March 24, 1936. P. H. SCHMITZ ET AL 2,035,198

CLOSURE FOR METALLIC CONTAINERS AND THE LIKE

Filed Sept. 27, 1934

Fig. 1.

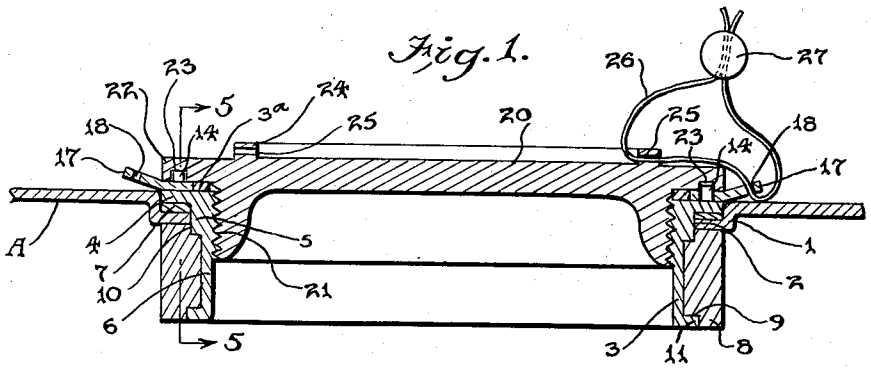


Fig. 2.

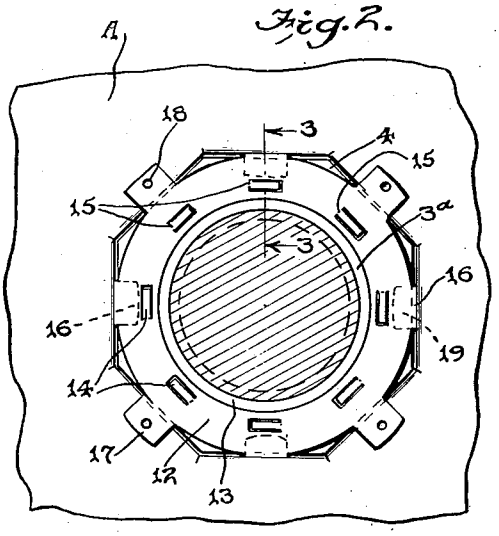


Fig. 3.

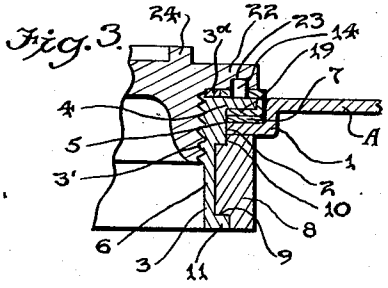


Fig. 4.

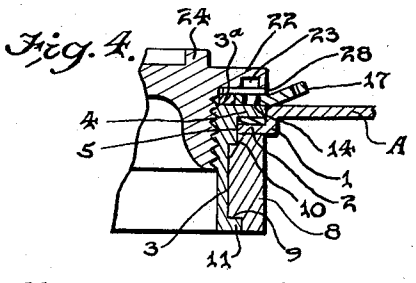


Fig. 6.

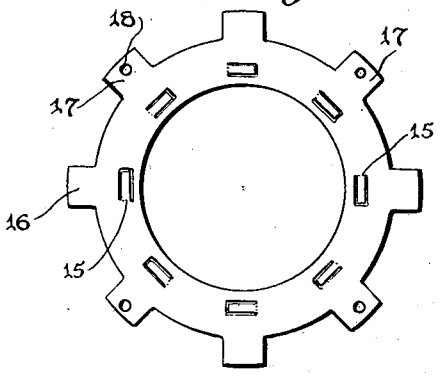
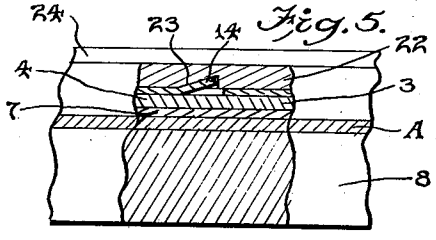


Fig. 5.



Inventors
Paul H. Schmitz and
John W. Bentley,

By

Attorney

Patented Mar. 24, 1936 2,035,198

UNITED STATES PATENT OFFICE

2,035,198

CLOSURE FOR METALLIC CONTAINERS AND THE LIKE

Paul H. Schmitz and John W. Bentley,
Philadelphia, Pa.

Application September 27, 1934, Serial No. 745,822

3 Claims. (Cl. 220—39)

This invention relates to closures for metallic containers and the like, and more particularly to a closure embodying a locking sealing means whereby the same may be locked and sealed to the container and also a second sealing means so that the removable closure may be readily sealed to the container by means of a wire and lead seal or the like.

The present invention is a further development of the subject-matter embodied in our Patent 1,956,135 of April 24, 1934.

The primary object of the invention is to provide a locking sealing means and a seal for a closure, which closure is mounted on or in a bushing structure whereby upon removal of the closure either the locking sealing means and/or the seal will be ruptured, thereby giving notice to the user that the closure has been previously removed.

Another object of the invention is to provide the novel sealing means and arrangement of parts for sealing the closure of the bushing by means of a wire and lead seal or the like. Another object of the invention is to provide, in combination, a locking sealing means for the closure which will be ruptured upon removal of the closure, or attempted removal of the closure, and a second wire and lead seal or the like which will also be ruptured or broken, giving notice to the user that the closure has been removed or attempted to have been removed from the container.

Another object of the invention is to provide a novel locking sealing ring embodying means to engage the closure and also provide a means for engagement of the wire seal or the like through the same, and through the closure. Another object is to provide a novel locking sealing ring which may be attached to the flange of the bushing and the same inserted as a unit in the opening in the container.

Another object of the invention is to provide a means in the form of a ring or the like which will prevent engagement of the sealing and locking teeth on the ring from engaging and locking and sealing the closure while the barrel or the like is in transit from the manufacturer to the user.

With these and other objects in view, the invention consists in the construction and novel arrangement of parts hereinafter described, illustrated in the accompanying drawing and pointed out in the claims hereto appended, it being understood that various changes in the same, proportion, and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

The purpose of providing the locking and sealing means and the wire and lead seal or the like, is that the container or the like having the original contents therein may be locked and sealed by the original shipper by means of the locking and sealing means which must be broken or ruptured by the original user, and then if the original user so desires he may re-use the container, or sell the same, and then the container can again be sealed by means of the wire and lead seal or the like. Obviously, the wire and lead seal may be the first used seal and the locking and sealing means subsequently used, or both the locking and sealing means and the wire and lead seal can be used simultaneously. In other words, we provide a dual seal, or rather two separate and distinct sealing means which are preferably used separately, but they may be both used simultaneously, as desired.

The invention will be more readily understood by referring to the annexed drawing, wherein;

Figure 1 is a vertical sectional view showing the closure locked and sealed to the side wall or end of the metallic container or the like;

Fig. 2 is a plan view showing the bushing with sealing ring attached thereto fixed to the container or the like;

Fig. 3 is a partial vertical sectional view showing the manner of attaching the sealing ring to the flange of the bushing;

Fig. 4 is a partial vertical sectional view including a means for preventing engagement of the locking teeth with the closure;

Fig. 5 is a view partly in section taken on the lines 5—5 of Figure 1, and

Fig. 6 is a plan view of the locking and sealing ring.

Referring more particularly to the accompanying drawing, A denotes a portion of the side-wall or the end of a metallic container or the like, as the case may be, which has a depressed polygonal seat 1 and a polygonal opening 2 formed therein. An annular bushing 3 consisting of a polygonal flange 4, a polygonal shoulder portion 5 and a cylindrical portion 6 is adapted for insertion within the opening 2. The polygonal flange 4 of the annular bushing rests in the polygonal seat 1. A suitable compressible washer 7 is interposed between the underside of the flange 4 and the top of the seat 1. The polygonal shoulder portion 5 of the

bushing, extends through the polygonal opening 2 as does also the cylindrical portion 6.

A ring 8 is provided with a circumferential recess 9 in its inner end and an interior polygonal recess 10 adjacent its other end surrounds the bushing 3 interiorly of the container.

The interior polygonal recess portion 10 of the ring 8 engages the polygonal shoulder 5 and the outer cylindrical portion 11 is swaged or overturned into the circumferential recesses 9 in the ring, thereby forming a leak-proof joint between the ring and bushing and the bottom or the interior part of the polygonal seat 1.

The formation of the polygonal flange 4 resting in the polygonal seat 1 and the polygonal shoulder 5 engaging in the polygonal opening 2 will prevent turning of the bushing with respect to the container or the like, and as before stated the overturning of the end 11 of the bushing will form a leak-proof joint between the ring, bushing and the container. The ring 8 will also be prevented from turning by its engagement with the polygonal shoulder 5 of the bushing.

A seal and locking means in the form of a ring 12, preferably circular and flat and of flexible or resilient material such as metal or the like, having a central cut-out portion or opening 13, is adapted to rest on and be secured to the top or the upper exterior portion of the polygonal flange 4, in superposed relation thereto. The locking and seal ring 12 is provided with a plurality of struck-up tongues 14 which may be scored at their attached ends either on their top or bottom surface, or both the top and bottom surfaces thereof, at 15. The outer periphery of the ring 12 has integrally formed therewith a plurality of diametrically oppositely disposed spaced bendable tongues or tabs 16, four of such tongues being shown, but it is to be understood that a more or less number may be used, as desired. The bendable tongues 16 normally extend radially outwardly from the ring. Intermediate of the spaced outwardly extending tongues 16, the ring 12 is also provided at its periphery with additional radially outwardly extending diametrically opposed integral seal engaging tongues or tabs 17. The tongues 17 are provided with openings 18 for a purpose later described, and are arranged alternately of the tongues 16 at the periphery of the ring 12, and four of such tongues 17 are shown, but it is to be understood that a more or less number may be used as desired. The tongues 17 extend outwardly and are inclined slightly upwardly.

The seal ring 12 normally is in a flat condition except for the upstanding locking teeth 14 and may be formed by stamping or similar method, in one operation.

The locking seal ring 12 is placed on top of the flange 4 of the bushing in superposed relation thereto, and contacts the same, after which the diametrically oppositely disposed tongues 16 are bent around the outer edge of the flange 4 around and into engagement with the underside thereof, as at 19, thus preventing turning of the circular seal with respect to the polygonal flange 4, and combining as a single unit the bushing and the seal ring.

The opening 13 in the seal ring 12 is so dimensioned that when the ring is applied to the top of the polygonal flange 4 it will be slightly spaced from the interior screw threads 3' provided adjacent the upper end of the bushing 3, and in spacing the ring thusly, a space will be provided wherein a circular compressible washer or gasket of any desired material 3^a is positioned and it will be seen that the washer or gasket extends substantially flush with the screw threads 3', formed in the bushing 3.

A cap or closure 20 having a reduced exteriorly screw threaded portion 21 and a circumferential laterally extending flange 22 acts as a closure for the opening in the bushing when the screw threads 21 are turned into the interiorly screw-threaded bushing. The circumferential flange 22 is provided on its lower portion with a plurality of inclined recesses 23, which recesses preferably correspond to the number of upstanding locking tongues 14, but it is to be understood that one or more such recesses may be used as desired. The upper face of the closure 20 is provided with an upstanding rib 24 which extends around the same, inwardly of the periphery thereof, the exterior and interior vertical faces thereof being of polygonal formation so as to provide means for the application of a suitable tool for removing or inserting the closure 20 in the bushing. The upstanding rib 24 on the closure 20 is provided with a plurality of transverse openings 25.

With the various parts arranged as shown in Fig. 1, it will be seen that the tongues 17 extend beyond the periphery of the flange 22 of the closure 20 and are slightly upwardly inclined to permit a sealing wire 26 to be threaded or looped through the opening 18 in one of the tongues 17 and also through one of the openings 25 in the upstanding rib 24 and a lead seal 27 is then applied to the free ends of the sealing wire.

It will be seen that when the cap or closure 20 is threaded into the bushing 3, as shown in Fig. 2, in a clockwise direction, the inclined recesses or pockets 23 will ride over the spring locking tongues 14 of the circular seal 12 until the lower portion of the circumferential flange 22 seats on top of the seal ring 12 and the gasket or washer 3^a, thereby forming a leak-proof sealed closure for the container or the like. When, however, it is desired to remove the closure 20, the same must be turned in an anti-clockwise direction, and by doing so the locking tongues 14 of the circular seal will break at their scored portions 15 and give notice to the user if the container has been previously opened, and, of course, to remove the closure 20 when the wire seal 26 has been used, the wire seal must also be broken.

In other words, there is provided what might be called a double seal, namely the seal effected between locking tongues 14, and the wire seal which is associated and connected with the tongues 17, which are a part of the sealing and locking ring 12 and tongues 14, thereby giving double notice and serving a dual purpose to indicate to the user that the container has been previously opened, or, when the sealing locking means and the wire seal are used separately, at different times, a single indication will be given where the closure has been removed.

When the container is shipped from the manufacturer to the user it is desirable that some means be provided to prevent the locking tongues 14 from engaging the recesses or pockets 23 and this is accomplished by simply placing a circular flat ring 28 in engagement with the underside of the flange 22, thereby closing the recesses or pockets and preventing the spring tongues 14 from entering the same, and it is

simply necessary for the user to discard the ring after the container has been filled, and the locking action will then take place. The ring 28 may be made of paper, fibre, or cardboard, or of thin metal, etc., see Fig. 4.

While the bushing structure herein shown and described is of the type arranged interiorly of the container, it is distinctly to be understood that the novel sealing features may be associated with or combined with a bushing structure which would extend exteriorly of the container or partially exteriorly of the container. It is further to be understood that the closure 20, which is shown as exteriorly screw-threaded, may be of the interiorly screw-threaded type and engage a correspondingly formed bushing arranged exteriorly of the part of the container to which the same is to be attached.

From a practical standpoint and from the viewpoint of inexpensively providing a sealed closure for metallic containers or the like, it is obvious that a bushing structure with the attached locking and sealing ring, and its projecting seal wire engaging tabs, as a unit, is very desirable in that it may be assembled by the manufacturer as a unit and then simply dropped into the opening in the part of the container to which it is to be applied and secured thereto in the manner shown and described, or in any other desired manner.

The dual sealing feature, or, rather, the sealing and locking feature, as before stated, provides for an initial locking and sealing for the original shipment, and a subsequent re-sealing by another, or where both sealing means are used simultaneously, a dual indication will be given to the user in apprising him of the fact that the container has previously been opened, or attempt has been made to open the same.

We claim:

1. In combination with a metallic container having a filling and emptying opening therein, an annular bushing having a circumferential flange resting in said opening, and means for securing the bushing in the opening, a closure for said opening provided with a projection having a transverse opening therethrough and also a circumferential flange having a plurality of locking recesses in the lower face thereof, a flat circular sealing ring formed of resilient metal and having a plurality of integral locking tongues extending upwardly from the flat face thereof to engage in the recesses in the flange of the closure and lock the same to the container, and the outer periphery of which ring is provided with a plurality of diametrically oppositely disposed integral bendable tongues whereby the sealing ring is secured to the flange of the bushing by bending the tongues over the side edges thereof, the ring also being provided at its periphery with a plurality of integral diametrically oppositely disposed outwardly extending seal wire engaging perforated tabs arranged intermediate and alternately of the said tongues, and projecting beyond the periphery of the closure, and a seal wire looped through the transverse opening in the closure and through one of the perforations in the tabs and the free ends thereof sealed by a lead seal.

2. A structure as defined in claim 1, wherein a flat ring is placed against the lower face of the flange of the closure and serves to prevent the locking tongues from entering the recesses in the flange until the container has reached the user who removes and discards the same so as to allow the locking tongues to perform their intended function.

3. In combination with a metallic container having a filling and emptying opening therein, an annular bushing having a circumferential flange resting in said opening, means for securing the bushing in the opening, a closure for said opening having a circumferential flange with a plurality of locking recesses in the lower face thereof, a flat circular sealing ring formed of resilient metal and having a plurality of integral locking tongues extending upwardly from the flat face thereof to engage in the recesses in the flange of the closure and lock the same to the container, means for securing the said ring to the bushing, and a flat ring member at the said lower face of the flange of the closure to cover the recesses in the lower face of the said circumferential flange and prevent the locking tongues from entering the said recesses until the container has reached the user who removes the flat ring member so that the locking tongues can perform their intended function.

P. H. SCHMITZ.
J. W. BENTLEY.