(No Model.) 2 Sheets—Sheet 1.

J. DAY.

DEVICE FOR EFFECTING AIR TIGHT CLOSURES FOR VESSELS.

No. 544,967. Patented Aug. 20, 1895.

Fig. 1.

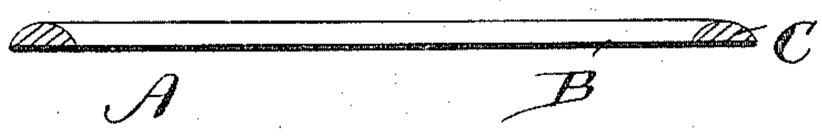


Fig. 2.

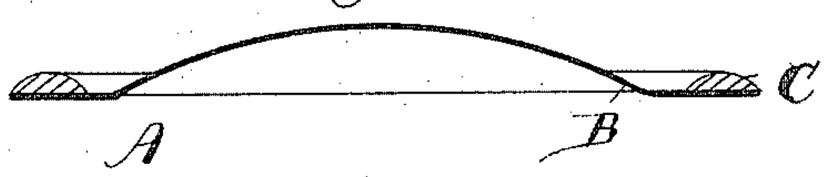


Fig. 3.

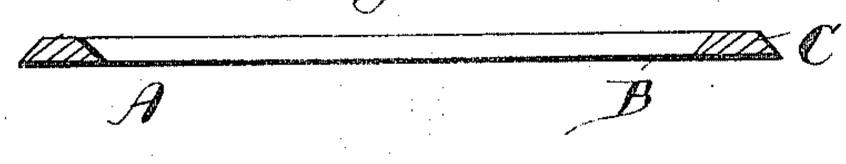


Fig. 4.

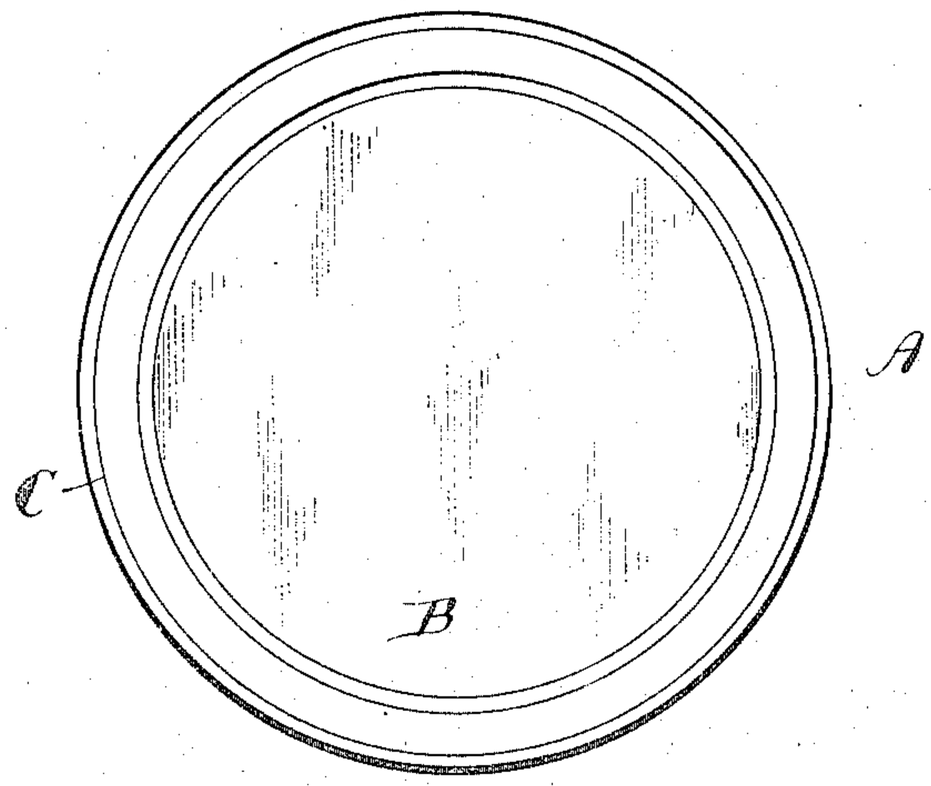
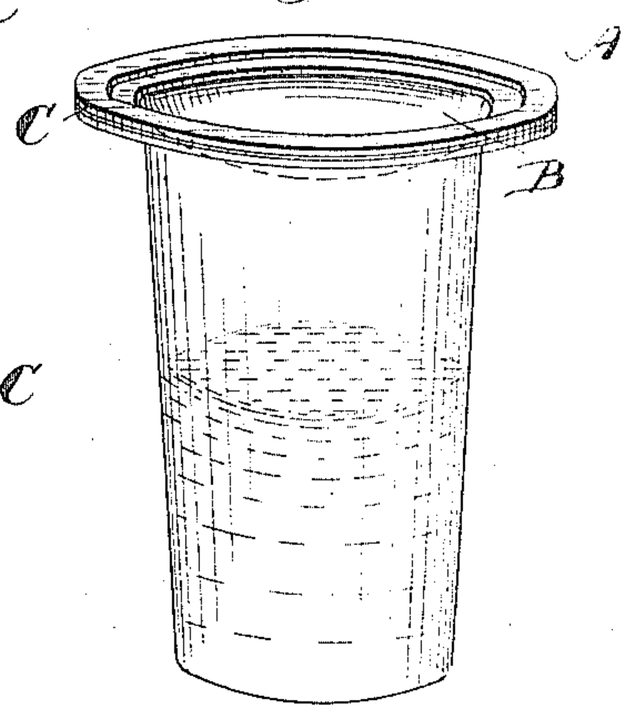


Fig. 11.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

J. DAY.

DEVICE FOR EFFECTING AIR TIGHT CLOSURES FOR VESSELS.

No. 544,967. Patented Aug. 20, 1895.

Fig. 5.

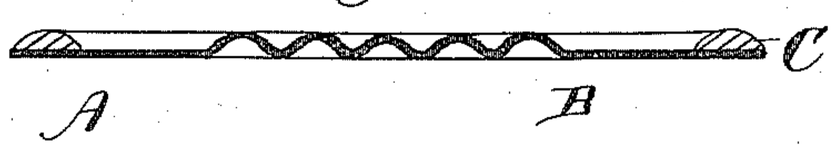


Fig. 6.

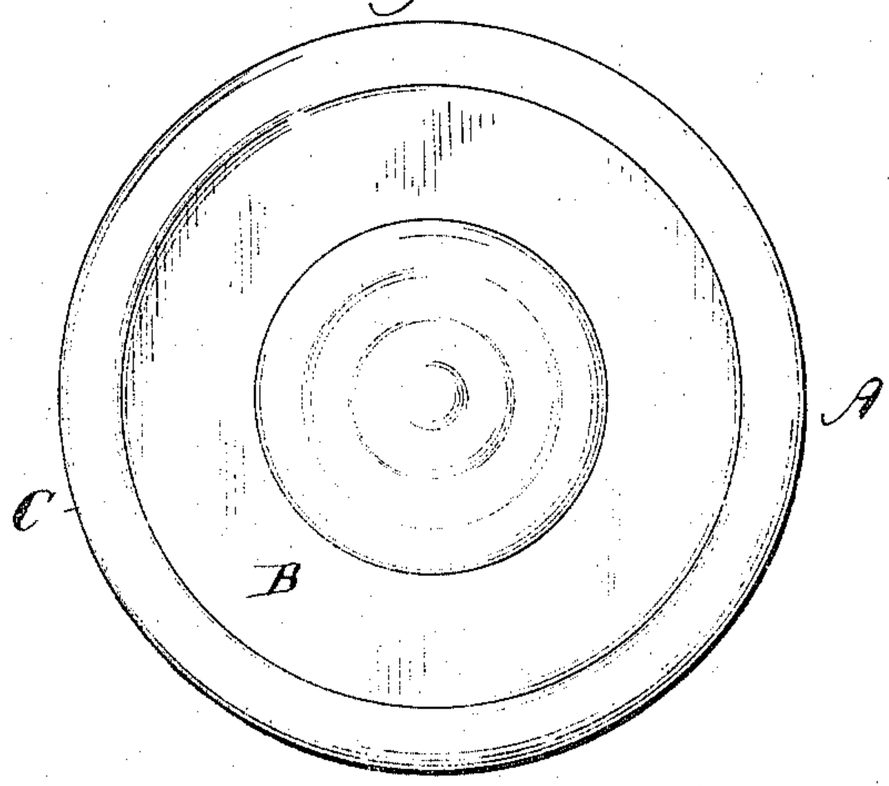


Fig. 7.

Fig. 8.

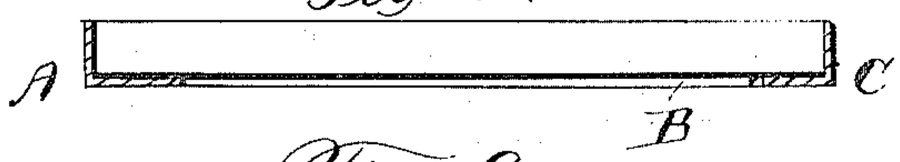


Fig. 9.

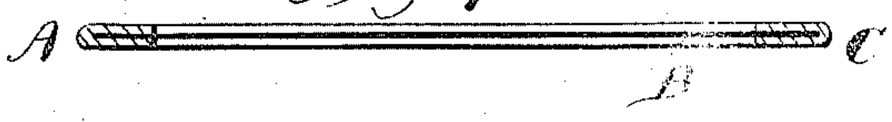
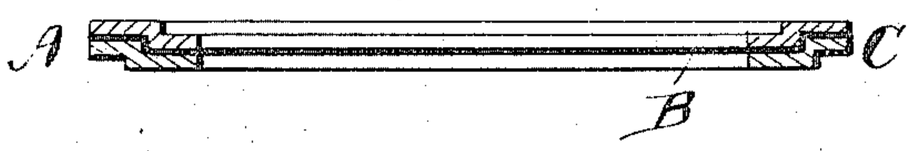


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOSEPH DAY, OF BATH, ENGLAND.

DEVICE FOR EFFECTING AIR-TIGHT CLOSURES FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 544,967, dated August 20, 1895.

Application filed March 15, 1894. Serial No. 503,790. (No model.) Patented in England January 27, 1893, No. 1,853.

To all whom it may concern:

Be it known that I, JOSEPH DAY, a subject of the Queen of Great Britain, residing at Spring Gardens, Bath, in the county of Somerset, England, have invented certain new and useful Improvements in Devices for Effecting Air-Tight Closures for Vessels, (for which I have received Letters Patent in England, No. 1,853, dated January 27, 1893;) and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to a cover or device for effecting an air-tight closure or seal for various kinds of receptacles, and among the objects sought to be attained are to provide an extremely simple, inexpensive, and efficient device, which may be readily and quickly applied to various kinds of receptacles for the purpose of obtaining an air-tight closure in order to preserve the contents of such receptacle from deterioration or accumulation of dust and dirt thereupon, and which device may be readily detached from the receptacle for the purpose of abstracting the contents; and with the described objects in view the invention consists in the novel construction, arrangement, and combination of parts whereby the desired results are attained.

My cover consists, essentially, of an elastic diaphragm, preferably thin rubber, confined at its edges by a surrounding rim or disk, or other means, and for the purpose of adapting the device to different sizes and shapes of receptacles I of course construct said device of various sizes and in various shapes, and would state that I do not wish to be restricted to any particular size or shape of the device, nor to any specific material or materials entering into the construction of the same, so long as the diaphragm is elastic and the confining means therefor sufficiently rigid for the purpose.

In the drawings representing my invention, Figure 1 is a cross-sectional view of the cover. Fig. 2 is a like view of a modified form of same. Fig. 3 is a section of another modification of the cover. Fig. 4 is a plan view of Fig. 3. Fig. 5 is a section of another modified form of cover. Fig. 6 is a plan view of Fig. 5. Figs. 7, 8, 9, and 10 show other constructions in cross-section, and Fig. 11 is a perspective view representing the cover applied to a receptacle.

In the above-described drawings, A indicates the device or cover as a whole, the same consisting of the elastic diaphragm B and confining or surrounding rim C.

For the purpose of confining the diaphragm at its peripheral edge any suitably-constructed rim or disk or other device may be employed, and in the drawings I have represented several forms of retaining or confining means, each of which acts to tightly clamp or grip the peripheral edge of the diaphragm. For instance, in Figs. 1, 2, and 5, I show the confining rim or means as consisting of a semi-cylindrical metal disk, to the under edge or surface of which the peripheral edge of the diaphragm is secured. In Fig. 2 I show the diaphragm as molded to form a slight dome, and in Fig. 5 I show the diaphragm as provided with concentric corrugations. In Fig. 3 the rim is shown as having a slightly different shape in cross-section, the diaphragm being cemented to the under side of the rim. In Fig. 7 the rim is shown as cylindrical and molded in the rubber. In Fig. 8 the rim is shown as having an L shape in section, the diaphragm being laid therein, after which the vertical portion of the rim is bent over and down on the rubber to hold it in place, as in Fig. 9. In Fig. 10 I show the rim as consisting of two parts, which are forced together to clamp the diaphragm between them.

I have found that in order to obtain a more perfect closure between the diaphragm and the receptacle to which it is applied the said diaphragm should be stretched or strained to some extent and maintained in a stretched condition, as it will be found in practice that if the diaphragm is not so stretched it will be difficult to effect an air-tight closure.

The stretching of the diaphragm may be effected either before or after the edge is clamped in the rim or disk. If the stretching is to be effected after the edge has been confined and such stretching to be maintained, I would place the device in a suitable die and subject the same to pressure, whereby the disk will be caused to assume such a shape as will stretch the diaphragm held

thereby—for instance, as seen in Fig. 10, wherein the disk has been shaped to effect such a stretching of the diaphragm.

The mode of applying the device to a receptacle is represented in Fig. 11, wherein the device is laid upon the upper edge of the receptacle, and then by pressing downwardly upon the diaphragm with the fingers to some extent an air-tight closure is effected between the lower surface of the diaphragm and the upper edge or rim of the receptacle, and such diaphragm will be firmly retained in such position until it becomes necessary to abstract the contents of the receptacle, when by pulling the device upwardly by its rim it may be detached. By moistening the lower surface of the diaphragm a still better closure may be effected.

It will be understood that the upper edge of the receptacle should, in order to obtain the best results, present an unbroken or even surface, in order that the diaphragm may cooperate evenly therewith around the whole edge of the receptacle.

The advantages to be derived from the use of my invention are clearly apparent, and in view of the very extensive use to which it may be put renders it of great value for the purposes to be attained.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a receptacle with the herein described cover consisting of an elastic diaphragm, and retaining or confining rim to which the peripheral edge of the diaphragm is secured, leaving the center of the diaphragm free to be pressed, the said diaphragm being adapted to be placed on the open top of the receptacle whereby when the diaphragm is depressed and then the pressure is removed the natural tendency of the elastic diaphragm will be to seal the edges, substantially as set forth.

2. The combination of a receptacle with the herein described cover consisting of a stretched elastic diaphragm and a retaining or confining rim to which the peripheral edge of the diaphragm is secured, holding the same in its stretched condition, the said diaphragm being adapted to be placed on the open top of the receptacle whereby when the diaphragm is depressed and then the pressure is removed, the natural tendency of the elastic diaphragm will be to seal the edges, substantially as set forth.

3. The combination of a receptacle with the herein described cover consisting of a stretched elastic diaphragm and a retaining or confining rim to which the peripheral edge of the diaphragm is secured, holding the same in its stretched condition, the said diaphragm being adapted to be placed on the open top of the receptacle whereby when the diaphragm is depressed and then the pressure is removed, the natural tendency of the elastic diaphragm will be to seal the edges, the said retaining rim for the edge of the diaphragm being of greater diameter than and extending beyond and around the edge of the receptacle, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH DAY.

Witnesses:
WM. E. BOULTER,
H. B. WILLSON.