T. L. TALIAFERRO.

JAR CLOSURE.

APPLICATION FILED APR. 15, 1916.

1,325,056.

Patented Dec. 16, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

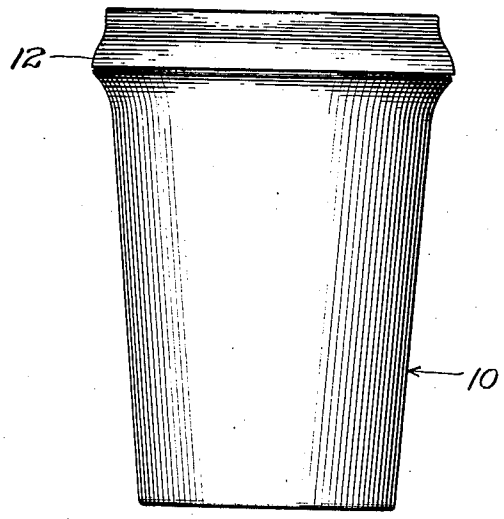


Fig. 2.

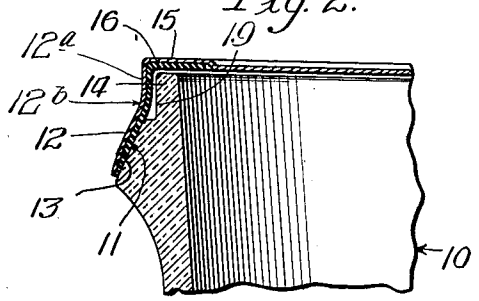
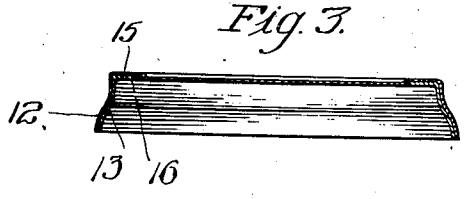


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

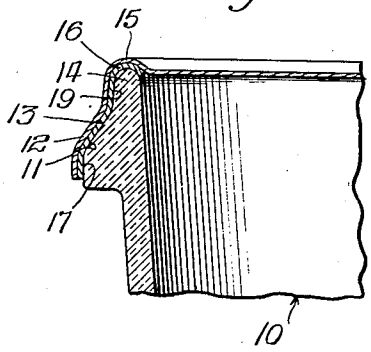


Fig. 6.

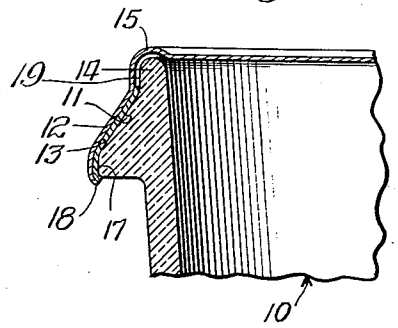


Fig. 5.

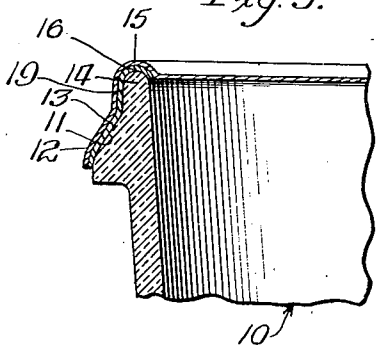


Fig. 7.

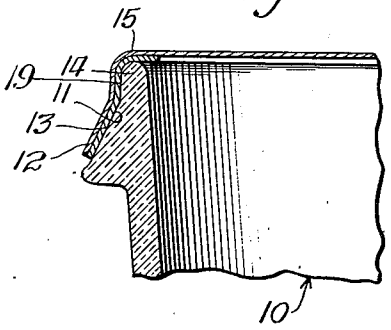
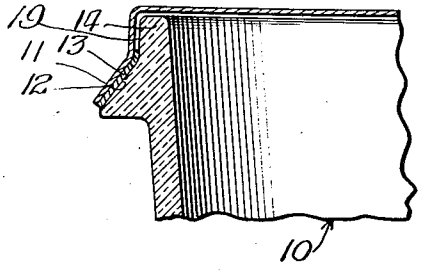


Fig. 8.



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UNITED STATES PATENT OFFICE.

THOMAS L. TALIAFERRO, OF CHICAGO, ILLINOIS.

JAR-CLOSURE.

1,325,056. Specification of Letters Patent. Patented Dec. 16, 1919.

Application filed April 15, 1916. Serial No. 91,441.

To all whom it may concern:

Be it known that I, THOMAS L. TALIAFERRO, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Jar-Closures, of which the following is a specification.

The present invention has to do with improvements in closures for vacuum jars, such as are used for the distribution of preserved fruits, vegetables, and the like. The invention has to do with a closure of that general type in which the vacuum existing within the jar serves to press the closure against the jar body, and in which a suitable layer of sealing material is interposed between the jar and closure so as to secure a practically air-tight joint.

In Letters Patent of the United States, No. 720,129, issued February 10, 1903, on the application of Giles & Gray, for improvements in vacuum preserving jars, there is shown a construction in which the upper portion of the jar body is provided with a peripheral or circumferential flange having its side face inclined, in combination with a cover having a circumferential side wall flared outwardly at an angle similar to the outward flare of the side face of the flange on the jar. In the construction of that patent, there is disclosed the use of a packing band or gasket which is to be interposed between the upper portion of the jar body and the flaring flange of the cover. There is also disclosed in that patent an annular shoulder or ledge on the upper portion of the jar body against which the packing band or gasket seats, and which limits the downward travel of such band or gasket. Upon the creation of a vacuum within the jar, the cover is drawn down toward the jar, so as to compress such gasket between the upper portion of the jar body and the flanged portion of the cover, and the said shoulder serves to prevent the gasket from traveling down beyond the desired point.

The construction shown in the said patent is open to a number of objections, including the objection that any inequalities, either in the upper portion of the jar or in the cover flange, or for that matter in the gasket itself, make it extremely difficult, if not impossible, to secure a perfectly air-tight connection. Furthermore, the use of a gasket of this kind is very objectionable, because it must be specially applied, usually by hand, to the upper portion of the jar, thus considerably increasing the cost and trouble of properly applying the cover to the jar after the jar has been filled. I will also point out the fact that where an arrangement of this kind is used, the surface of the sealing contact between the cover and the jar is necessarily limited to the surface against which the gasket is compressed after the cover has been applied and vacuum established. Continued pressure flattens gasket, allowing flange to press against glass, causing seal to break.

One of the objects of the present invention is to provide a jar closure of such construction that the use of a separate gasket or packing ring may be eliminated, thereby materially reducing the cost of assembling and sealing the jar, while at the same time providing a cover so shaped that it takes care of irregularities necessarily found in glass. Such improvement in sealing effect will be secured not only by assurance of a more uniform sealing engagement between the cover and the jar, but also by materially increasing the surface of the sealing contact, and also the confining of the sealing material, so that the displacement of sealing material by pressure acts as a wedge, due to the shape and method of coating the seal which is herein disclosed.

Another object of the invention is to provide a cover so shaped and applying thereto a sealing layer of such nature that, upon the creation of the vacuum within the jar and the consequent drawing of the cover toward the jar, the sealing material will displace upward, so as to cause the sealing material to enter into and completely fill all interstices between the jar and the cover.

Other objects and uses of the invention will appear from a detailed description of the same which consists in the features of construction and combinations of parts hereinafter described and claimed.

Referring to the drawings:

Figure 1 shows a familiar form of jar having applied thereto the closure to which the present invention relates;

Fig. 2 shows a considerably enlarged fragmentary section through the upper portion of the jar and closure;

Fig. 3 shows a cross section through the entire closure shown in Fig. 2; and

Figs. 4, 5, 6, 7, and 8 show fragmentary detail sections through a number of modified forms of construction, all of which embody the features of the present invention.

Referring to the several figures, the jar body is designated by the numeral 10. The upper portion of the jar body, in each case, is provided with a circumferential flaring surface 11 which constitutes a portion, or, in some cases, all of the sealing surface of the jar body. The cover, in each case, is provided with a circumferential downwardly flaring flange 12 having a portion adapted to seat securely and firmly against the surface 11 when the cover has been driven home by the establishment of the vacuum within the jar. Above the outwardly flaring flange 12, the cover is provided with a circular portion 12^a extending in a practically vertical direction and constituting practically a cylindrical portion in the upper part of the closure. It will be observed that there is a relatively sharp angle between the portions 12 and 12^a said angle lying at the point 12^b. In other words, the upper part of the cover is provided with a cylindrical portion beneath which is an outwardly flaring flange, there being a relatively sharp angle between the cylindrical and flanged portions, so that certain peculiar results or characteristics are obtained. Ordinarily the cover is made of relatively thin material which will readily adapt itself to changes in contour. As a result of this fact, the flaring flange will readily adjust itself to the exact contour of the upper sealing portion of the jar. However, by reason of the presence of the sharp angle before mentioned, the upper part of the cover is relatively quite stiff and unyielding. The result is that, as the cover is forced down over the upper portion of the jar, the flaring flange 12 tends to spread out and seat snugly at all points, whereas the upper portion 12^a remains relatively stiff and unyielding.

On the inner face of the flanged or flared portion 12, I provide a layer of sealing material 13 which is adapted to seat against the circumferential flaring surface of the upper portion of the jar when the cover is forced home by the establishment of the vacuum. As the cover is forced home, the lower part of the flanged portion 12 with its sealing material is first brought into engagement with the circumferential seat on the jar, and as the cover continues to be forced home, the sealing material on the lower part of the flanged portion 12 will be forced upwardly between the flanged portion and the circumferential seat 11. The amount of sealing material which is thus forced upwardly will depend upon the constituency of the sealing material, the pressure brought to bear in forcing the cover home, and the general shape and contour of the parts. The flanged portion 12 will yield during this process of forcing the cover home, and will flare outwardly a sufficient amount to secure a practically solid engagement of the flanged portion with its sealing material against the entire circumferential flanged surface 11.

Ordinarily the layer of sealing material 13 will be applied to the entire flanged portion 12, and will extend upwardly beyond the angular portion 12^b. Frequently, a portion of the sealing material on the inner surface of the flanged portion 12 will be forced upwardly beyond said angle, so as to insure a tight contact of the sealing material with all portions of the circumferential surface 11.

The coating or surfacing of sealing material 13 will be of any desired composition depending upon the particular requirements and desirabilities of the maker or user. This material, however, should be of such composition and so applied to the inner surface of the flanged portion 12 as to be permanently attached thereto. The covers will ordinarily be manufactured with this surfacing or coating applied to their flanges and will be delivered to the users in this condition. The only acts remaining for the user to perform are the application of the covers firmly to the jar bodies after proper vacuum has been established, so as to bring the sealing material into firm contact with the peripheral flanged surface of the jar body.

In some cases, the cover will be forced home to such an extent as to bring its upper or top portion into contact with the upper edge 14 of the jar body. In such cases it may be desirable to extend the coating of sealing material upwardly to the upper surface of the cover and to provide a circular ring of sealing material around the upper surface of the cover immediately adjacent to the peripheral flange. When this is done it may also be desirable to provide an annular depression in the cover for the reception of this ring of sealing material. Therefore, in some of the figures, I have shown a construction in which the cover is provided with a circular depression 15 for the reception of a circular ring of material 16 which may seat squarely against the top of the jar body.

There may be worked out many detail forms of jar and cover construction embodying the features of the present invention, and in Figs. 4 to 8 inclusive, I have shown only a few particular examples of such con-

structions. In the arrangement of Fig. 4, the upper edge 14 of the jar is curved and the lower portion 17 of the circumferential surface 11 is turned inwardly at a slight angle so that it lies more nearly parallel to the general direction of the jar body. In this case, the peripheral flange extends downwardly and conforms to the shape of the jar body, including the portion 17 thereof. In the arrangement shown in Fig. 5, however, the peripheral flange of the cover does not extend downwardly quite as far as that shown in Fig. 4. The arrangement shown in Fig. 6 is similar to that shown in Fig. 4, but in the case of Fig. 6, the peripheral flange extends down low enough to be beaded or curled in around the lower edge of the upper portion of the jar, as shown at 18, so as to mechanically lock the cover to the jar.

In the arrangement shown in Fig. 7, the jar cover is provided with a circular coating of sealing material on its upper surface adjacent to the peripheral flange, but the cover itself is not provided with a circular depression for the reception of said material. In the arrangement shown in Fig. 8, the circumferential contacting surface of the jar body is curved downwardly slightly similar to the arrangement shown in Fig. 5, but there is no circular depression in the upper portion of the jar.

It will be observed that, in each one of the constructions illustrated and described, the circumferential flanged surface 11 is surmounted by a substantially vertical circular surface 19. It will also be observed that, in each case, the coating of sealing material 13 extends upwardly at least as high as the angle 12^b, and that in fact, in the constructions illustrated, the coating extends beyond said angle. This will insure that the action of the sealing material will be as previously described. On account of the relatively unyielding nature of the portion 12^a of the cover, the material forced upwardly beyond the angle will pack in solidly around the upper part of the circumferential flanged portion 12, so as to insure a perfectly solid sealing effect at this point.

I claim:

The combination with a vacuum preserving jar having at its upper portion an extended circumferential sealing surface in the form of a truncated cone and a cylindrical sealing surface thereabove, of a cover for said jar provided with a depending flange in the form of a cylindrical portion conforming to the cylindrical surface on the jar and terminating in a truncated portion similar in shape to the truncated sealing surface on the jar, and a uniform coating of sealing material permanently attached to the inner surface of the flange of the cover, said cover and jar being constructed so that the downward movement of the truncated surface of the cover on the truncated surface of the jar in the closing and sealing of the jar is limited solely by the contact between said truncated surfaces, whereby an extending sealing surface is secured.

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Witnesses:
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THOMAS A. LAMING, JR.