

E. GRISWOLD & J. D. MORAN.
Fruit-Jar.

No. 225,752.

Patented Mar. 23, 1880.

Fig. 1.

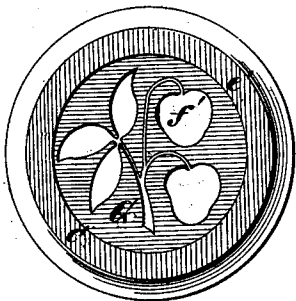


Fig. 2.

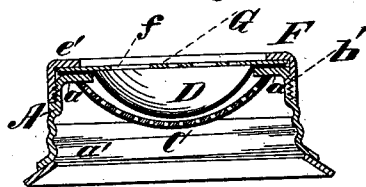


Fig. 3.

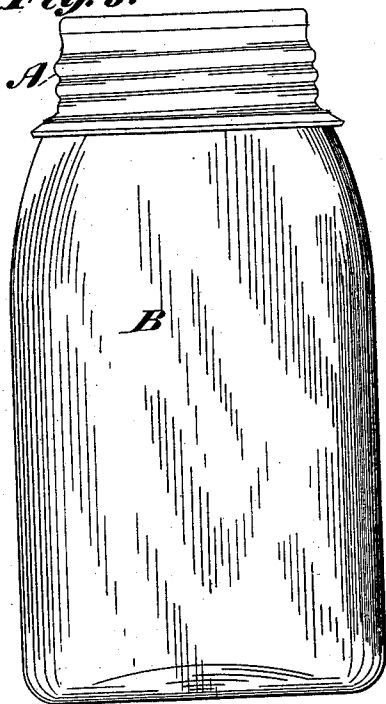


Fig. 4.

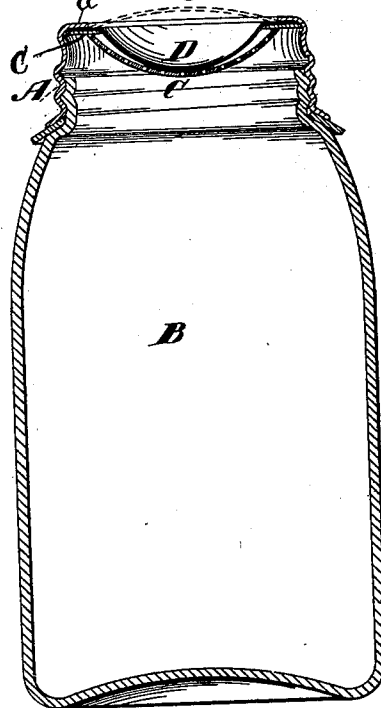


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDMOND GRISWOLD AND JOHN D. MORAN, OF NEW YORK, N. Y.

FRUIT-JAR.

SPECIFICATION forming part of Letters Patent No. 225,752, dated March 23, 1880.

Application filed November 3, 1879.

To all whom it may concern:

Be it known that we, EDMOND GRISWOLD and JOHN D. MORAN, both of the city, county, and State of New York, have invented certain Improvements in Fruit-Preserving Jars, of which the following is a specification.

This invention relates to that class of jars which have a movable diaphragm which indicates, by its position, the degree of tenuity or approximate vacuum within the jar, so that by its use any formation of gases incident to decay within the jar may be readily discovered from the changed position of the diaphragm.

The invention also comprises, in a cap for fruit-jars, a novel combination of a rim capable of attachment to the jar, a foraminated plate surrounded by said rim and securely attached thereto, and a flexible diaphragm, the parts being so constructed and arranged that when the diaphragm is forced inward by the pressure of the atmosphere during the time that a vacuum more or less complete is maintained within the jar, said plate will support and sustain the diaphragm, and at the same time permit the passage of any gases that may be evolved (within the said jar) through said plate to act upon the inside of the diaphragm, and thereby lift the same to indicate their presence, and consequently the presence and progress of decomposition in the contents of the jar.

The invention also comprises a novel construction of the diaphragm combined with the cap, as aforesaid, whereby the diaphragm is rendered impervious to the passage of air or gases.

The invention also comprises certain novel combinations of parts whereby the diaphragm is protected against external injury, and whereby also provision is made for readily attaching and detaching it from the cap when occasion requires, and also for the cheap and convenient manufacture of the complete device.

Figure 1 is a plan view, and Fig. 2 a vertical sectional view, of the cap. Fig. 3 is a side, and Fig. 4 a vertical sectional, view of a jar fitted with certain features of our said invention; and Fig. 5 is a vertical sectional view of the cap, showing certain other features of our said invention.

A is the rim of the cap, and B is the glass jar, the rim A being of metal and capable of attachment to the jar by any suitable means—as, for example, a screw-thread, *a'*, formed on the rim and arranged to operate in connection with a like thread on the top or neck of the jar, as represented more fully in Fig. 4. The rim A is provided at the top with an inwardly-projecting flange, *a*.

C is a plate, which may be concavo-convex, and which is made of perforated metal or other suitable material, and the circumferential edge of which is secured by any suitable means—as, for example, by soldering to the rim A below the flange *a* thereof.

D is a flexible diaphragm, formed preferably of soft vulcanized india-rubber, and which is extended across the opening in the top of the rim A to close the same, and the circumferential edges of which, as shown in Fig. 4, are gripped air-tight between the flange *a* and the circumferential portions of the perforated diaphragm C; but when the several combinations included in our said invention are united in a single device, the upper part of the rim A is made of diminished diameter, and provided with an external screw-thread, *b'*, upon which is screwed the supplemental annular cap F, which has an inwardly-turned flange, *e'*, which said supplemental cap F is brought above and coincident with the flange *a* of the rim A. The edges of the diaphragm are placed between the two flanges *e'* *a*, as also are the edges of a perforated guard-plate, G, the openings or perforations of which are shown at *f'*. The supplemental cap F being screwed down tightly upon the rim A, the edges of the diaphragm and of the guard-plate, respectively, are compressed and tightly secured to the device.

While the diaphragm may doubtless be made of a single thickness of any suitable impervious material, yet to insure its perfect operation in the hermetic sealing of the cap it is made double, or, so to speak, in the form of a thin sack, in which is placed a quantity of water or other fluid or semi-fluid substance, which will interpose an effective barrier to the transmission of aeriform fluids through the diaphragm, this construction being rep-

resented in Fig. 5, *i* indicating the flexible upper and lower parts of the diaphragm, and *n* the liquid placed therein.

In the application of the cap, as thus constructed, to the jar, the latter is filled with fruit, which is then cooked or heated in the usual manner until all, or nearly all, the air is expelled from the jar by the generation and escape of steam, whereupon the cap is placed and secured air-tight upon the jar, and the latter is suffered to cool. When the steam contained within the jar is condensed there is produced, of course, a vacuum more or less complete within said jar, whereupon the pressure of the atmosphere forces the diaphragm down upon the perforated plate C, which sustains the said diaphragm. This position of the diaphragm will be continued unless decomposition should occur in the contents of the jar, in which case the generation of gases will, of course, exert an internal pressure counterbalancing or more than counterbalancing, that of the external atmosphere, and forcing the diaphragm upward and outward, and thereby indicating the presence and progress of decay in the contents of the jar.

What we claim as our invention is—

1. In a cap for fruit-preserving jars, a com-

bination of a rim, A, a foraminated plate, C, and a flexible diaphragm, D, the whole attached together for use and operation substantially as and for the purpose herein set forth.

2. In a cap for fruit-preserving jars, a flexible diaphragm, D, gripped air-tight between the flange *a* of the rim A and the circumferential portions of the foraminated plate C, attached to the aforesaid rim, all substantially as and for the purpose herein set forth.

3. In a cap for fruit-preserving jars, a flexible diaphragm filled with a liquid or semi-liquid substance practically impermeable to the presence of air or gases, substantially as and for the purpose herein set forth.

4. In a cap for fruit-preserving jars, a combination of the rim A, constructed with a screw-thread, *b'*, and flange *a*, the foraminated plate C, the diaphragm D, guard-plate G, and a supplemental cap, F, having the flange *e'*, all substantially as and for the purpose herein set forth.

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