Feb. 10, 1925. 1,525,782

L. J. SINNOTT

CONTAINER

Filed July 14, 1922

Fig. 1.

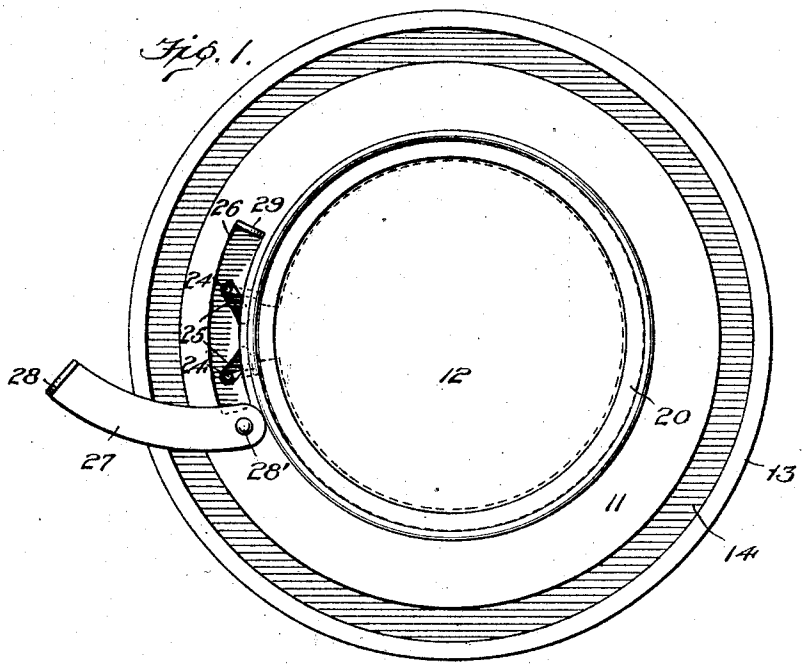


Fig. 2.

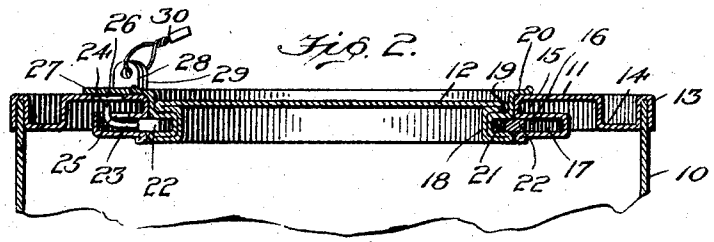


Fig. 3.

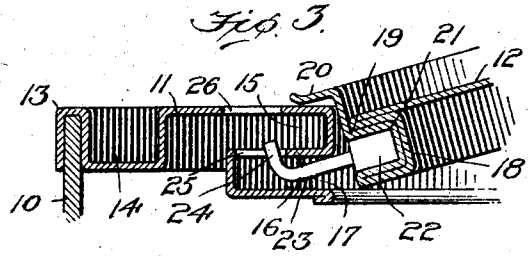
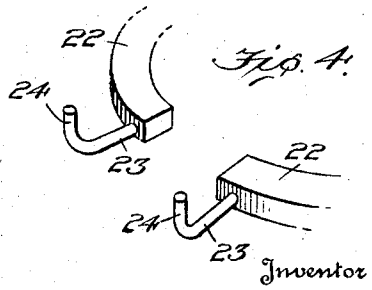


Fig. 4.



Inventor

Lawrence J. Sinnott

By Geo B. Pitts

Attorney

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UNITED STATES PATENT OFFICE.

LAWRENCE J. SINNOTT, OF CLEVELAND, OHIO.

CONTAINER.

Application filed July 14, 1922. Serial No. 575,122.

To all whom it may concern:

Be it known that I, LAWRENCE J. SINNOTT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in and Relating to Containers, of which the following is a specification.

The present invention relates to containers, and more particularly to closures and locking means therefor.

An object of this invention is to provide a positive locking means for the container closure, which locking means may be easily released to free the closure and may also be sealed from unauthorized operation so that tampering with the contents of the container may be readily detected.

Another object is to provide a container and closure therefor which may be constructed of metal, or like sheet material, and with complemental grooves or channels which may register when the closure is in place on the container for receiving a resilient locking ring, and for accommodating and housing a releasing means for flexing the ring out of one of the grooves to release the closure.

A still further object of the invention is to provide a container top and closure for fitting in the top, both the top and the closure having registering grooves to receive a flexible ring having operating fingers at its free ends which engage in a pair of inclined slots formed in the top of the container for guiding the ring into and out of the grooves for locking and releasing the closure from the top and for insuring the proper operation of the ring when the fingers are compressed toward each other.

The above, and various other objects and advantages of this invention will be in part described in, and in part understand from, the following detailed description of the present preferred embodiment, the same being illustrated in the accompanying drawing, wherein:

Figure 1 is a top plan view of a container having a closure fitted to the top thereof and locked in position according to the present invention.

Figure 2 is a fragmentary vertical section through the upper end of the container and its parts, the section being taken through the releasing means of the device.

Figure 3 is an enlarged fragmentary view in section of a portion of the top and the closure, showing the latter partly removed from the top, and

Figure 4 is a fragmentary perspective view of the spaced ends of the locking ring, showing operating fingers carried thereby.

Referring to the drawing 10 designates a container which may be of any suitable construction and configuration and which is provided with a top 11 and a closure 12.

The top 11 may be of sheet metal, of ring form, and stamped or bent to provide an inwardly or downwardly facing channel bead 13 adapted to embrace the upper edge of the side wall of the container 10 and be compressed, crimped or otherwise permanently attached thereto.

The top 11 is depressed near its outer marginal edge to provide an annular groove 14 which not only provides the formation of the bead 13 but which provides ample space for operation of tools or the like for forming and applying the bead 13 to the wall of the container.

The inner marginal edge of the ring top 11 is returned beneath the top and in spaced relation to the upper wall thereof to form an annular pocket or chamber 15 having a ledge 16, and the metal of the top is returned from the outer edge of the ledge 16 beneath and in spaced relation to the latter to form an annular inwardly opening groove 17.

The closure 12 may also be made of sheet metal and comprises a disc body portion having its marginal edge returned therebeneath and thence bent inwardly at substantially right angles to the body portion to form an annular flange or wall 18 adapted to project down into the central opening of the top 11. The inner or lower end of the wall 18 is bent outwardly at substantially right angles to the wall, and the metal of the closure is returned upon itself to provide a wall 18 of double thickness, the metal extending upwardly around the marginal edge of the closure and slightly above the same to form a seating shoulder 19 beneath the marginal edge of the closure disc. The upper portion of the metal is turned outwardly to form a flange 20 adapted to engage the upper surface of the top 11 for limiting the insertion of the closure 12 through the opening of the top. The upper and lower portions of the annular wall 18 extend out-

wardly at substantially right angles thereto to form an annular outwardly opening groove 21 arranged to register with the groove 17.

A ring 22 is seated in the grooves 21 and 17, is of resilient material, and of such size as to normally expand so as to lie partly in each groove 17 and 21 and to thus overlap the annular joint between the top 11 and closure 12. Such arrangement of the ring 22 securely locks the closure in the top and the closure can not be released until the ring 22 is flexed into one of the grooves 17 or 21.

The ring 22 preferably comprises a resilient element, that shown consisting of a ring shaped bar of rectangular shape in cross section.

For the purpose of facilitating the operation of the ring, the latter is provided near its free ends, as particularly shown in Figure 4, with a pair of laterally-extending fingers 23 having upturned ends 24. The fingers 23 preferably project substantially radially outwardly into the groove 17 of the top 11, their upturned ends 24 being adapted to extend through a pair of inwardly converging slots 25 which are formed in the ledge 16 at one side of the top 11, the fingers being rounded upwardly so that the ends 24 thereof may freely enter the slots 25 as the closure 12 is canted or tilted in the act of positioning the same, see Figure 3. These slots 25 preferably guide the ends 24 during the expansion and contraction of the ring 22, so as to insure the correct positioning of the ring when in normal expanded position for locking the closure in the top. When the ring 22 is in this position the upturned ends 24 of the fingers engage the outer ends of the slots 25 so that the ring is held firmly in place. The wall above the finger ends 24, that is, the top 11 when the fingers 23 extend outwardly, is provided with an arcuate opening 26 to facilitate access to the upturned ends 24 of the operating fingers so that said ends 24 may be moved relatively to each other. Such movement of the fingers causes the ends 24 to ride into the inner ends of the slots 25, contracting the ring and holding and guiding it into the groove 21 of the closure, such as shown in Figure 3, when the closure may then be withdrawn from the top 11.

For the purpose of preventing unauthorized tampering with the contents of the container 10, the top 11 may be provided with a cover plate 27 for the opening 26, the cover plate 27 being of arcuate form and pivoted at 28 at one end so that the cover plate may be swung in an edgewise direction over the opening 26. The free end of the cover plate 27 is upturned and apertured to provide an ear 28 which, when the cover plate 27 is closed, engages with a second apertured ear 29 which is turned up from the top 11 at the end of the opening 26. The ears 28 and 29 are adapted to receive the wire 30 of a seal or the like therethrough for holding the ears 29 together to afford a ready means of detection of the opening of the cover plate 27.

When the closure 12 is to be removed from the top the cover plate 27 is swung into an open position as shown in Figure 1. The upturned ends 24 of the operating fingers 23 may be compressed together to contract the locking ring 22 into the groove 21 of the closure. The closure may now be lifted out of the top 11 by first elevating that portion of the closure which is remote from the operating fingers 23, the latter being swung out of the groove 17 and slots 25 as the closure is tilted and withdrawn.

The locking ring 22 may have one edge rounded or beveled so that when placing the closure or cover 12 the ring may be automatically snapped into locked position.

The plate 27 may be secured in position in such manner that it will prevent leakage through the opening 26, thereby adapting the container for the shipment of liquids. Any suitable devices may be used for securing the plate in a liquid tight manner to the top 11.

It is apparent that various modifications and changes may be made in the details of design and construction of the above specifically described embodiment without departing from the spirit of this invention, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. In a container, the combination of a top, a closure fitting said top, said top and closure having complemental grooves adapted to register when the closure is in place, and a locking ring arranged to overlap the joint between the grooves for locking the closure to the top, said locking ring being adapted to be flexed into one of said grooves for releasing the closure.

2. In a container, the combination of a top, a closure fitting said top, said top and closure having complemental grooves adapted to register when the closure is in place, a locking ring fitting in the grooves and overlapping the joint therebetween for securing the closure to the top, and means accessible from the exterior of the container for flexing the locking ring into one of said grooves past the joint to free the closure.

3. In a container, the combination of a top, a closure therefor, said top and closure having complemental grooves adapted to register when the closure is in place, and a locking ring fitting in the grooves and adapted to overlap the joint therebetween for securing the closure of the top, said ring having upturned portions at its free ends

and said top having diagonally disposed slots therein to receive said upturned portions for holding the ring normally in locking position, said upturned portions being adapted to be moved in said slots for flexing the ring and the slots being adapted to guide the ring wholly into one groove past said joint for freeing the closure from the top.

4. In a container, the combination of a sheet metal top, a sheet metal closure therefor, said top and closure being bent to form annular grooves therein adapted to register when the closure is in position, a resilient locking ring seated in said grooves and having radially extending fingers on its free ends adapted to project into the grooves of the top and having their ends upturned, said top having outwardly diverging slots therein above its groove to receive said upturned ends of the fingers for guiding and holding the same in position to maintain the locking ring across the joint of the grooves, said upturned ends being adapted to be moved in said slots for contracting the ring and the slots being adapted to guide the ring into the grooves of the closure for freeing the latter from the top.

5. In a container, the combination of a ring shaped top of sheet metal bent at its inner marginal portion to provide an annular chamber and an annular inwardly opening groove beneath the chamber, the wall between the chamber and the groove having a pair of inwardly converging slots therein, a closure of sheet metal bent at its marginal portion to provide an inwardly extending wall to fit in the opening of the top and with an annular outwardly opening groove adapted to register with the groove of the top, an expanding locking ring adapted to fit in the grooves and having outwardly extending and upwardly curved fingers at its free ends, said fingers being adapted to project into the groove of the top and through the said slots into the annular chamber for housing the fingers, the ends of said slots being adapted to limit the expansion of the locking ring and hold it across the joint between the grooves, and said slots being adapted to guide the fingers when compressed for directing the locking ring into the groove of the closure when the ring is contracted.

6. In a container, the combination of a top, a closure fitting said top, said top and closure having complemental grooves adapted to register when the closure is in place, a locking ring engaged to fit in said grooves and overlap the joint between the grooves, operating means connected to the locking ring to release it, and sealing means for the operating means to detect releasing of the ring.

7. In a container, the combination of a top, a closure fitting the same, said top and closure having complemental grooves adapted to register when the closure is in place, a locking ring adapted to seat in said grooves and normally overlie the joint between the grooves, said top having a chamber therein above the groove and opening through the upper side of the top, compressing means connected to the locking ring and projecting into the chamber for access through the open chamber, a cover carried by the top for closing the chamber and housing the compressing means, and seal engaging means carried by the cover and in the top to receive a seating wire therethrough and retain the cover in place.

8. In a container, the combination of a body having a head comprising a top and a closure formed with aligned grooves in their circumferential edges, a resilient member fitting said grooves and normally overlapping the joint between said top and closure, and fingers secured to the member adjacent its ends for stressing the member circumferentially, whereby it may be moved into one of said grooves beyond the joint between said top and closure.

9. In a container, the combination of a body having a head comprising a top and a closure formed with aligned grooves in their circumferential edges, a resilient member fitting said grooves and normally overlapping the joint between said top and closure, and fingers secured to the member adjacent its ends, and extending laterally for stressing the member circumferentially, whereby it may be moved into one of said grooves beyond the joint between said top and closure, one of the parts of said head being formed with an opening to permit access to said fingers.

10. In a container, the combination of a body having a head comprising a top and a closure formed with aligned grooves in their circumferential edges, and said top being formed with an opening in its surface, a resilient member fitting said grooves and normally overlapping the joint between said top and closure, and fingers secured to the member adjacent its opposite ends and extending laterally outwardly to a point below said opening in the top for stressing the member circumferentially, whereby it may be moved into one of said grooves beyond the joint between said top and closure.

In testimony whereof, I have hereunto subscribed my name.

LAWRENCE J. SINNOTT