment of the door and locking means and a portion of the wall of the chamber. Fig. 4 is a vertical section through a portion of the door and the wall of the chamber adjacent thereto.

Fig. 5 is an end view of the door locking means, showing the means employed for simultaneously closing or opening the power circuit as the door is closed or opened. Fig. 6 is a diagrammatic representation of the power circuit and controlling devices.

The preserver consists generally of a casing or box-like structure 2 preferably formed of wood and finished on the exterior in any suitable manner. Within this casing and preferably at the upper part thereof is the preserving chamber 3. The chamber 3 is generally entirely inclosed in the casing, with the exception of the front face thereof, which is exposed. The chamber is preferably made of metal and is of such construction that it will resist the pressure of the atmosphere, when the interior thereof is exhausted. The chamber is made air tight, so that when the door 4 thereto is closed and locked, a vacuum may be formed therein. A vacuum gage 5, connected to the chamber 3 is generally arranged on the front of the preserver to indicate the amount of vacuum within the chamber.

Within the casing and below the chamber 3 is a compartment which is generally closed by a door 6, and in which is arranged the mechanism for exhausting the air from the chamber. This mechanism preferably consists of an exhaust pump 7 driven by an electric motor 8. The suction pipe 9 of the pump extends upward into the chamber and may be provided on its upper end with a check valve 12, which acts to prevent leakage into the chamber through the pump, when the pump is not in operation.

Access is gained to the chamber 3 by opening the door 4, which is preferably circular in form, as this form adapts itself more readily to forming an air tight closure. The chamber is provided with an outstanding circular flange 13 within which the door seats itself when closed. The door is hinged to the chamber at one side of the door opening so that it may be easily moved to open and closed positions. Seated in the front wall of the chamber and projecting therefrom is a packing ring 14 of soft material, arranged within and concentric with the flange 13. The door is preferably provided on its inner face with a circular projection 15 adapted to engage the packing ring when the door is in the closed position and form an air tight joint. The door is provided with means for locking it in the closed position and for

pressing it against the packing ring so that a hermetic seal is assured. In the present illustration this means consists of a substantially cylindrical element 16, arranged on a rod 17 extending radially of the door, which is adapted to engage the hooked element 18 on chamber wall. The locking piece 16 is provided with a slot or cut-away portion at the center, said cut away portion extending substantially to the axis of the cylinder.

When the door is in condition to be swung open the base 21 of the groove lies substantially parallel with the face 22 of the hook, and when in this position the handle 23 stands approximately at a right angle to the door. When the door is to be locked the handle is moved to the horizontal position, the door closed and the handle depressed. This movement partially rotates the cylindrical element 16 and brings the curved surface 24, thereof in contact with the curved surface of the hook. The surface 24 is formed eccentric so that the movement of the handle not only locks the door in position, but presses it more tightly against the packing ring to secure a tight joint.

It is evident that when a vacuum exists within the chamber, that the pressure on the door is great and that the vacuum should be destroyed before an attempt is made to swing the door open. This I accomplish in the present construction by means of a valve 25 on the door which is arranged to be operated by the movement of the handle 23. The valve is operably connected to the rod 17 so that a movement of the handle operates the valve. When the handle is in the depressed position and the door is locked, the valve is closed; and when the handle is raised to unlock the door, the valve is opened and the vacuum in the chamber destroyed.

I have also provided means for closing the electric circuit through the motor when the door is locked. This operation is performed automatically with the locking of the door, thereby obviating the danger that the person using the preserver might overlook the starting of the motor after the door has been locked. In the present construction I have arranged a two button snap-switch 26 on the casing adjacent the end of the locking cylinder 16, and have provided the arms or wings 27-28 on the cylinder 16 which engage and operate the switch as the handle is moved to lock or release the door. When the handle is depressed the wing 27 engages and presses against the button 29 and thereby closes the switch and starts the motor. When the handle is moved to the horizontal position the wing 27 moves away from button 29 and the wing 28 presses against the button 31 to open the switch. Means are also provided for automatically opening and closing the circuit when the

vacuum within the chamber reaches certain predetermined values. Below the chamber and in communication therewith is arranged a closed receptacle 32 having corrugated sides of relatively thin metal, so that it may vary its length with variations in internal pressure. Since this receptacle 32 operates in the nature of a diaphragm it will be hereinafter termed a diaphragm for the purposes of convenience. The top and bottom walls of the receptacle 32 are rigid, the sides of the receptacle possessing expanding or contracting qualities, so that the bottom of the receptacle moves vertically with variations in pressure. Arranged below the receptacle is a cross bar 33 which is connected to the bottom of the receptacle so that it moves simultaneously therewith. This cross bar 33 is pivotally connected to a lever 34, supported at one end on the stationary bracket 35 and connected at the other end to the operating member 36 of a jump switch 40 which is placed in the electric circuit. The lever is supported in its lower position by a hook 37 so that the weight thereof and the pressure of the springs which tend to hold it depressed, do not fall on the diaphragm.

It is evident that as the pressure within the chamber is reduced, the bottom of the diaphragm chamber is raised, thereby raising the outer end of the lever and opening the switch 40. The cross bar 33 is pressed downward against the action of the diaphragm by the coiled springs 38. These springs are held in position by bolts 39 secured to the top of the diaphragm chamber and loosely fitted into the cross bar, so that the cross bar may move vertically with respect to the bolt. The downward pressure of the springs on the cross bar is regulated by the nuts 41. By this means the control mechanism can be set to automatically open the switch and stop the motor when the desired vacuum is obtained. Similarly the mechanism is arranged to close the switch when the vacuum within the chamber has been lessened. In the present device the mechanism is arranged to open the switch when a twenty six inch vacuum is obtained and to close it when the vacuum drops to fifteen inches.

It is understood that there are two switches in the electric circuit within the device, one of the switches being closed only when the door is locked and the other when the vacuum in the chamber is below a certain predetermined value.

Many foods, give off vapors when exposed to the air or in a vacuum and these vapors would have a tendency to contaminate other foods in the chamber, if the contact was over any great length of time. In order to overcome this possible difficulty, I arrange on the side of the casing, a receptacle 42

which is in communication with the interior of the chamber through the conductor 43. This conductor is provided with a needle valve 44, arranged between the receptacle and the chamber. Within the receptacle 42 is placed a quantity of moisture absorbing substance, such as calcium chlorid so that the moisture in the air passing into the chamber is extracted therefrom and only dry air is admitted.

The needle valve 44 can be adjusted to allow the air to pass into the chamber at any desired rate. In this manner dry air is slowly admitted to the chamber, and when the vacuum therein reaches a certain predetermined minimum, the exhausting means is thrown into operation to extract the moist air and raise the vacuum to the predetermined maximum. By this means a substantially perfectly dry vacuum is continually maintained.

I claim:

1. In a preserving apparatus, a chamber, a door to said chamber, an exhausting means and means operable by the locking of said door to throw the exhausting means into operation.

2. In a preserving apparatus, an air tight chamber provided with a door opening, a door closing said opening, a suction pump connected to said chamber, means for driving said suction pump and means adjacent said door for throwing the pump into operation as the door is locked, said means being actuated from the locking means.

3. In a preserving apparatus, an air tight chamber provided with a door opening, a door engaging said opening, means for locking said door in the closed position, means for exhausting the air from said chamber and means operable by the unlocking of the door, for throwing the exhausting means out of operation.

4. In a preserving apparatus, an air tight chamber provided with a door opening, a door adapted to close said opening, means for locking said door in the closed position, a suction pump for exhausting the air from said chamber, means adjacent said locking means for throwing the suction pump out of operation and means on the locking means adapted to engage said controlling means for throwing the pump out of operation as the door is unlocked.

5. In a preserving apparatus an air tight chamber provided with a door opening, a door adapted to close said opening, means for locking said door in the closed position

means for varying the pressure within said chamber and means operated by the unlocking of the door for establishing communication between the chamber and the atmosphere.

6. In a preserving apparatus, an air tight chamber provided with a door opening, a door adapted to close said opening, means for locking said door in the closed position, means for varying the pressure within said chamber, a valve for establishing communication between the chamber and the atmosphere when the door is unlocked, and means operative by the locking of the door for closing said valve.

7. In a preserving apparatus, a chamber provided with a door opening, a door for closing said opening, means for locking the door in the closed position, a suction pump for exhausting the air from said chamber, an electric motor for driving said pump, an electric circuit connected to said motor, a switch in said circuit adapted to be automatically closed as the door is locked and a switch in said circuit adapted to be automatically closed and opened when the vacuum within the chamber reaches certain predetermined maximum and minimum values.

8. In a preserving apparatus, a closed chamber, means for exhausting the air from said chamber, automatically operating means for throwing said exhausting means out of operation when the vacuum within the chamber reaches a predetermined value, means for admitting dry air to said chamber and means for automatically throwing the exhausting means into operation when the vacuum in the chamber reaches a certain minimum value.

9. The combination of a closed casing provided with an opening, a door adapted to close said opening, means for locking the door in the closed position, an electric circuit and means operative by the locking of the door for closing said circuit.

10. The combination of a closed casing provided with an opening, a door adapted to close said opening, means for locking the door in the closed position, an electric circuit and means operative by the unlocking of the door for opening said circuit.

In testimony whereof, I have hereunto set my hand at San Francisco, Cal., this 29th day of November 1911.

OTTO H. MOHR.

In presence of—

H. G. PROST,

P. S. PIDWELL.