Feb. 13, 1940. L. B. WACKMAN 2,190,495

SEALING STRUCTURE FOR THE OPENINGS OF METAL CONTAINERS

Filed Feb. 28, 1936

Fig. 1.

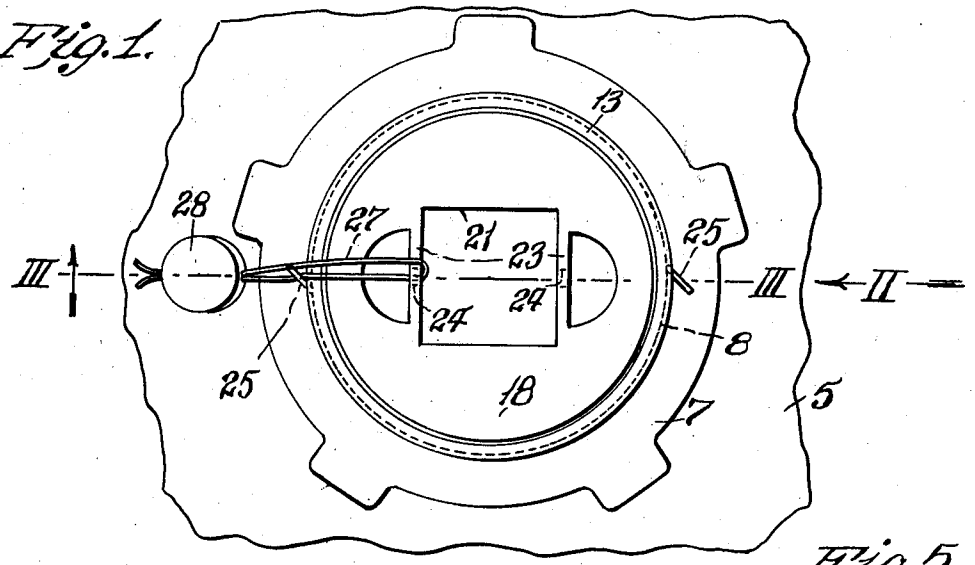


Fig. 5.

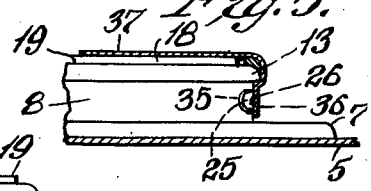


Fig. 2.

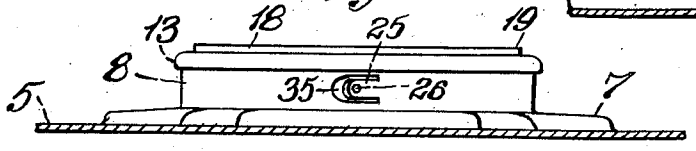


Fig. 3.

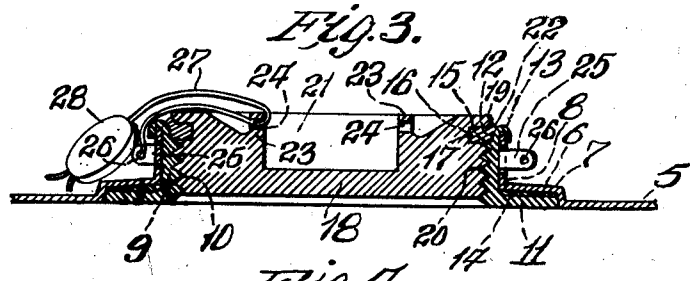
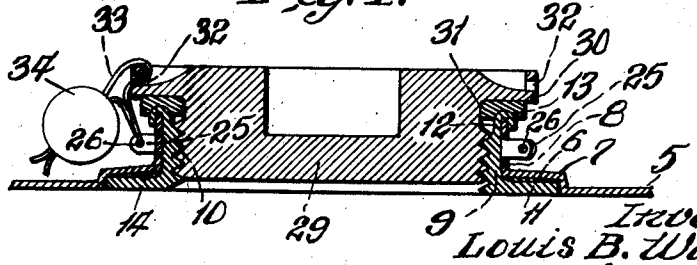


Fig. 4.



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SEALING STRUCTURE FOR THE OPENINGS OF METAL CONTAINERS

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8 Claims. (Cl. 220—39)

The principal object of the invention is to provide the bushing assembly of the sealing structure with novel means forming a unitary part of the bushing assembly for sealing cooperation with the structure.

Another object is in upsetting a part of the bushing assembly of the structure to provide a tab for seal wire engaging cooperation with the structure.

A further object is to provide an extension bushing assembly in a container wall with an integrally formed sealing wire tab extending from the side thereof.

A still further object is to provide a metal container with an extension bushing assembly having a sealing wire tab extending from the side thereof, which may be pressed inwardly for sealing cap clinching engagement thereover.

Other objects and advantages will appear as this description progresses and by reference to the drawing, in which:

Figure 1 is a fragmentary plan view of a barrel head showing this improved structure applied thereto.

Figure 2 is a side elevation taken in the direction of the arrow II in Fig. 1.

Figure 3 is a vertical section taken approximately on the line III—III of Fig. 1.

Figure 4 is a vertical section similar to Fig. 3 but showing the application of another form of closure plug.

Figure 5 is a fragmentary side elevation partly in section showing the application of a sealing cap to the structure.

Referring to the drawing, 5 designates a portion of a barrel head of a sheet metal container, the head having an outwardly pressed part forming a pocket 6, and concentrically extended from the material 7 of the pocket is an upstanding neck or flange 8. Mounted in the neck 8 is a bushing 9 which is interiorly threaded as designated at 10, said bushing having a flange 11 with radially extending projections engaged in similarly formed recesses in the pocket 6 for preventing turning of the bushing in the neck or flange 8, when the bushing is secured in position.

For securing the bushing 9 in the neck 8 and the flange 11 thereof in the pocket 6, a relatively thin wall 12 is extended from the bushing above the upper end of the threads 10 and is curled over the free end of the neck at 13, the curling of the thin wall 12 tightly drawing the bushing in the neck so that the flange 11 of the bushing will securely under-engage the gasket 14 which is interposed between the flange 11 and the material 7 of the head and/or the pocket 6.

The manner in which the thin wall 12 extends from the upper end of the threads 10 of the bushing, provides a seat 15 at the upper end of the threads for the gasket 16 which is carried in the groove 17 of a closure plug 18, which is adapted to be mounted in the bushing in engagement with the threads 10 thereof.

The plug 18 is provided with a flange 19 in proximity to the gasket groove 17, and the diameter of the plug flange is approximately that of the outside diameter of the plug threads 20, and the plug flange being of slightly less diameter than that of the inner periphery of the thin wall 12 of the bushing 9. This form of construction of plug provides for the plug being mounted in the bushing in a counter-sunk manner, and in fact is a plug of the counter-sunk type.

The gasket groove 17 of the plug 18 is relatively deep so that the gasket 16 carried thereby can be plug held when the plug is removed from the bushing, and further, so that the gasket which has an outside diameter greater than the plug flange 19, cannot be forced or pulled out of the groove when the plug is being mounted in closing position in the bushing by frictional engagement of the outer periphery of the gasket with the thin wall 12 of the bushing.

A polygonal walled socket 21 is formed in the outer end of the plug 18 for wrench engagement for manipulating the plug to and from sealing position in the bushing. In tightening operation on the plug 18 in the bushing 9, the gasket 16 will not only be compressed between the plug flange 19 and the plug gasket seat 15, but will also crowd the outer periphery of the gasket 16 against the inner periphery of the bushing wall 12, thereby causing a marginal portion of the gasket to be crowded upward into and between the plug flange periphery and the inner periphery of the bushing wall 12, in the manner as shown at 22 in Fig. 3. This manner of compressing and seating the plug gasket 16 will provide a seal both on the gasket seat 15 of the bushing and against the bushing wall 12, by reason of the plug flange 19 securing the interposed annular portion 22 of the gasket between it and the curled over part 13 of the bushing wall 12.

The plug 18 on opposing sides of the polygonal socket 21 is provided with a wall 23, each having an aperture 24 formed therethrough. Either or both of these apertures may be used for engaging and passing a sealing wire therethrough for securing the plug in sealed condition.

For cooperation with the plug for wire sealing it in closed position in the bushing, a plurality of tabs 25 are provided. These tabs of which there are a pair shown in diametrically opposite disposition, are each struck-out from the neck or flange 8 of the barrel head 5, and are each provided with an aperture 26.

The tabs 25 are struck-out or formed in the neck 8 in positions intermediate the length of the neck and are preferably disposed a distance below the curled over part 13 of the wall 12 of the

bushing 9, and after being formed, are outwardly bent to approximately forty-five (45) degree positions, as shown more clearly in Fig. 1.

Containers of the character to which this improved sealing structure is applicable, are generally used for storing and shipping oil, gasoline and the like, and are provided with both a filling and a pouring opening, and consequently it is requisite that both openings be air-tight closed and sealed. After the closure plugs of respective openings have been efficiently secured and sealed in the bushings of the openings, one end of a sealing wire 27, as shown in Figs. 1 and 3, is passed through an aperture 26 of one of the tabs 25 and is then entrained through an aperture 24 of the plug 18, and is then engaged and passed through the aperture provided in the seal element 28 which may be of soft metal and is secured therein against unauthorized destruction and to detect unauthorized breakage of the seal, if such should occur.

Figure 4 shows the application and use of a cast iron plug 29 having an over-extending flange 30 beneath which a gasket 31 is carried, and which is to be sealingly compressed on top of the annular bent over part 13 of the thin wall 12 of the bushing 9 when the plug is manipulated in the bushing in efficiently tightened position. In this disclosure, apertures 32 are formed in the plug flange 30, and the seal wire 33 is passed through an aperture 26 of one of the tabs 25 and through one of the apertures 32 and is fastened in the seal element 34.

In the event it is required to dispense with the application and use of sealing wires on certain shipments of the containers and it is desired to use sealing caps instead, for detecting unauthorized destruction and access to the closure structure, it is then necessary to fold back the tabs 25 into respective recesses 35 from which they were struck-out, so that the skirt 36 of the sealing cap 37 can be clinched in engagement against the neck or flange 8 beneath the curled or bent over part 13 of the bushing, as shown in Fig. 5.

Having thus described the invention so that those skilled in the art will be able to practice the same, what I desire to secure by Letters Patent is defined in what is claimed, it being understood that various changes in the sealing structure shown and described above in detail and not amounting to invention, may be made without departing from the spirit and scope of my invention.

What I claim is:

1. In structure of the character described, a container wall having an opening therein, a seat for a bushing surrounding said opening, a bushing, including a flange, received in said seat and a portion of the stock of said seat being partially severed from the adjacent stock and formed to provide an eyelet for reception of a sealing wire.

2. In structure of the character described, a container wall having an opening therein, a neck, formed from said container wall, surrounding said opening, a screw-threaded bushing secured in place in said neck, a tab portion struck from said neck and apertured to receive a sealing wire, a screw-threaded plug secured in said bushing and sealing wire receiving means on said plug cooperating with the means on said tab for reception of a sealing wire to seal said plug against unauthorized removal.

3. In structure of the character described, a container wall formed with an upstanding neck around an opening therein for the reception of closure parts, and sealing means forming part of said neck, said means comprising a tab-like portion substantially severed from the remainder of the neck, being joined thereto merely at one end, the stock adjacent the other end of the tab being apertured for reception of a sealing wire.

4. In structure of the character described, a container wall having an opening therein surrounded by an upstanding neck, a bushing in said neck and a portion of said neck opposed to said bushing being partially severed from the remainder of said neck, said portion being bent out free of said neck and bushing and formed to provide a sealing wire receiving eyelet.

5. In structure of the character described, a container wall having an opening therein, a bushing, having a flange, in said opening and means for securing said bushing non-rotatably in place in said opening, said means including a securing portion provided on said container wall and formed to extend in opposed relation to said bushing and its flange, a section of said securing portion being partially severed from the remainder of the portion and bent outwardly therefrom, said outwardly bent section being formed to provide a sealing wire receiving eyelet.

6. In structure of the character described, a container wall having an opening therein surrounded by an upstanding neck, a bushing in said neck and a portion of said neck opposed to said bushing being partially severed from the remainder of said neck, said portion being bent out free of said neck and bushing and formed to provide a sealing wire receiving eyelet, the zone from which said portion is projected being unobstructed whereby said portion may be readily forced back in line with said neck on the application thereto of a sealing cap.

7. In structure of the character described, a container wall having an opening therein, a bushing, having a flange, in said opening and a bushing-securing formation carried by said container wall and formed to extend in opposed relation to said bushing and its flange, interengaging means betwen said bushing and formation for securing said bushing in said opening and sealing wire receiving means formed integrally with said formation, said means comprising a portion of the stock of said formation projected from the normal contour of the same and being provided with a sealing wire receiving eyelet.

8. In structure of the character described, a container wall having an opening therein, a bushing, having a flange, in said opening and a bushing-securing formation carried by said container wall and formed to extend in opposed relation to said bushing and its flange, interengaging means between said bushing and formation for securing said bushing in said opening and sealing wire receiving means formed integrally with said formation, said means comprising a portion of the stock of said formation projected from the normal contour of the same and being formed to provide a sealing wire receiving eyelet.

LOUIS B. WACKMAN.