No. 704,482. Patented July 8, 1902.

E. L. LIVINGSTONE.

BOTTLE OR JAR.

(Application filed July 5, 1901.)

(No Model.)

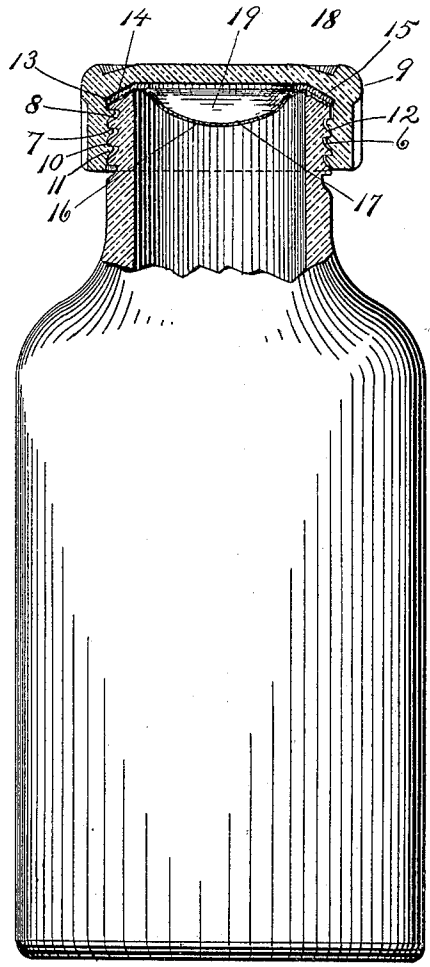


FIG. 1.

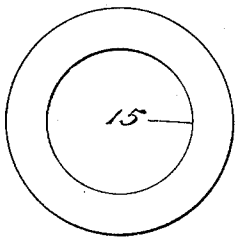


FIG 3

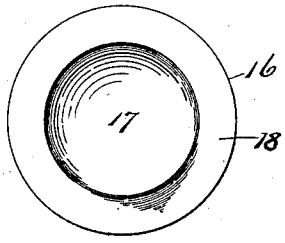


FIG 4

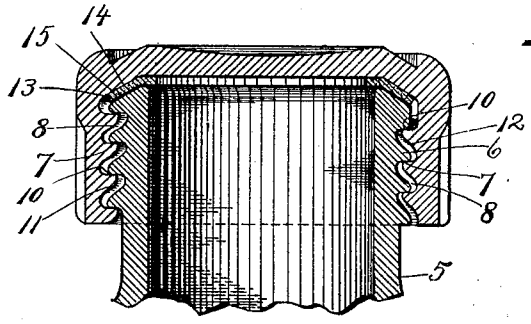


FIG. 2.

WITNESSES:

Daniel W. Priest

Graham McAdam

INVENTOR

Edward L. Livingstone

BY

Garry P. Van Wye.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD L. LIVINGSTONE, OF NEW YORK, N. Y., ASSIGNOR TO RALPH W. NARES, TRUSTEE, OF BROOKLYN, NEW YORK.

BOTTLE OR JAR.

SPECIFICATION forming part of Letters Patent No. 704,482, dated July 8, 1902.

Application filed July 5, 1901. Serial No. 67,169. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. LIVINGSTONE, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Bottle or Jar, of which the following is a specification.

My invention relates to bottles or jars, and has for its object, first, to provide a vitrified bottle or jar and a vitrified cover therefor with a screw-thread so constructed that the cover can be easily mounted on the bottle and easily removed under any degree of temperature; second, to provide a bottle or jar and cover therefor with inclined or beveled surfaces for the purpose of making a more perfect seal; third, to provide a yielding cup for the exclusion of air from the contents of the bottle or jar, so constructed that it may be readily mounted in the mouth of said bottle and clamped between the neck of the bottle and the cover. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a view of a bottle or jar constructed according to my invention, the neck and cover being shown in vertical section. Fig. 2 is a vertical section of the neck of a bottle or jar and cover therefor on a larger scale to show more clearly the construction of the screw-thread, the yielding cup being omitted. Fig. 3 is a plan view of a yielding washer I employ between the neck of the bottle and cover, and Fig. 4 is a top plan view of the yielding cup.

In the accompanying drawings like numerals of reference refer to the same parts in each of the views, and in the practice of my invention I provide a bottle or jar 5, with an exteriorly-screw-threaded neck 6, the spirals forming the thread of which are substantially flat on the under surface thereof in cross-section, as shown at 7, and the edge and upper surface of the spirals are preferably rounded, as shown at 8. The cap or cover 9 is provided with a corresponding screw-thread, but having the upper side 10 of each spiral substantially flat in cross-section, while the edge and lower surface 11 are preferably rounded, so that when the threads of the bottle and cover are in contact the flat surfaces thereof will bear against each other, while by reason of the fact that the spirals are made less in cross-section than the groove intervening between them a space 12 will be formed between the curved surfaces of the spirals, whereby ample room is provided for the expansion of the threads under heat or for any irregularities in making.

The formation and size of the threads is very important. Hitherto it has been impossible from a commercial standpoint to mount a screw-threaded vitrified cover upon a screw-threaded vitrified bottle or jar on account of the fact that when formed of earthenware the contraction is not always the same in drying and burning, and if formed of glass the contraction in cooling is not always uniform, and if the threads are made for a close fit part of the covers cannot be put on, and if made loose some will be so loose that the cover cannot be put on tight enough to form a perfect seal. Further, it is usual to place material in these jars in canning in a very hot condition, at which time the glass will expand under the heat, and it will be impossible to put on the cover, or if the covers can be easily put on when the jars are hot when cool the threads will contract and the covers will be loose. If placed on the bottles when cool, in warm weather the glass will expand, and oftentimes the threads will stick together, and the cover cannot be removed without breaking the neck of the bottle or cover.

With the construction here disclosed the threads will have room for expansion or irregularities, and by making the contacting parts flat, or substantially so, sufficient bearing-surface will be provided to hold the cover firmly in place, and by rounding the threads, as described, very broad bases will result to give strength thereto.

The neck of the bottle or jar is provided with an outwardly-beveled edge 13, and the cap or cover is provided with a corresponding beveled or inclined surface 14, and between the said beveled surfaces I mount an elastic washer 15. (Shown in Fig. 3.)

In operation the washer 15 is mounted in the cap or cover, which is then screwed upon the bottle until the washer 15 is in contact with both beveled surfaces, when by giving a little further turn the washer will be slightly com-

pressed and the flat surfaces of the threads will be drawn into very close contact, as will be readily understood, and a very tight seal will result. When it is desired to remove the cover, by pressing down upon the top of the cover the washer 15 will be further compressed and the flat surfaces of the threads will be separated entirely or will be in only slight contact, and the cover can easily be unscrewed from the bottle, as will be readily understood.

By beveling the edge of the neck and inner surface of the cover I get a greater amount of sealing-surface, and the wedging of the washer between the beveled surfaces makes a very tight seal. Further, in making the bottle the "blowover" or surplus glass adheres to the inner edge and can be ground off without affecting the beveled sealing-surface, thereby dispensing with the necessity of "tooling" the bottle.

It will thus be seen that I am able to secure two screw-threaded vitrified bodies together in a simple and efficient manner, the essential features being the flat bearing-surfaces and the grooves materially greater in size than the threads and also the elastic body to draw the bearing-surfaces of the threads in contact. It is immaterial whether a washer or a disk is used for the elastic body, nor is it essential that the beveled surfaces should be provided, although very desirable.

It is often desirable to exclude every particle of air from the contents of the bottle or jar in sealing, in which case I provide a yielding cup 16, composed of tin-foil spun into shape or any yielding material of a like nature, which is provided with a cup-shaped center 17 and a flange 18.

In operation the jar is filled full to the top with the material to be canned and the liquor thereof. The yielding cup 16 is then pressed into the mouth of the bottle, displacing the liquor until the flange 18 rests upon the beveled edge of the bottle, and can be pressed down upon said edge by the washer and cover, so that no air can enter below said cup, and an air-space 19 is provided between the cup and the cover to provide space for the cup to yield under the expansion of the liquor at any time, so that air will be entirely excluded from the contents of the bottle and room is provided for the expansion and contraction of the contents.

By reason of the fact that the top of the bottle is beveled outwardly the flange 18 can be pressed down very firmly on the same by the hand, and the pressure of the air will hold the cup in position even when the bottle is inverted, so that there is no danger of air entering during the time the cover is being secured in place.

While I have described my invention as being applicable to vitrified bodies, I do not limit myself to that purpose, as there are many cases where the construction here disclosed would be very desirable, especially with wood, where expansion was liable to occur, and with metals, where it was desired to cast the piece with the thread on it, and it is also evident that the same construction of thread could be used to advantage in many instances where a plug is used instead of a cap, and I reserve the right to make all such changes and for all such uses.

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

1. The combination of two screw-threaded bodies having threads with substantially flat bearing-surfaces and intervening grooves materially greater in size than the said threads, as and for the purpose set forth.

2. The combination of two screw-threaded bodies having threads with substantially flat bearing-surfaces in cross-section and intervening grooves materially greater in size than the said threads, and an elastic body mounted between said bodies, as and for the purpose set forth.

3. A bottle or jar provided with an exteriorly-screw-threaded neck having an outwardly-beveled upper end, a screw-threaded cap or cover therefor having a corresponding beveled surface interiorly thereof the grooves intervening between the threads of said neck and of said cover being greater in size than the threads in cross-section, and an elastic body mounted between said beveled surfaces, as and for the purpose set forth.

4. A bottle or jar provided with a screw-threaded neck the thread of which is substantially flat on the lower surface thereof in cross-section, in combination with a screw cap or cover therefor the thread of which is substantially flat on the upper surface thereof in cross-section, said threads being so proportioned and disposed that when in engagement a space will intervene between the spirals forming the thread of the cap and the next lower spiral forming the thread of the bottle.

5. A bottle or jar provided with a screw-threaded neck the thread of which is substantially flat on the lower surface thereof in cross-section, and rounded on the upper surface thereof, in combination with a screw cap or cover the thread of which is substantially flat on the upper surface thereof in cross-section, and rounded on the lower surface thereof, the thread of both the bottle and cover being materially less in size than the groove intervening between the spirals, as and for the purpose set forth.

6. A bottle or jar provided with an exteriorly-screw-threaded neck beveled at its upper end, in combination with a screw cap or cover correspondingly beveled in the interior thereof, the thread of the bottle being substantially flat on the lower, and rounded on the upper surface thereof, and the thread of the cover being substantially flat on the upper, and rounded on the lower surface thereof, said threads being materially less in size

than the groove intervening between the spirals thereof, and an elastic body mounted between the beveled surfaces of the bottle and cover, as and for the purpose set forth.

7. A bottle or jar provided with a neck having an outwardly-beveled upper end, a cap or cover therefor having a corresponding beveled surface, in combination with a cup mounted in the mouth of the bottle or jar and adapted to yield under the pressure of the contents thereof, said cup having a flange adapted to be secured between the neck of the bottle and the cap or cover, as and for the purpose set forth.

8. A bottle or jar provided with a neck having an outwardly-beveled upper end, a cap or cover therefor, in combination with a cup mounted in the mouth of the bottle or jar and adapted to yield under the pressure of the contents thereof, said cup having a flange adapted to engage said beveled end, and an elastic body mounted between said flange and said cover, as and for the purpose set forth.

9. A bottle or jar provided with a neck having an outwardly-beveled upper end, a cap or cover therefor having a corresponding beveled surface, in combination with a yielding cup having a flange adapted to engage the beveled surface of said neck, and an elastic body secured between said flange and said cover, as and for the purpose set forth.

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

EDWARD L. LIVINGSTONE.

Witnesses:

DANIEL H. PRIEST,

GRAHAM MCADAM.