No. 829,577. PATENTED AUG. 28, 1906.

A. EIMER.

CONTAINING VESSEL FOR CHEMICALS.

APPLICATION FILED AUG. 10, 1905.

Fig. 1.

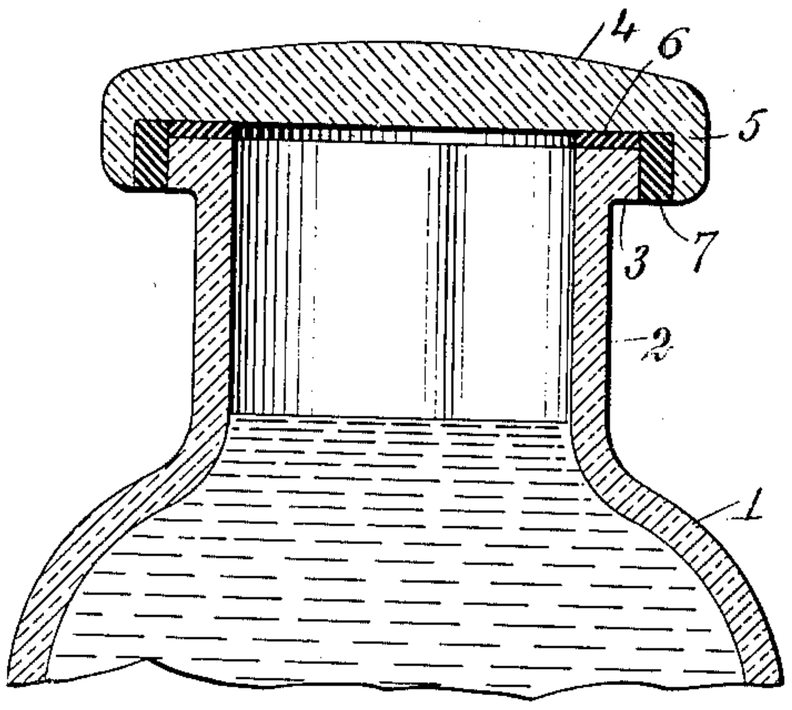


Fig. 2.

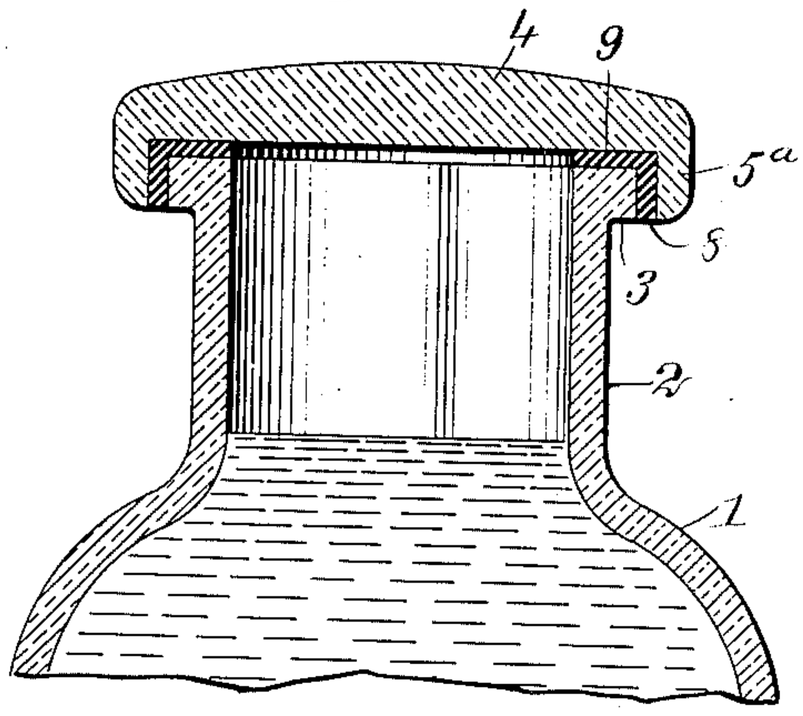


Fig. 3.

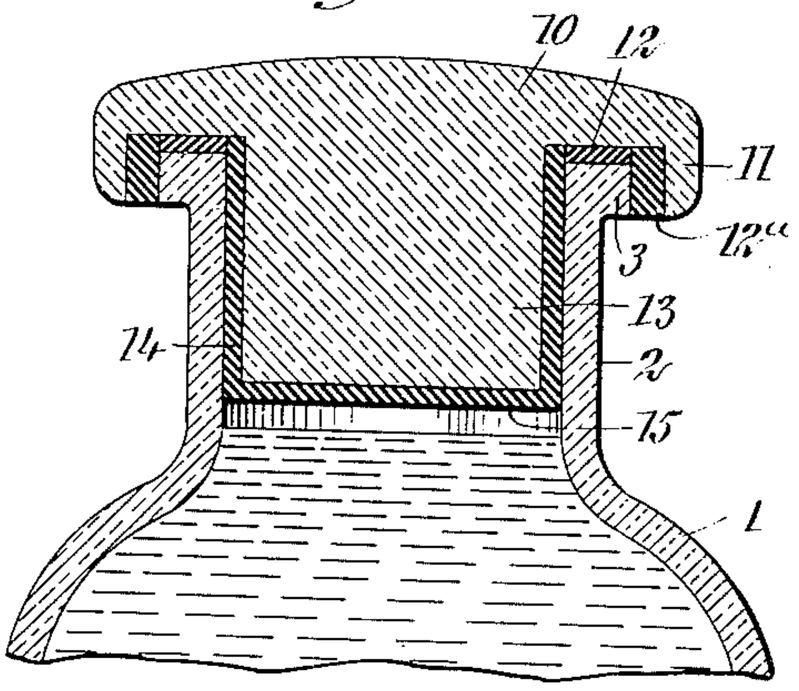
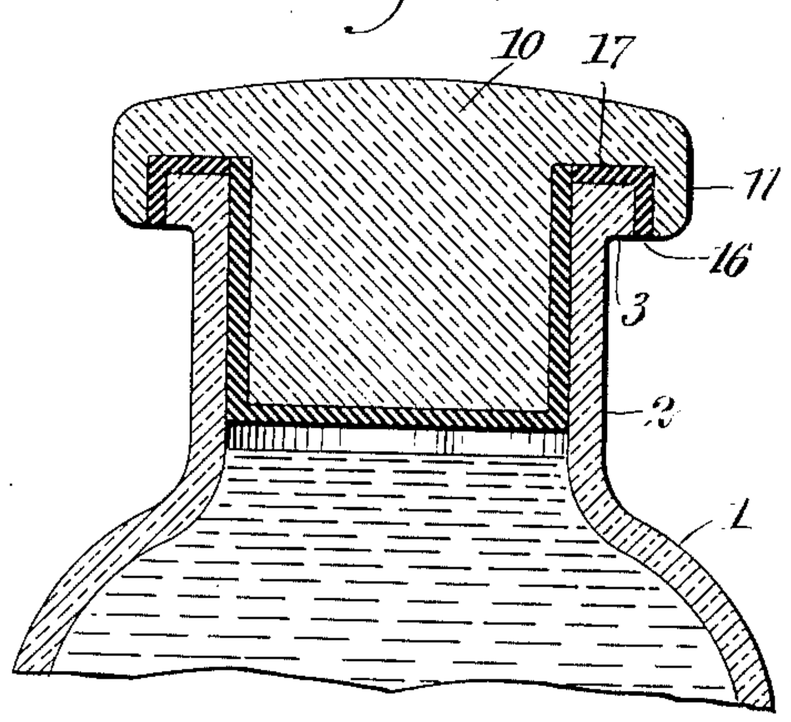


Fig. 4.



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CONTAINING VESSEL FOR CHEMICALS.

No. 829,577. Specification of Letters Patent. Patented Aug. 28, 1906.

Application filed August 10, 1905. Serial No. 273,601.

To all whom it may concern:

Be it known that I, AUGUST EIMER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Containing Vessel for Chemicals, of which the following is a full, clear, and exact description.

This invention relates to vessels; and it consists, substantially, in the features of improvement hereinafter more particularly described, and pointed out in the claims.

The invention has reference more especially to glass or similar vessels, as bottles and jars, for instance, of the type (embodying removable lids or covers) employed by chemists, dealers, and consumers for containing chemicals, and which require to be opened from time to time for the purpose of emptying the same of some portion of the contents thereof, according to the amount required for use or when making a sale.

As is well known by chemists and others, when certain chemicals are put up in glass or similar vessels, as bottles and jars, unless effective seals are provided between the mouths of the vessels and the closures therefor the contents of the vessels soon become so contaminated as to be rendered unfit for use and which of course results in a dead loss. Vessels for this purpose were formerly provided with seals or closures of cork; but as cork is gradually becoming inferior and more expensive and on which account it became necessary to construct the necks (and consequently the mouths) of the vessels considerably smaller than before it follows that more time is now consumed both in filling the vessels and in emptying the same of their contents. Moreover, cork by reason of its structure or nature (being porous) readily absorbs or becomes filled with substances which are apt to be detrimental to the contents of the vessels, as will be understood.

One of the principal objects of the present invention is to provide a chemical-containing vessel of the type referred to comprising means between the mouth and closure therefor for effectually preventing contamination of the contents of the vessel either by access of air to the vessel or by contact of the contents thereof with such means, substantially as will hereinafter more fully appear when taken in connection with the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional view illustrating one embodiment of my improvement. Fig. 2 is a similar view representing a modification of the embodiment shown in Fig. 1. Fig. 3 is a sectional view representing another embodiment of my improvements. Fig. 4 is a similar view representing a modification of the embodiment shown in Fig. 3.

Before proceeding with a more detailed description it may be stated that with some of the embodiments of my improvements herein shown I employ a specially-constructed closure for the mouth of the vessel, between a member of which and the edge of the rim of the vessel at the mouth I employ a special outer so-termed "seal" which not only serves its function as such, but which also serves to securely fasten the closure to the vessel in such manner as to prevent the same from working loose or becoming detached therefrom during shipment or transportation of the vessel.

In each of the embodiments of my improvements herein shown I employ between a part of the closure for the vessel and the upper surface of the rim of the mouth of the vessel a special "inner" (so termed) seal, which also not only serves its function as such, but which besides serves to retain the closure in place each time the same is applied to the vessel after being temporarily removed therefrom for any purpose.

In other embodiments of my improvements herein shown I employ a further specially-constructed closure for the mouth of the vessel, in association with which may be employed either the special outer or inner (or both) seal above referred to, and in connection wth this special closure I also employ still another special inner seal, which admirably adapts the vessel with which the two (this closure and seal) are employed as a container for certain chemicals, as bisulfite of soda, copper nitrate, and the like.

In each embodiment, and especially with the form of closure last referred to above, the seal employed is preferably constructed of a material or substance not readily attacked by the particular chemical contained in the vessel, as inorganic non-metallic substances or other substances impregnated therewith. Thus in the one case the seal may be con-

structed of a ring and in the other of a tube of asbestos, felt, filter-paper, paper-pulp, cork, wood, ivory, celluloid, rubber, and the like, or of readily-fusible metals and alloys, or of ozokerite, paraffin, rosin, &c., which soften under heat. The seal may be applied while cold, hot, or in solution or after being first softened by heat; but it may be stated that in most cases it is preferable for the purposes of my invention that the material of which the "inner" seal first referred to above shall possess the quality of adhesion.

The closure for the vessel may be constructed of glass or other non-corrosive material or, in view of the thorough effectiveness of my improved seals for the vessel, the same could be made of lead, tin, porcelain, asbestos, soapstone, or any other desired material. Said closure may also be of rounded, flat, concave, convex, or any other desired shape exteriorly, as will be apparent.

Reference being had to the drawings by the designating characters thereon, 1 represents a containing vessel for chemicals, as a bottle or jar, for instance, the same having a neck 2 provided at the upper outer edge of the mouth of the vessel with an outwardly-extending rim 3 of suitable depth or thickness, which is preferably ground off perfectly flat or even, so as to be entirely devoid of crevices or recesses, in which any particles of the chemicals within the vessel might lodge.

As shown in Fig. 1, the vessel 1 is provided with a closure 4 in the form of a removable lid or cover having an annular depending flange 5, the internal diameter of which is considerably larger than the external diameter of the rim 3 at the mouth of the vessel, as shown, thus forming an annular space between the adjacent faces of said rim and flange when the closure is properly seated in place. Seated upon the upper surface of the said rim 3 at the mouth of the vessel is a sealing-ring 6, formed of any of the materials or substances mentioned above as employed therefor or any combination of said materials or substances, but which may be referred to at present as "paraffin," said sealing-ring being constructed to accurately fit the upper surface of the rim and constituting the inner seal for the vessel first referred to above. The inner surface portions of the closure 4, corresponding with the said upper surface of the rim 3, are also preferably ground perfectly flat or even, so that when said closure is applied in position over the mouth of the vessel, as presently explained, the contents of the latter will be prevented from contamination or becoming deliquescent. In first filling the vessel, say, at the factory or laboratory the annular space between the adjacent faces of the rim 3 and flange 5 is filled with a seal 7, formed of a material—say rosin, for instance—preferably possessing greater tenacity or adhesive properties than the material of the sealing-ring 6, thus to securely hold the closure in place during shipment or transportation of the vessel. This seal 7 is the "outer" seal referred to above, and the material thereof may be readily poured into the space between the rim 3 and flange 5 after first applying the sealing-ring 6 to said rim and fitting the closure thereupon with sufficient pressure to cause adherence of said ring to both the rim and the corresponding inner surface portions of said closure. When this has been done, the vessel and its attached closure may be inverted to receive the material of said outer seal 7 without liability of the closure falling off. Whenever the chemist or dealer first desires to use any of the contents of the vessel, he breaks or removes the seal 7, and then by pulling upon the closure with sufficient force the latter may be readily removed without in any manner disturbing or impairing the sealing-ring 6, and then after taking from the vessel as much of its contents as may be required the closure may again be applied to the vessel in such manner as to be held thereon during the ordinary handling of the vessel or when placed upon the shelf simply by the adhesion of the sealing-ring 6 to said rim and said closure. Prior to shipment of the filled and sealed vessel, as above described, the closure and neck of the vessel may in some instances be immersed in a solution of paraffin, sealing-wax, or the like in order to further seal the contents of the vessel against injury; but this is merely optional in practice.

As shown in Fig. 2, the space between the adjacent faces of the rim 3 and flange 5^a of the closure 4 is considerably less in width than the corresponding space in Fig. 1, and the same is preferably filled by the pendent rim 8 of the inner seal 9, which corresponds to the sealing-ring 6 of Fig. 1, formed of paraffin or the like, as explained, this embodiment of my improvements not necessarily involving the use of an outer seal of a more tenacious character, as in Fig. 1.

In Fig. 3 the closure 10 is provided with a depending flange 11, and between the upper surface of the rim 3 of the vessel and the corresponding surface portions of said closure is located an inner sealing-ring 12, similar to the sealing-ring 6 in Fig. 1, the space between the adjacent faces of said rim and flange 11 being preferably filled wth an outer seal 12^a, as in Fig. 1, formed of a material the tenacity or adhesive properties of which are greater than the material of said inner sealing-ring 12. In this embodiment of my improvements I construct the closure 10 with a stopper 13, extending within the neck 2 of the vessel for any desired depth and the external diameter of which is less than the internal diameter of said neck, thus to provide a space

therebetween sufficient to accommodate a tubular additional inner seal 14, formed of any of the materials or substances hereinbefore mentioned as employed therefor, the lower end of this seal being closed, as indicated at 15, to prevent contact of the contents of the vessel with said stopper. With this embodiment the closure may be operated, as already described with reference to Fig. 1, as will be apparent.

In Fig. 4 the construction is substantially identical with that of Fig. 3, with the exception that the space between the adjacent faces of the rim 3 of the vessel and flange 11 of the closure is considerably less in width, as in Fig. 2, and is filled or occupied by the pendent rim 16 of an inner sealing-ring 17 similarly as the corresponding space in Fig. 2 is occupied by the said pendent flange 8.

As shown in Figs. 3 and 4, the sealing-rings 12 and 17, respectively, are made separate from the tubular seal for the stopper of the closure; but in some instances the two may be made integral with each other and still subserve their intended functions.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A container for chemicals, comprising a neck, a closure having a depending flange spaced apart from the neck, a sealing device between the edge of the neck and the closure, and a second sealing device between the flange and the side of the neck.

2. A containing vessel for chemicals, comprising a neck having an outwardly-projecting rim at the mouth of the vessel, a closure fitting upon the rim, having a depending flange beyond the rim, a sealing device interposed between the upper surface of the rim and adjacent surface portions of the closure, and another sealing device between the rim and said flange.

3. A containing vessel for chemicals, comprising a neck having an outwardly-projecting rim at the mouth of the vessel, a closure fitting upon the rim, having a depending flange beyond the rim, a sealing device interposed between the upper surface of the rim and adjacent surface portions of the closure, and another sealing device between the rim and said flange, each of said devices having an adhesive capacity to retain the closure in place.

4. A containing vessel for chemicals, comprising a neck having an outwardly-projecting rim at the mouth of the vessel, a closure fitting upon the rim, having a depending flange beyond the rim, a sealing device interposed between the upper surface of the rim and adjacent surface portions of the closure, and another sealing device between the rim and said flange, each of said devices having an adhesive capacity to retain the closure in place, and the one last named being more tenacious than the other, as and for the purpose set forth.

5. A containing vessel for chemicals, comprising a neck having an outwardly-projecting rim at the mouth of the vessel, a closure fitting upon the rim, having a depending flange beyond the rim, and provided with a stopper less in external diameter than the internal diameter of the neck and extending thereinto, a seal between the rim and adjacent surface portions of the closure, another seal fitting the space between the rim and the flange, and a third seal completely inclosing the stopper.

6. A containing vessel for chemicals, comprising a neck having an outwardly-projecting rim at the mouth of the vessel, a closure fitting upon the rim, having a depending flange beyond the rim, and provided with a stopper less in external diameter than the internal diameter of the neck and extending thereinto, a seal between the rim and adjacent surface portions of the closure, another seal filling the space between the rim and the flange, and a third seal completely inclosing the stopper, the first and second named seals each having an adhesive capacity to retain the closure in place, and said second-named seal being more tenacious than the one first named, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the prerence of two subscribing witnesses.

AUGUST EIMER.

Witnesses:
E. EVERETT ELLIS,
JNO. M. RITTER.