W. D. BANES.

CLOSURE FOR CONTAINERS.

APPLICATION FILED MAR. 28, 1917.

1,260,299. Patented Mar. 26, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

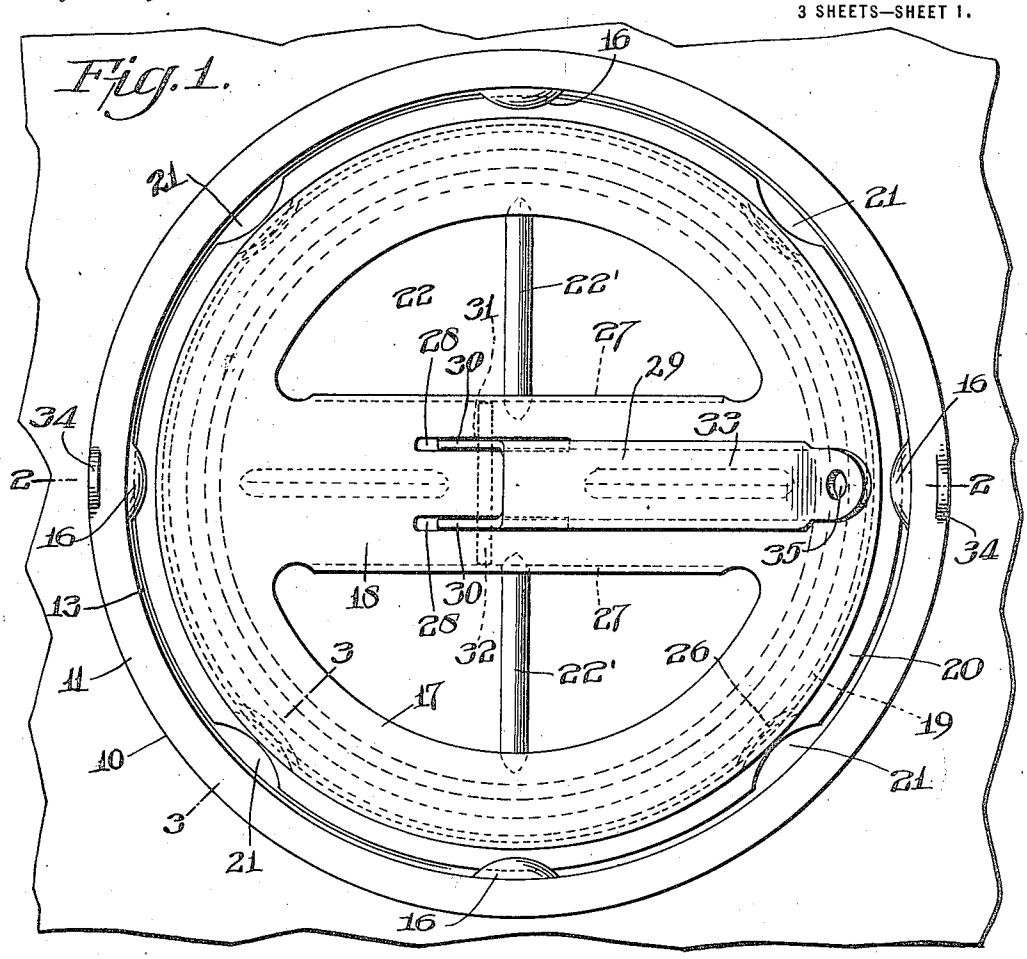
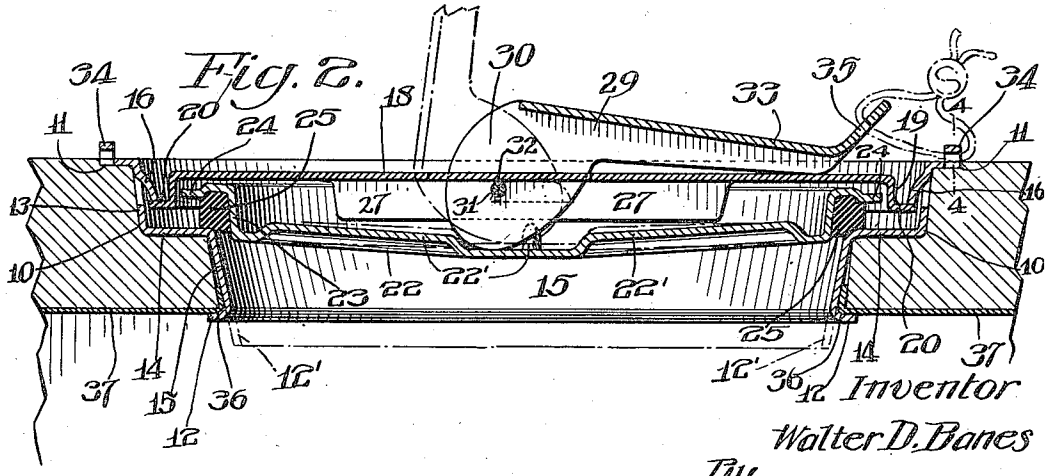


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 6.

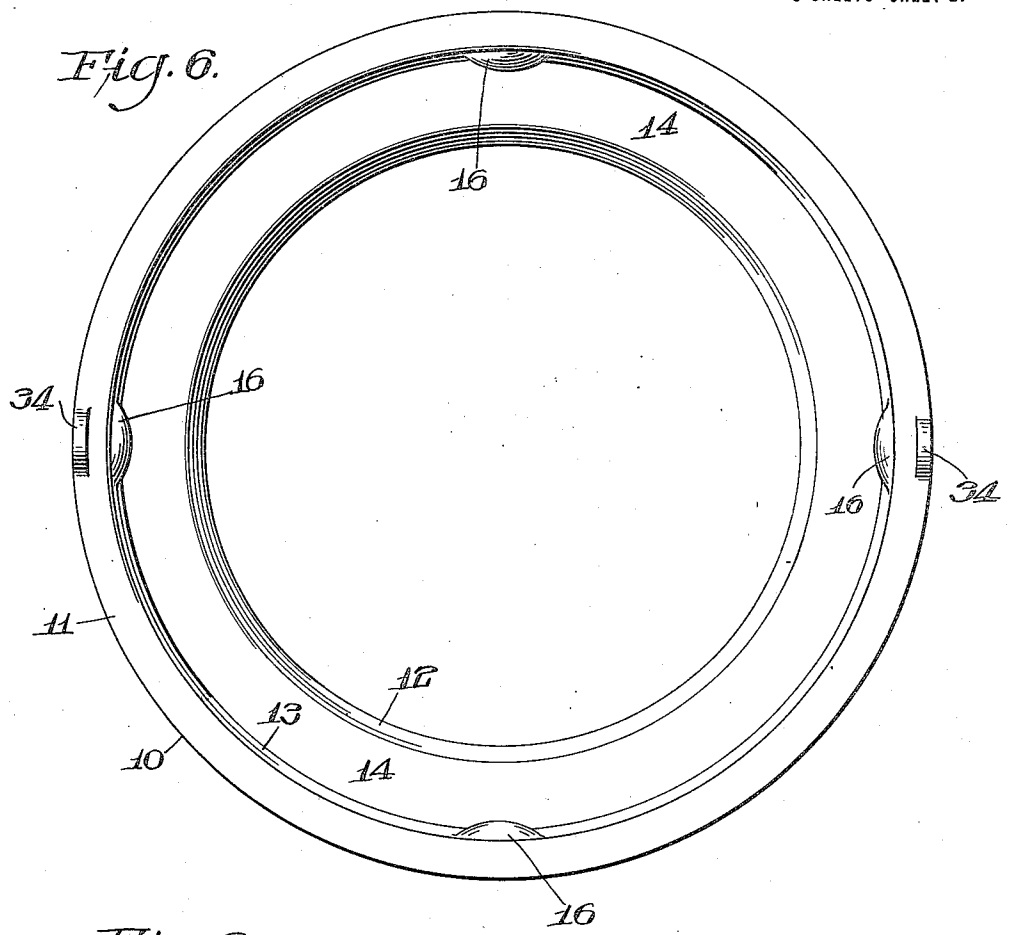


Fig. 3.

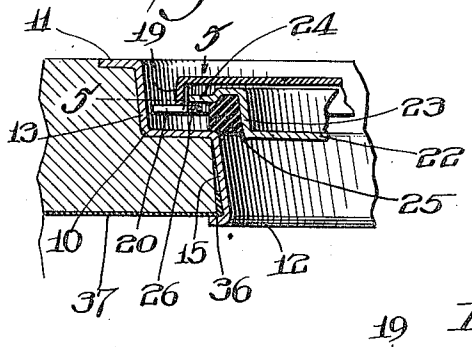
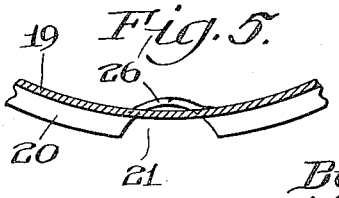


Fig. 4.



Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 7.

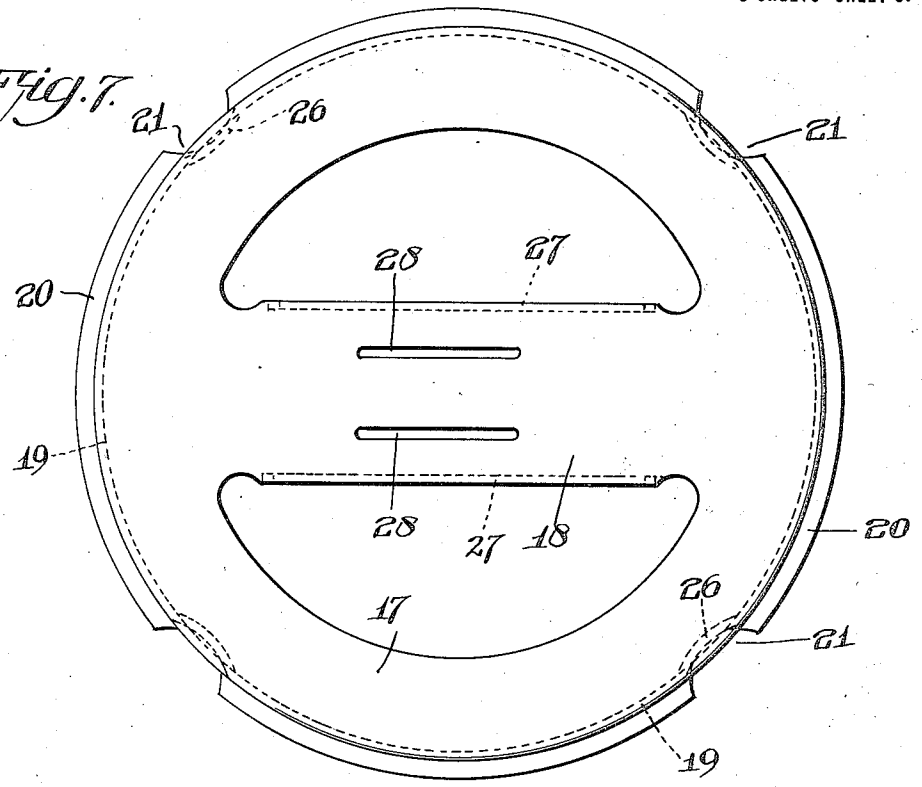
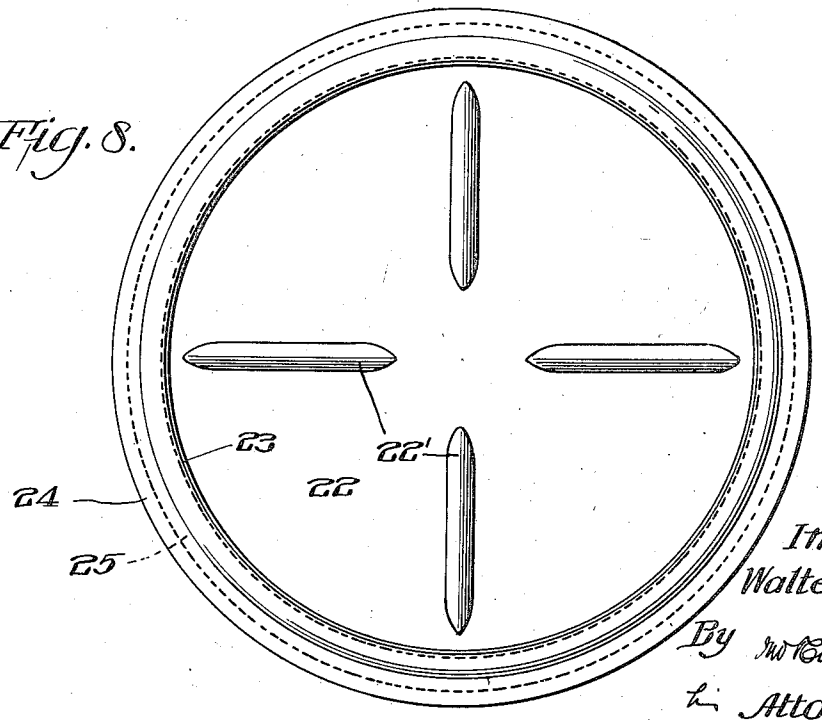


Fig. 8.



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UNITED STATES PATENT OFFICE.

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CLOSURE FOR CONTAINERS.

1,260,299. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed March 28, 1917. Serial No. 157,929.

To all whom it may concern:

Be it known that I, WALTER D. BANES, a citizen of the United States, residing at Germantown, in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Closure for Containers, of which the following is a specification.

My invention relates to an improved closure for containers. The object is to provide an improved closure for the opening of a box or container. The invention is especially applicable to powder boxes, and comprises improved means for forming an air-tight cover or closure for the opening in the box, means for locking the same securely in the closing position and means for securing the same in said position and preventing the removal of said closure without breaking the seal. The invention also comprises improvements in details of construction.

Referring to the drawings, which illustrate merely by way of example, a suitable embodiment of my invention:—

Figure 1 is a plan view.

Fig. 2 is a section on line 2, 2 of Fig. 1.

Fig. 3 is a section on line 3, 3 of Fig. 1.

Fig. 4 is a section on line 4, 4 of Fig. 2.

Fig. 5 is a section on line 5, 5 of Fig. 3.

Fig. 6 is a plan of the outer element.

Fig. 7 is a plan of the top element.

Fig. 8 is a plan of the intermediate element.

Similar numerals refer to similar parts throughout the several views.

As an example of the application of my device I shall describe the same as fitted to the usual form of powder box, which is constructed of wood and lined with sheet zinc or similar material. To the margin of the opening in this box a metal ring or frame is secured and soldered or otherwise sealed to the zinc lining. Into this ring or frame is secured a removable closure.

The present invention comprises improvements in method and means for fitting and securing this metal ring or frame in the box opening and improvements in method and means for forming and securing the removable closure into this metal ring or frame.

The aperture ring or frame element 10 is formed with an outer flange 11 and an inner parallel flange 12 with an intermediate stepped formation comprising the two vertical extensions 13 and 15 and the intermediate horizontal extension 14. This ring or frame element 10 is fitted into a corresponding opening of the box. The margin of said opening is cut out to fit the stepped formation described. The lower flange 12 is bent or spun outwardly to engage the underside of the zinc lining after the frame has been inserted in the opening, as clearly shown in Fig. 2. The dotted lines 12′ indicating the position of the extension 12 for insertion into the opening in the box before bending or spinning out as shown in the solid lines and indicated by 12. Spaced at suitable intervals about the inner circumference of extension 13, are provided the projections 16.

The upper element or disk 17 is provided with the horizontal extension 18, the vertical extension 19 and the outer horizontal flange 20. This flange 20 is provided with peripheral notches or recesses 21, corresponding with and adapted to register with the projections 16 on element 10, so that the notches will permit the flange 20 to pass the projections 16, and upon rotating the element 17, the flange 20 will become locked beneath the projections 16, as shown in Fig. 2.

The element or disk 22 is provided with the horizontal plate formation the circular vertical extension 23 and the outer horizontal flange 24. This element 22 is provided with the gasket 25 of rubber or other suitable material fitted around the outer periphery of the vertical extension 23 and against the underside of flange 24. This element 22 is provided with the stiffening ribs 22′ and is adapted to fit within the vertical circular extension 19 of supporting element 17, and is held in position therein by pressing out portions or projections 26 from the walls of extension 19, beyond the outer periphery of flange 24. These projecting portions 26 are sufficiently spaced from the under surface of the horizontal portion 18 of element 17 to permit of play or slight relative movement of flange 24 between said under surface and the projecting portions 26, for the purpose to be explained.

Element 17 is also provided with the two parallel vertically extending wings 27, preferably cut from and pressed down from the

horizontal portion 18. Between these two wings 27 are provided the two parallel slots 28 in said horizontal portion 18.

The cam lever 29 is provided with two parallel cam portions 30, adapted to fit into the slots 28. These cam portions have suitable holes 31, in register, for receiving the pin 32, after the cam portions are passed through the slots 28. These cam portions 30 are connected together and provided with the operating handle 33. The pin 32 is adapted to fit between the wings 27 and is held in place thereby when the cam member is in operating position.

In operation the element 22 carrying the gasket 25 is fitted within the supporting element 17 and secured from accidental disengagement therefrom by pressing out the projecting portions 26 after said assembling, as described. Element 17 is now fitted into the frame 10. The notches or recesses 21 permit the flange 20 to pass the projections 16. Element 17 is now rotated sufficiently to bring the notches in position about midway between the projections. The cam handle 33 is now operated to force element 22 downwardly away from the horizontal portion 18 of element 17. This movement being permitted by the spaced relationship of the projecting portions 26 with respect to the under surface of the horizontal portion 18 of said element 17. This causes the gasket 25 to be compressed against the horizontal portion 14 of frame element 10, thereby securing an efficient air-tight closure between element 22 and the frame element 10.

At a suitable point in the rim 11 of frame element 10, there is formed a loop 34 by slitting and pressing up a portion of the outer margin of the flange 11, as shown in Figs. 1, 2 and 4. At the outer extension of cam arm 33 is provided the aperture 35. Through the aperture 35 and the loop or opening 34 is secured the usual sealing wire, for preventing the disengagement of the parts, or the opening of the closure without breaking the seal.

It will be noted that when the frame is once secured in place in the box it is soldered as at 36 to the zinc lining 37. This results in the frame 10 being permanently secured, so that it cannot be moved or rotated. It will also be noted that in order to disengage elements 17 and 22 from frame element 10, element 17 must first be rotated in said frame in order to bring notches 21 into register with projections 16. Such movement obviously cannot be made without first breaking the seal.

It will also be noted that when the parts are locked by the cam in operative closing position, all of the elements are in engagement with each other. That is, the flange of the supporting element 17 is in engagement with lugs 16 of frame element 10. Gasket 25 is in engagement, under pressure, with the seat 14 of frame element 10, while the cam 30 is in engagement, under pressure, with elements 17 and 22, as shown in Fig. 2. When however, the cam 30 is moved into the position indicated by dotted lines in Fig. 2, the said elements are capable of limited movement with respect to each other.

It is also to be noted that due to the resilience or elasticity of the gasket and to the resilience of the sheet metal closure element, a certain amount of leeway or variation in cam dimensions or adjustment is permitted without seriously interfering with the required pressure exerted upon the gasket by the cam.

What I claim is:—

1. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a supporting member having a marginal flange in a plane parallel with but stepped from the plane of its main extension and two straight perpendicular flanges flanking and parallel with the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member, and means for forcing the closure against the seat.

2. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a pressed metal supporting member having an annular extension perpendicular to the plane of its main extension, a marginal flange in a plane parallel with said first plane and two parallel perpendicular flanges flanking the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member, between said supporting member and the seat and a cam pivotally secured between said parallel flanges for forcing the closure against the seat.

3. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a pressed metal supporting member having an annular extension perpendicular to the plane of its main extension, a marginal flange in a plane parallel with said first plane and two parallel perpendicular flanges flanking the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member between said supporting member and the seat, a cam pivotally secured between said parallel flanges for forcing and locking the closure against the seat and means for securing the cam in the locked position.

4. In combination with an apertured receptacle, a pressed metal frame, having up-

per and lower parallel flanges for embracing the adjacent wall of the receptacle, fitted in said aperture and providing a seat for a closure, a supporting member having a marginal flange in a plane parallel with but stepped from the plane of its main extension and two perpendicular flanges flanking and parallel with the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member, and means for forcing the closure against the seat.

5. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a pressed metal supporting member having a marginal flange in a plane parallel with but stepped from the plane of its main extension and two perpendicular flanges flanking and parallel with the center line of the member, means for disengageably locking the supporting member to the frame, a closure, provided with a gasket, loosely secured in the supporting member, and means for compressing the gasket against the seat.

6. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a pressed metal supporting member having an annular extension perpendicular to the plane of its main extension, a marginal flange in a plane parallel with said first plane and two parallel perpendicular flanges flanking the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member between said supporting member and the seat, a cam pivotally secured between said parallel flanges for forcing and locking the closure against the seat, a loop formed on the margin of the frame and an aperture formed in the cam member to receive a sealing wire for securing the parts in locked position.

7. The combination of an apertured receptacle, a frame fitted in said aperture and providing a seat for a closure, a resilient supporting member and means for disengageably locking the same to the frame, a resilient closure loosely secured in the supporting member and means for exerting pressure between the supporting member and the closure to establish a resilient tension between the supporting frame, the closure and the seat.

8. The combination of an apertured receptacle, a frame fitted in said aperture and providing a seat for a closure, a resilient supporting member and means for disengageably locking the same to the frame, a resilient closure loosely secured in the supporting member and a cam operating between the supporting member and the closure to establish a resilient tension between the supporting frame, the closure and the seat.

9. In combination with an apertured receptacle, a metal frame fitted in said aperture and providing a seat for a closure, a pressed metal supporting member having an annular extension perpendicular to the plane of its main extension, a marginal flange in a plane parallel with said first plane and two perpendicular flanges flanking and parallel with the center line of the member, means for disengageably locking the supporting member to the frame, a closure loosely secured in the supporting member, and means for forcing the closure against the seat, the parts arranged and disposed so that the cam in the locked position brings the supporting member and the closure element under resilient tension.

10. The combination of an open frame element adapted to be secured in the opening of a container, a closure supporting element having disengageable locking engagement with the frame element, a closure element movably located in said supporting element and means for moving the closure element and its supporting element apart to force the former into closing relationship with the frame.

11. The combination of an open frame element adapted to be secured in the opening of a container, a closure supporting element having disengageable locking engagement within the frame element, a closure element movably arranged in said supporting element and a cam for moving the closure element and its supporting element apart to force the former into closing relationship with the frame.

12. The combination of an open frame element adapted to be secured in the opening of a container, a closure supporting element having disengageable locking engagement within the frame element, a closure element movably secured in said supporting element, a gasket interposed between the closure element and the frame, and means for moving the closure element and its supporting element apart to force the former into closing relationship with the frame.

13. The combination of an open frame element adapted to be secured in the opening of a container, a closure supporting element having disengageable locking engagement within the frame element, a closure element movably seated in said supporting element, means for moving the closure element and its supporting element apart to force the former into closing relationship with the frame and means for locking the parts to prevent their movement from the closed position.

14. The combination of an open frame element adapted to be secured in the opening

of a container, a closure supporting element having disengageable locking engagement with the frame element, a closure element movably secured in said supporting element, a cam for moving the closure element and its supporting element apart to force the former into closing relationship with the frame and means for locking the cam to the frame element to prevent moving the parts from the closed position.

15. The combination of an open frame element adapted to be secured to the opening in a container, a closure supporting element, recess and projection means for securing said element to the frame, a closure element movably secured in the supporting element, a cam operating between the closure element and the supporting element to force the former into closing relationship with the frame.

16. The combination of an open frame adapted to be secured in the opening of a container by means of parallel flanges, a supporting element and means for locking the same in engagement with the frame, a closure element seated within the supporting element and means whereby the said two elements are forced apart to cause the closure element to coöperate with the adjacent frame margin.

17. The combination of an open frame adapted to be secured in the opening of a container by means of parallel flanges, a supporting element and means for locking the same in engagement with the frame, a closure element seated within the supporting element and means whereby the said two elements are forced apart to cause the closure element to coöperate with the adjacent frame margin, and a gasket interposed between the closure element and said margin.

18. The combination of an open frame of circular formation having annular extensions of different diameters in stepped relation for engaging with an opening in a container, the margin of said opening being of correspondingly stepped formation, said frame provided with spaced projections upon its inner periphery, a supporting element of circular formation adapted to fit within the frame and provided with a flange having recesses adapted to register with said spaced projections, so that the flange may pass said projections and upon rotation become locked in the frame, a closure movable within said supporting element and a cam operating between the supporting element and the closure for forcing said elements apart to cause the movement of the closure into closing relationship with the frame.

19. The combination of an open frame of circular formation having annular extensions of different diameters in stepped relation for engaging with an opening in a container, the margin of said opening being of correspondingly stepped formation, a supporting element of circular formation adapted to fit within the frame and means for disengageably locking the same therewith, a closure provided with a gasket movable within said supporting element and a cam operating between the supporting element and closure to cause the movement of the latter into air-tight closing relationship with the frame.

20. The combination of an open frame of circular formation comprising annular extensions of different diameters in stepped formation with upper and lower substantially horizontal flanges for engaging with an opening in a container, the margin of said opening being of correspondingly stepped formation, a supporting element of circular formation adapted to fit within the frame and means for disengageably securing the same together, a closure movable within said supporting element, and a cam operating between the supporting element and the closure to force the latter into air-tight closing position.

21. The combination of an open frame of circular formation comprising circular extensions of different diameters in stepped relationship for engaging with an opening in a container, the margin of said opening being of correspondingly stepped formation, a supporting element of circular formation adapted to fit within the frame, means for disengageably securing the one to the other, a closure provided with a gasket movable within said supporting element, a cam operating upon the closure to force the same into air-tight closing relationship with the frame.

22. The combination of an open frame of circular formation having annular extensions of different diameters in stepped relationship for engaging with an opening in a container, the margin of said opening being of correspondingly stepped formation, a supporting element of circular formation adapted to fit within the frame and means for disengageably locking the same therewith, a closure movable within said supporting element, a cam operating between the supporting element and closure to force the latter into closing relationship with the frame, and means for sealing the cam with the frame to prevent relative rotative movement of any of the elements.

WALTER D. BANES.