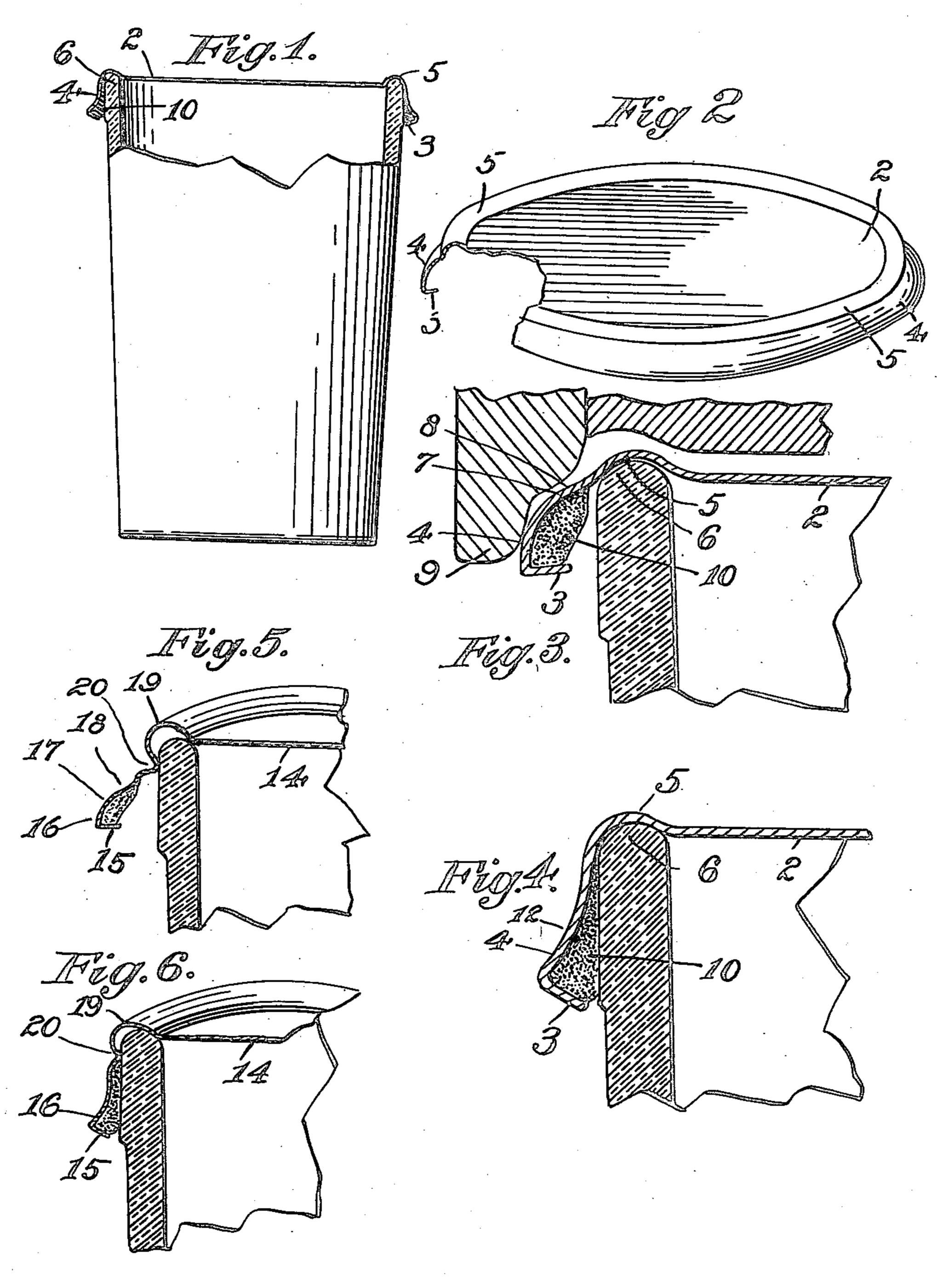
C. HAMMER. VACUUM JAR CLOSURE: FILED MAY 25. 1921.



Charles Hammer,
By his Ottomey Reid.

STATES PATENT OFFICE.

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VACUUM JAR CLOSURE.

Application filed May 25, 1921. Serial No. 472,447.

To all whom it may concern:

citizen of the United States, and a resident engaged by the bead. of Queens, in the county of Queens and One of the important objects of the presspecification.

an improved closure of this character, that it were, changed. is secured in sealing position on the jar by In the accompanying drawing illustrating 25 chuck, that will cause the flange wall to be being in vertical section at the upper part. 80 re-formed and very strongly and securely Fig. 2 is a perspective view of the closure, hold the closure on the jar, by the compres- partly in section. sion of the gasket between the re-formed Fig. 3 is a sectional view enlarged at one 30 use of a special sealing member such as one plication of the cap by suitable means. having rotary arms carrying rolls, is ob- Fig. 4 is a similar view with the closure viated and simple downward pressure will in sealed position. produce the sealing.

A further object of the invention is to plied. 35 provide in a closure of this character, a. form of bead or channel in the flange, that tion.

the character set forth, an extension above nects with the upper wall 4 of the channel the gasket-receiving portion that is pro- portion, meeting at a comparatively sharp vided with an inwardly extending bead, angle as shown. The wall 4 is also substan-50 that is adapted to have a frictional engage- tially conical in annular contour adjacent 105 ment with the jar wall on forcing the clo- the angle, but at its upper portion it curves sure down on the jar, and which will itself inwardly, so that it is convex on the outer have a holding engagement with the jar wall portion; and thereupon extends inward to without having its shape changed by the connect with the top wall 2. In the pre-

by reason of a slight reduction of internal Be it known that I, Charles Hammer, a diameter over that of the jar wall where

5 State of New York, have invented certain ent invention is the provision of a metal clo- 60 new and useful Improvements in Vacuum sure for hermetically sealing a glass con-Jar Closures, of which the following is a tainer, which closure comprises a top having a depending flange having at its lower This invention relates to closures for con- edge an inwardly bent channel-forming por-10 tainers, such as tumblers or wide-mouthed tion so located and positioned relatively to 65 jars, and is of the character that is forced the flange that it will hold a gasket in place, down on the container by a suitable sealing but which channel-forming portion is, durmember, such as a ring chuck, with a com- ing the reformation of the depending flange, pressible sealing ring or gasket located be- also reformed by the sealing pressure into a 15 tween the closure flange and the jar outer different position so that it will efficiently 70 wall at the top; and which is secured in such hold and seal the gasket on the jar, and at position by the flange of the closure being the same time enable the closure to be herre-formed to strongly compress the gasket metically sealed, so that without applying between the flange and the jar wall. any direct pressure to the gasket holding One object of this invention is to provide portion it nevertheless has its position, as 75

merely pressure vertically downward by a embodiments of my invention, Figure 1 suitable sealing member, such as a ring shows a jar with the closure sealed thereon,

flange and the jar wall; and whereby the side of the closure and jar, showing the ap-

Fig. 5 shows a modification as first ap-

Fig. 6 shows the latter in sealing posi- 90

will serve to loosely hold or retain the seal- As set forth, the closure comprises a top ing gasket in the flange before sealing by 2, from which depends an annular flange or having an open angular form; which angu- rim, and which device is made of compara-40 lar form during the sealing operation main-tively thin sheet metal. The flange is shown 95 tains its particular angular shape, but is so as having at the lower portion a substanshifted in position that the angular portion tially V-shaped angular gasket-retaining will face downward in the sealed closure, channel, that is formed by a bottom wall 3 instead of upwardly as when first applied. shown as flat in section, in annular contour A further object of the invention is to being substantially conical. This wall which 100 provide in combination with a closure of is the free bottom portion of the flange, con-55 sealing member, but merely engage the jar ferred form, the top 2 is furnished with an 110

arch portion 5 at its outer part, adapted to purpose of having a frictional binding en-

such as rubber or composition, is placed in-shown. When this closure is applied to a

15 any preferred sectional shape.

now extending downwardly. But it will be tion. extended upwardly between the concave wall and modifications of the construction herein moved inwardly a considerable distance, ficing its advantages. whereby the angular portion or channel is What I claim is: moved nearer to the jar wall, as will be ap- 1. A metal cap provided with a depending 45 be also seen that the lower angular wall 3 in to form an annular transverse wall adapt- 110 is still spaced from the jar wall and does ed to receive a gasket, said wall having a not engage the same. This will leave a small width at least as great as the thickness of the portion of the gasket exposed, that will fa- gasket and having the major portion thereof cilitate the use of a suitable sharp implement lying outside of the inner periphery of the 50 to loosen and remove the closure, that can gasket before application of the cap to the 115 be forced into the exposed gasket and serve jar. to pry out the flange and to loosen the gasket. A closure of this character has been flange having the lower edge thereof turned found, by repeated use, to have a very strong in to form an annular transverse wall adapt-55 grip on the jar, by reason of the rather long concave portion that is forced inwardly with

tain the gasket in its compressed position. In Figs. 5 and 6 is shown a modification in which substantially the same arrangement of flange and gasket is provided, but an extension is provided between the arch portion and the shoulder portion, that contains 65 an inwardly extending bead or rib, for the

a compression of the metal walls, as well as

the sharp angular portion that serves to re-

engage the top rounded edge of the jar gagement with the wall of the jar at this wall 6, see Figs. 3 and 4. This arch portion place. As shown in Fig. 5 the closure has a 5 merges into the convex portion 7 of the flat top portion 14, and the flange at the 5 outer wall 5, to form a slight depression or bottom is the angular portion formed by 70 shoulder at 8 as shown. The purpose of the conical walls 15 and 16, the latter having a latter is to receive the thrust of a sealing convex portion 17 and a shoulder at 18. The ring 9, that may be forced downwardly to arch portion 19 of the top connects with the engage the walls 4 and 7. shoulder portion 18, by a comparatively The gasket 10 of compressible material small inwardly extending bead or rib 20, as 75 side of the flange and will rest loosely on jar, the bead will first engage the jar wall the lower wall 3 of the angular portion, as by reason of its internal diameter or distance indicated in Fig. 3. This gasket may be of apart at opposite portions, being slightly less than the diameter of the jar wall. The 80 Upon placing the closure on the jar, as flange below the bead is engaged by the sealindicated in Fig. 3, and applying pressure ing ring or other member and forced downvertically downward on the convex portion wardly and re-formed to compress the 7 and shoulder 8, the entire flange portion gasket, as shown in Fig. 4, while at the 20 is re-formed and changes its shape to that same time the bead 20 will have a strong 85 indicated in Fig. 4, the wall 3, that extended frictional engagement with the jar wall and upward relative to the top plane of the cap. assist in retaining the closure in sealed posi-

observed that the lower angular wall 3 still In a patent granted to me July 3, 1917, 25 maintains approximately the same angle No. 1,231,881, is set forth a closure in which 90 with the adjacent wall 4, so that this channel the gasket is compressed between the flange is not itself re-formed but merely changes and the jar wall, with a sealing bead arits position. The convex wall 7 in the flange, ranged below the gasket for frictional enhas now become a concave wall 12, extend-gagement with the jar wall. In another pat-30 ing from the upper angular wall 4 of the ent of mine 1,335,054, a sealing bead also 95 channel to the arch portion 5, that is now engages the jar wall frictionally, and above slightly flattened to engage the rounded edge the bead is a gasket that is pressed against of the jar, as shown in this figure. Since the jar wall. But in the present invention the angular V-shape channel has been forced the bead shown in Fig. 5 is arranged at the 35 inwardly the gasket 10 will be strongly com- upper part of the flange, while below the 100 pressed between this channel, and the oppo- bead the gasket is compressed between the site side wall of the jar and will be somewhat flange and the jar wall. Various changes in 12 and the jar wall, as shown. By this set forth may be made without departing 40 sealing operation, the walls 4 and 7 are from the spirit of this invention or sacri- 105

parent by comparing Figs. 3 and 4. It will flange having the lower edge thereof turned

2. A metal cap provided with a depending ed to receive a gasket, said wall having a 120 width at least as great as the thickness of the gasket and having the major portion thereof lying outside of the inner periphery of the gasket before application of the cap to the jar, the construction being such that the 125 sealing pressure on the cap will transform the inturned edge from one angular position relatively to the flange to a different angular position relatively to said flange.

3. A metal cap provided with a depending 130

1,440,986

flange having the lower edge thereof turned angle to the flange, the construction being in to form an annular wall adapted to re- such that on the application of a sealing ceive a gasket, said wall having a width at pressure to the closure, said bent portion least as great as the thickness of the gasket will be forced from its normal position to a 5 and having the major portion thereof lying outside of the inner periphery of the gasket before application of the cap to the jar, said flange having an inwardly extending bead above the gasket for frictional engagement

with the side of the container.

4. A metal cap provided with a depending 15 least as great as the thickness of the gasket the application of sealing pressure to the 80 20 pressure on the cap will transform the in- tially the same angle relatively to the flange. 85 turned edge from one angular position rela- 10. A metal closure for hermetically sealposition relatively to said flange, said flange ing a normally outwardly flared depending 25 above the gasket for frictional engagement inwardly and upwardly bent channel-form- 90 with the side of the container.

ing a glass container comprising a top hav- flange, the construction being such that upon 30 bent channel forming portion at its lower the flange will be forced toward the con- 95 edge adapted to receive a gasket, the sealing tainer and said bent portion will be forced pressure on the closure adapted to transform from its normal position into a downward the position of the channel-forming portion position while retaining however substaninto a different position and the depending tially the same angle relatively to the flange,

each other and the container.

a glass container comprising a top having ing a glass container comprising a top hava depending flange having an inwardly bent ing a convex walled depending flange adapt-40 channel-forming portion at its lower edge ed by sealing pressure to be transformed into 105 adapted to receive a gasket, the sealing pres- a concave walled flange, said flange having sure on the closure adapted to transform at its lower edge a bent channel forming the position of the channel-forming portion portion adapted to receive a gasket and lointo a different position and the depending cated at a predetermined angle to the flange, 45 flange into a different shape relatively to said bent channel-forming portion being 110 each other and the container, said flange adapted to have its angular position relahaving an annular container engaging bead tively to the flange changed during the above the gasket.

50 ing a glass container comprising a top hav- one. ing a depending flange provided at its lower edge with an inwardly and upwardly bent ing a glass container comprising a top havchannel-forming portion adapted to receive ing a convex walled depending flange adapta gasket and located at a predetermined ed by sealing pressure to be transformed angle to the flange, the construction being into a concave walled flange, said flange hav- 120 such that on the application of a sealing ing at its lower edge a bent channel-formpressure to the closure, said bent portion ing portion adapted to receive a gasket and will be forced from its normal position to a located at a predetermined angle to the downward position.

ing a glass container comprising a top hav- relatively to the flange changed during the ing a depending flange provided at its lower transformation of the depending flange from edge with an inwardly and upwardly bent a convex walled flange to a concave walled

65 a gasket and located at a predetermined the gasket a sealing rib or bead.

downward position but having substantially 70

the same angle relatively to the flange.

9. A metal closure for hermetically sealing a glass container comprising a top having a normally outwardly flared depending flange provided at its lower edge with an 75 inwardly and upwardly bent channel-formflange having the lower edge thereof turned ing portion adapted to receive a gasket and in to form an annular wall adapted to re- located at a predetermined angle to the ceive a gasket, said wall having a width at flange, the construction being such that upon and having the major portion thereof lying cap the flange will be forced toward the conoutside of the inner periphery of the gasket tainer and said bent portion will be forced before application of the cap to the jar, the from its normal position into a downward construction being such that the sealing position while retaining however substan-

tively to the flange to a different angular ing a glass container comprising a top havhaving an inwardly extending bead or rib flange provided at its lower edge with an ing portion adapted to receive a gasket and 5. A metal closure for hermetically seal- located at a predetermined angle to the ing a depending flange having an inwardly the application of sealing pressure to the cap 35 flange into a different shape relatively to said flange having a sealing bead or rib 100

above said gasket.

6. A metal closure for hermetically sealing 11. A metal closure for hermetically sealtransformation of the depending flange from 7. A metal closure for hermetically seal- a convex walled flange to a concave walled

12. A metal closure for hermetically sealflange, said bent channel forming portion be-8. A metal closure for hermetically seal- ing adapted to have its angular position 125 channel-forming portion adapted to receive one, said depending flange also having above

130

115

ing a glass container comprising a top hav- wall.

10 a downward position.

15 located at an angle to said side wall and rib. adapted to receive a gasket, the construction being such that on the application of a seal-tially straight outer wall at the top, coming pressure to the closure said bent portion prising a top having an arch portion at the will be forced from its normal position into margin arranged to engage the top rounded 20 a downward position and the side wall into a edge of the jar, and a skirt or flange portion 85

different shape.

ing bead or rib.

35 ing a glass container comprising a top hav- curved portion below the shoulder, whereby 100 ing a depending side wall having at its lower downward pressure on the shoulder portion edge an inwardly projecting bent portion lo- and convex wall will cause inward movecated at an angle to said side wall and adapt- ment of the convex portion and also of the ed to receive a gasket, the construction being said angular channel portion so that the such that on the application of a sealing lower marginal wall of the channel portion 105 be forced from its normal position into a tive to the plane of the wall of the closure, downward position and the side wall into a and the flange from the arch portion will different shape, said flange having above the extend downwardly in a substantially 45 gasket a container engaging sealing bead or straight conical form to merge into the up- 110 rib.

container and a closure comprising a top the gasket will be strongly compressed behaving a depending flange provided at its tween the jar wall, and the angular chan-50 lower edge with an inwardly extending nel portion and flange above the channel 115 downwardly bent portion terminating in a portion. 55 strongly compressed against the container having an arch portion at the margin ar- 120 wall.

60 concaved wall flange and provided at its shape angular gasket-retaining channel at 125 65 portion, and a gasket located therein and arch portion being extended downwardly 130

13. A metal closure for hermetically seal-strongly compressed against the container

ing a depending side wall having at its lower 19. A sealed package comprising a glass edge an inwardly projecting bent portion container and a closure comprising a top 5 located at an angle to said side wall and having a depending flange reformed from a 70 adapted to receive a gasket, the construction concaved wall flange and provided at its being such that on the application of a seal-lower edge with an inwardly extending ing pressure to the closure said bent portion downwardly bent portion terminating in a will be forced from its normal position into free edge adjacent to the container and forming with the flange a channel receiving 75 14. A metal closure for hermetically seal-portion, and a gasket located therein and ing a glass container comprising a top hav-strongly compressed against the container ing a depending side wall having at its lower wall, said flange having above said deformed edge an inwardly projecting bent portion portion a container engaging sealing bead or

20. A closure for a jar that has a substanprojecting downwardly and outwardly from 15. A metal closure for hermetically seal- the arch portion, with a substantially Ving a glass container comprising a top hav-shape angular gasket-retaining channel at ing a depending side wall having at its lower the lower portion with the lower free wall 25 edge an inwardly projecting bent portion of the angular portion extending inwardly 90 located at an angle to said side wall and and also upwardly relative to the plane of adapted to receive a gasket, the construction the closure top wall, the flange above the being such that on the application of a seal- angular channel portion being curved coning pressure to the closure said bent portion vex outwardly and merging into the lower 30 will be forced from its normal position into part of the arch portion to provide a 95 a downward position, said flange having shoulder for engagement with a chuck or above the gasket a container engaging seal- sealing ring, and a ring gasket loosely resting on the lower wall of the angular por-16. A metal closure for hermetically seal-tion and engaging the inner wall of the said pressure to the closure said bent portion will will project inwardly and downwardly relaper wall of the said angular channel portion 17. A sealed package comprising a glass that will extend outwardly therefrom, and

free edge adjacent to the container and 21. A sealed package comprising a jar forming with the flange a channel receiving that has a substantially straight outer wall portion and a gasket located therein and at the top, and a closure composed of a top ranged to engage the top rounded edge of 18. A sealed package comprising a glass the jar, and a skirt or flange portion procontainer and a closure comprising a top jecting downwardly and outwardly from having a depending flange reformed from a the arch portion, with a substantially Vlower edge with an inwardly extending the lower portion with the lower free wall downwardly bent portion terminating in a of the angular portion extending inwardly free edge adjacent to the container and and also downwardly relative to the plane forming with the flange a channel receiving of the closure top wall, the flange below the

in a substantially straight conical form to 23. A closure for a jar comprising a top 5 pressed between the said jar wall, and the the jar wall, the flange below the bead por-

the channel portion.

and a skirt or flange portion projecting the lower free wall of the angular portion 10 downwardly and outwardly with a substan- extending inwardly and also upwardly relainwardly and also upwardly relative to the into the lower part of the upper portion to 15 plane of the closure top wall, the flange provide a shoulder for engagement with a above the angular channel portion being chuck or sealing ring, and a ring gasket the upper portion to provide a shoulder for angular portion and engaging the inner wall engagement with a chuck or sealing ring, of the said curved portion below the 20 and a ring gasket loosely resting on the shoulder, whereby downward pressure on the lower wall of the angular portion and en- shoulder portion and convex wall will cause portion below the shoulder, whereby down- and also of the said angular channel porward pressure on the shoulder portion and tion so that the lower marginal wall of the 25 convex wall will cause inward movement of channel portion will project inwardly and the convex portion and also of the said downwardly relative to the plane of the marginal wall of the channel portion will upper portion will extend downwardly in a project inwardly and downwardly relative substantially straight conical form to merge 30 to the plane of the wall of the closure, and into the upper wall of the said angular chanthe flange will extend downwardly in a nel portion that will extend outwardly into the upper wall of the said angular compressed between the jar wall, and the channel portion that will extend outwardly angular channel portion and flange above the 35 therefrom, and the gasket will be strongly channel portion. compressed between the jar wall, and the angular channel portion and flange above 18, 1921. the channel portion.

merge into the upper wall of the angular and a skirt or flange portion projecting 40 channel portion that will extend outwardly downwardly with an inwardly projecting therefrom, and a gasket strongly com- annular bead adapted to frictionally engage annular channel portion and flange above tion extending downwardly and outwardly with a substantially V-shape angular gasket- 45 22. A closure for a jar comprising a top retaining channel at the lower portion with tially V-shape angular gasket - retaining tive to the plane of the closure top wall, the channel at the lower portion with the lower flange above the angular channel portion be- 50 free wall of the angular portion extending ing curved convex outwardly and merging curved convex outwardly and merging into loosely resting on the said lower wall of the 55 gaging the inner wall of the said curved inward movement of the convex portion 60 angular channel portion so that the lower top of the closure, and the flange from the 65 substantially straight conical form to merge therefrom, and the gasket will be strongly 70

Signed at New York city, N. Y., on May

CHARLES HAMMER.