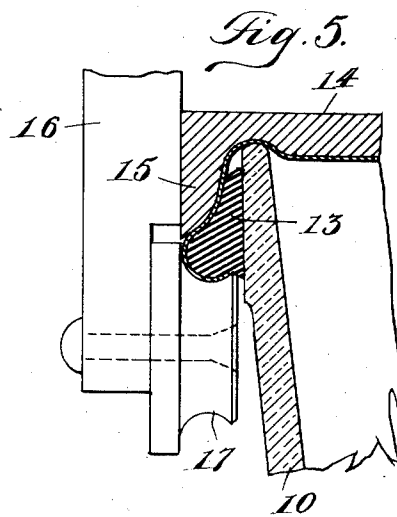
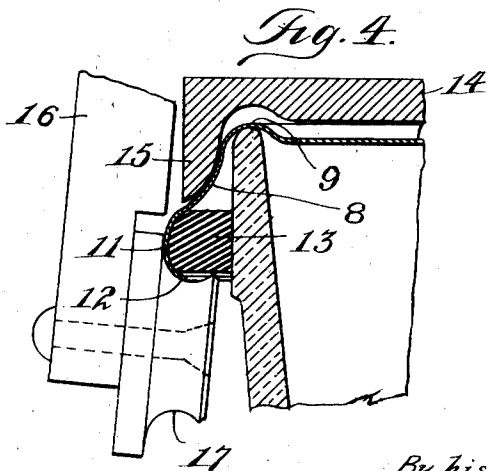
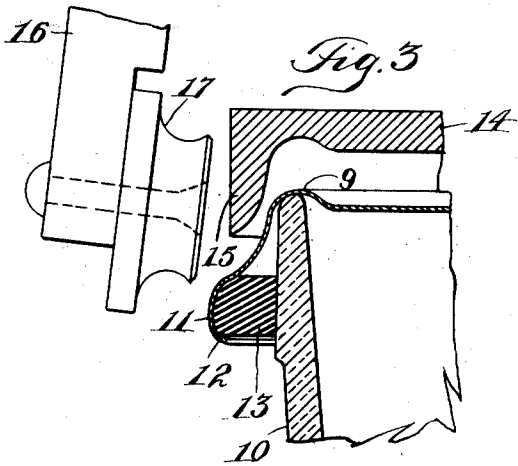
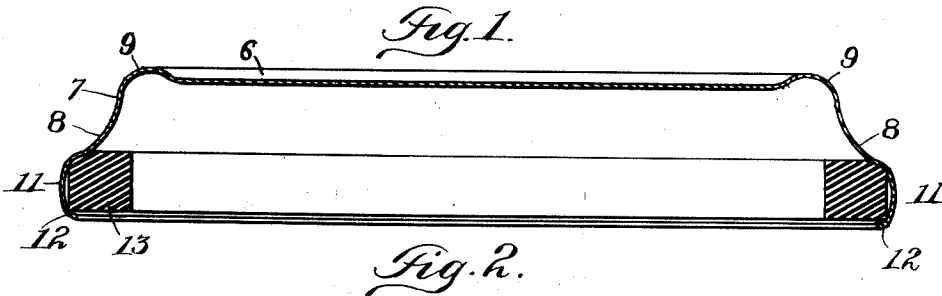


C. HAMMER.
VACUUM SIDE SEAL CLOSURE.
APPLICATION FILED NOV. 8, 1918.

1,365,780.

Patented Jan. 18, 1921.



Inventor:
Charles Hammer,

By his Attorney Wm. H. Reid

UNITED STATES PATENT OFFICE.

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VACUUM SIDE-SEAL CLOSURE.

1,365,780.

Specification of Letters Patent.

Patented Jan. 18, 1921.

Application filed November 8, 1918. Serial No. 261,592.

To all whom it may concern:

Be it known that I, CHARLES HAMMER, a citizen of the United States, residing at Queens, in the county of Queens and State of New York, have invented certain new and useful Improvements in Vacuum Side-Seal Closures, of which the following is a specification.

This invention has for its object to provide an improved form of cap or closure, especially designed for use on wide-mouthed jars and similar vessels, in which the closure can be sealed on the jar to provide a strong and air-tight closure for a vessel that has a substantially straight outer sealing wall, and which closure can be quickly effected by suitable means, such as the chuck set forth, that will slightly change the configuration of the lower portion of the closure flange, whereby the usual sealing gasket will be very tightly compressed between the flange and the jar, to have a very strong and secure engagement with the jar; and which, at the same time will readily conform with slight irregularities in the jar wall.

In the accompanying drawing showing one embodiment of my invention, Figure 1 is a vertical section through the closure in its manufactured condition, as ready to be applied to a jar. Fig. 2 is a similar view with the closure sealed on the jar. Fig. 3 is a view showing one edge of the closure and jar, and indicating sealing means. Fig. 4 is a view of the parts shown in Fig. 3, indicating the operation of the sealing members; and Fig. 5 shows the closure sealed on the jar, and the position of the sealing members at the final stage.

The closure as shown is formed from a single piece or blank of thin sheet metal, and comprises a top or central disk portion 6 and a flange portion denoted generally by 7. This flange is annular and is substantially conical at the portion 8 that as shown is concave on the outer face, and this conical portion connects with the central portion 6 by an arch portion 9, that is adapted to engage the top wall of the jar 10.

The flange portion below the conical portion extends downwardly at 11 in a substantially vertical direction, but is shown as slightly curved outwardly; and the lower edge or margin is curved inwardly a short distance as at 12 in Fig. 1. This lower portion forms a kind of annular channel on the

inner wall of the flange, for the purpose of retaining a gasket 13, that is made of a suitable compressible material, such as a rubber composition. The gasket can be inserted after the flange is brought to the shape shown in Fig. 1, and will be retained by the lower marginal portion. Or the gasket can be inserted before the lower margin is bent inwardly, and then this margin brought to the channel shape.

The closure and gasket are placed on the jar 10 as indicated in Fig. 3 and will have a loose fit thereon. Sealing means are then brought to engage the flange that will cause a pressure both downwardly and inwardly, and which pressure during the sealing operation is changed so that there is a downward pressure on the upper part of the channel portion, that is opposed by an upward pressure on the lower margin of the closure. One form of means for producing this effect is shown in the form of an anvil plate 14 having a flange 15 whose inner wall is flared and curved to engage the upper portion of the vertical flange wall 11, and the adjacent portion of the concave wall 8, as indicated in Figs. 4 and 5. In connection with this anvil plate a sealing member is provided that has a grooved portion arranged to engage the bottom of the flange to press it both inwardly and upwardly, and which grooved member is guided to cause first only a slight inward movement, and thereupon an upward movement of the lower flange wall, at the same time preventing this part of the flange from being pressed in against the jar wall. This grooved bending member may be in the form of a set of arms 16 each having a curved roll 17 pivoted thereon. By suitable means these arms are guided relative to the anvil plate 14, so that they are brought from the position of Fig. 3 to that of Fig. 4, by causing the anvil plate to move downward somewhat on the jar, and the rollers then engage the outer portion of the flange at the lower end and move it inward, and thereupon the rollers are caused to move upward relative to the anvil plate, as indicated in Fig. 5. Where the grooved members are formed of rollers, the latter are preferably caused to move around the jar to produce a rolling effect on the entire lower edge of the closure.

It will be seen that by such a sealing device the channel portion 11 of the closure is

compressed on the gasket 13 and its lower portion below the concave part is rounded to substantially a semicircle in cross section, and whose chord is about vertical. This will compress the gasket strongly between this enlarged channel of the flange, and the jar wall, and will also force a portion of the gasket upwardly between the concave portion of the flange and the jar, as indicated in Figs. 5 and 2. From Fig. 2 it will be seen that the lower edge or margin of the closure is offset a suitable distance from the jar wall, and this will assist in allowing for distortions in the shape of the jar, as the gasket will be forced to fit into any irregular shape or cavity in the jar.

It will be understood that this application of the closure is not brought about by merely downward pressure on the flange, nor by a downward and inward pressure. The flange is so engaged by the sealing members that there is an equal upward pressure on the bottom of the flange, and a downward pressure on the upper portion of the flange extension, while at the same time the flange is engaged by a grooved member that will give it the desired curvature, but will prevent its being forced inwardly against the jar wall.

The sealing member, and the method of sealing disclosed herein are not claimed in this application, but form subject matter of an application filed by myself, Ser. No. 262,524.

What I claim is:—

1. A sealed package comprising a jar having at the top an outer sealing wall, and a jar closure formed of thin reformable sheet metal, comprising a central portion and a depending annular concave portion connecting with the central portion, the flange extending outwardly in a substantially conical curve concave on the outer face, and then curved to extend downwardly and inwardly to form a substantially semi-circular gasket-receiving channel, and a relatively thick gasket substantially rectangular in cross section received within said semi-circular chan-

nel, said gasket after application of the closure to the jar being deformed by reforming the channel portion of the closure with the major portion held under compression between said channel and the jar wall and spaced from the upper end of said jar.

2. A sealed package comprising a jar having at the top an outer sealing wall, and a jar closure formed of thin reformable sheet metal, comprising a central portion and a depending annular concave portion connecting with the central portion, the flange extending outwardly in a substantially conical curve concave on the outer face, and then curved to extend downwardly and inwardly to form a substantially semi-circular gasket-receiving channel, and a relatively thick gasket substantially rectangular in cross section received within said semi-circular channel, said gasket after application of the closure to the jar being deformed by reforming the channel portion of the closure, said gasket when deformed terminating below the upper edge of the jar with the lower edge of the closure offset from the jar.

3. A jar closure formed of thin reformable sheet metal, comprising a central portion and a depending annular conical flange connecting with the central portion by a rounded arch portion, the flange extending outwardly and downwardly in a substantially conical curve concave on the outer face and then extending downward in a substantially vertical direction with the lower margin curved inwardly a short distance to form with the straight portion and adjacent upper portion a comparatively shallow gasket-receiving channel, and a relatively thick compressible gasket engaged by said channel on its outer face only with its bottom and top walls substantially free from the closure the major portion of the gasket lying below the horizontal axis of the outer downwardly extending flange.

Signed at New York city, N. Y. on Nov. 7th 1918.

CHARLES HAMMER.