

Nov. 7, 1944.

LE ROY P. ROOT
SEALING DEVICE FOR DISPENSERS

2,362,404

Filed Oct. 11, 1940

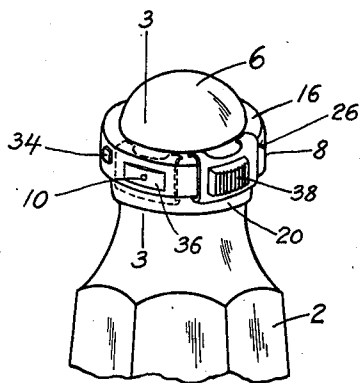


Fig. 1.

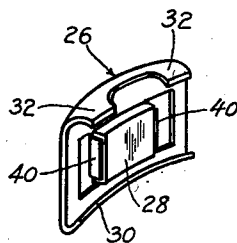


Fig. 2.

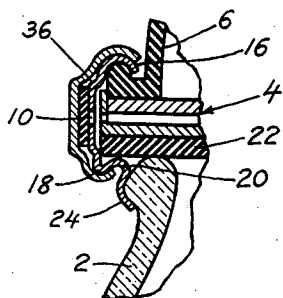


Fig. 3.

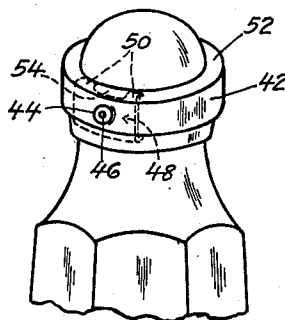


Fig. 4.

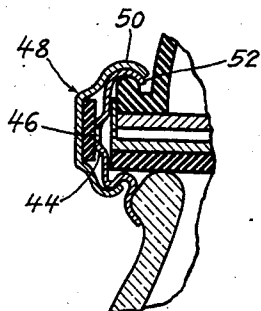


Fig. 5.

BY

INVENTOR.
LEROY P. ROOT.

Albert Sperry
ATTORNEY.

UNITED STATES PATENT OFFICE

2,362,404

SEALING DEVICE FOR DISPENSERS

Le Roy P. Root, Brooklyn, N. Y., assignor to
Scovill Manufacturing Company, Waterbury,
Conn., a corporation of Connecticut

Application October 11, 1940, Serial No. 360,739

9 Claims. (Cl. 299—97)

This invention relates to dispensing devices and particularly to constructions for sealing a discharge opening in a receptacle such as an atomizer or the like whereby the opening may be sealed when the atomizer is not in use or during shipping or storing thereof.

Although the present invention is of general application it is particularly adapted for use in combination with atomizers and in its preferred form embodies a simple metal sealing device or clip which may be snapped into place and serves to urge a sealing element into position to seal a discharge orifice. The device is inexpensive to produce and apply and may be displaced or removed easily to expose the discharge opening at will.

One of the objects of the present invention is to provide a novel construction for sealing the discharge opening in an atomizer or other receptacle.

Another object of the invention is to provide sealing constructions for receptacles which are inexpensive to produce and simple to apply to a receptacle.

A further object of the invention is to provide a receptacle having a discharge opening with a novel type of sealing means which effectively closes said opening during storing or shipping of the receptacle but is capable of ready displacement or removal to permit the discharge of the contents from the receptacle.

These and other objects and features of the present invention will appear from the following description thereof in which reference is made to the figures of the accompanying drawing.

In the drawing:

Fig. 1 is a perspective of the upper portion of an atomizer having a typical form of sealing device embodying the present invention applied thereto;

Fig. 2 is an enlarged perspective of the sealing device of Fig. 1 as seen when removed from the container;

Fig. 3 is an enlarged vertical sectional view of the construction illustrated in Fig. 1 taken on the line 3—3;

Fig. 4 is a perspective similar to Fig. 1 but illustrating a container having a modified form of retaining band thereon; and

Fig. 5 is a vertical sectional view of the construction illustrated in Fig. 4 with a sealing device such as that of Fig. 2 applied thereto.

That form of the present invention chosen for illustration in Figs. 1, 2, and 3 is applied to an atomizer having a receptacle 2, atomizing ele-

ments indicated generally at 4 and a compressible bulb, 6, formed of rubber or other suitable material. The atomizing elements and bulb are held in place on the receptacle by means of a retaining band 8 the outer surface of which is generally cylindrical in form and has a discharge opening 10 located between the upper and lower edges of the band and so positioned with respect to the orifice of the atomizing elements that upon compressing the bulb 6 the contents of the receptacle will be expelled through the discharge opening 10 in the desired atomized form.

The upper edge of the retaining band 8 is turned inward and downward at 16 to engage a bead on the edge of the rubber bulb 6 to secure the bulb in place on the receptacle. The lower edge of the cylindrical surface of the retaining band extends inward and upward at 18. These inturned edges of the cylindrical surface of the band serve as holding means or rails adapted to be engaged by the sealing device to close the discharge opening 10. That portion of the retaining band below the edge 18 of the cylindrical surface extends inward at 20 and engages the packing 22 and clamps the atomizing elements 4 and bulb 6 to the packing. The lowermost portion 24 of the band 8 engages a collar on the receptacle so that the band serves to seal the marginal edges of the bulb, the packing and the atomizing elements and retains them in place on the container. The only aperture through which the contents of the container may escape is through the discharge opening 10 in the cylindrical surface of the band 8 between the rails 16 and 18 which receive and guide the sealing device or clip 26.

The clip 26 is formed on its opposite edges with means for engaging the spaced edges or rails 16 and 18 of the retaining band 8 and is provided with a sealing element 28 formed of rubber or other suitable material for engaging the cylindrical surface to seal the discharge opening therein. For this purpose the lower edge of the clip has a flange 30 which turns inwardly and upwardly to engage the lower rail 18 of the retaining band while the upper edge of the clip is provided with resilient means shown as spaced inwardly and downwardly turned spring fingers 32 which extend over the upper rail 16 of the retaining band. These fingers cooperate with the upper rail 16 to urge the upper edge of the clip and the sealing element 28 inward toward the cylindrical surface of the retaining band and into sealing engagement therewith.

In order that the clip and sealing member may be used as a temporary sealing means adapted to be moved to expose the discharge opening 10 for operation of the atomizer and then replaced in its sealing position, the clip preferably is formed to slide along the rails 16 and 18 of the retaining band. A projection 34 on the band serves as a stop to locate the sealing element over the opening 10 when the clip is moved to the left as seen in Fig. 1 whereas the clip is freely movable to the right along the rails of the band to expose the opening 10. The frictional engagement of the sealing element with the surface of the band holds the clip lightly in any position to which it may be moved and avoids looseness or free movement of the clip along the rails. In order to insure the most effective sealing of the discharge opening the portion of the cylindrical surface of the band adjacent the discharge opening 10 preferably is extended as indicated at 36 or is otherwise displaced radially with respect to the rails 16 and 18 to increase the frictional contact between the sealing element and the surface of the band about the opening when the clip is moved into its sealing position.

The outer face of the clip is formed with a knurled projection 38 to be engaged by the user's finger and facilitate sliding movement of the clip along the rails. The edges of this projection are struck inward at 40 against the edges of the sealing element 28 and thus hold the sealing element securely in place on the inner face of the clip and in position to bear against the cylindrical surface of the retaining band 8.

In applying the clip to the retaining band the flange 30 is hooked beneath the lower rail 18 and the upper edge of the clip is pushed inward to cause the spring fingers 32 to snap over the upper rail 16. The sealing element 28 is on the inner face of the clip adjacent the cylindrical surface of the retaining band and is urged toward said surface by the action of the spring fingers. The knurled projection 38 on the outer face of the clip renders it easy to slide the clip along the rails against the frictional resistance of the sealing element engaging the face of the band. As the clip is moved to the left as seen in Fig. 1 the slight projection of the cylindrical surface at 36 adjacent the discharge opening 10 compresses the sealing element and produces a tight seal for the opening. The stop 34 prevents movement of the clip to the left beyond its sealing position whereas the pressure of the sealing element against the band when the clip is in its sealing position prevents accidental displacement of the clip during shipping or storage of the container.

When it is desired to use the atomizer, the clip is moved to the right as seen in Fig. 1 to expose the discharge opening 10 and after displacement is lightly held in that position to which it has been moved.

In that form of my invention illustrated in Fig. 4 the retaining band 42 is formed with a more prominent or sharply protruding portion or boss 44 about the discharge opening 46 through which the contents of the receptacle are discharged. The clip 48 is substantially the same as the clip 26 of Fig. 1 but the curvature of the spring fingers 50 which engage the upper rail 52 of the retaining band is slightly increased to allow for the greater protrusion of the boss 44. The clip is employed only during shipping and storage of the receptacle and is removed and thrown away when the container is opened for use. The space 54 between the spring fingers 50 on the upper

edge of the clip renders it possible to insert the fingernail or any thin strong object into the space between the clip and band to pry off the clip and expose the opening in the band so that the atomizer may be used.

It is possible to slip the clip shown in Figs. 4 and 5 along the band and into and out of contact with the boss 44 and therefore it will be evident that the clip may be used for temporary sealing purposes when the surface of the retaining band has any of various forms. It will also be evident that means other than the spring fingers on the clip may be used to urge the sealing element toward the discharge opening to seal the same. Moreover the invention may be used in combination with other types of receptacles and on receptacles for holding and dispensing other products such as liquids, powders or pastes. In view thereof it should be understood that the forms of the invention shown in the drawing and described above are intended to be illustrative of the invention and are not intended to limit the scope thereof.

I claim:

1. In an atomizing device including a receptacle, a bulb and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, spaced rails formed on said band and located on opposite sides of said opening and a sealing device slidably movable along said rails into and out of position to seal said opening.

2. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, spaced rails formed on said band and located above and below said opening and a sealing device slidably movable along said rails into and out of position to seal said opening.

3. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, a sealing device for said discharge opening mounted on said band and movable along said band into and out of position to seal said opening, and means movable with said sealing device and yieldably engaging said band for urging said sealing device inward toward said band to perfect the sealing of said opening.

4. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means.

a sealing device for said discharge opening mounted on said band and movable relative thereto into and out of position to seal said opening, a sealing element carried by said device and means on said device engaging said band and yieldably urging said sealing element toward said opening.

5. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, spaced rails formed on said band and located on opposite sides of said opening, a sealing device slidably movable along said rails into and out of position to seal said opening and resilient fingers carried by said device and engaging one of said rails to urge said device inward toward said band and into sealing relation with said opening.

6. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, spaced rails formed on said band and located on opposite sides of said opening and a sealing device slidably movable along said rails into and out of position to seal said opening, said device being formed with an intumed flange on one edge thereof adapted to engage one of said rails and with resilient means on the opposite edge thereof for engaging the other of said rails to urge said element inward toward said band and into sealing relation with said opening.

7. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle,

the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, a sealing device in the form of a metal stamping having elements yieldably engaging said band to permit movement of the device relative to said opening to expose said opening, a sealing element and means struck inward from said device and engaging said sealing element to retain said sealing element in place on the inner face of said sealing device in position to seal said opening.

8. In an atomizing device including a receptacle, a bulb, and means actuated by said bulb for discharging material from said receptacle, the combination of a retaining band engaging said receptacle and bulb and encircling the same to hold said bulb in place with respect to said receptacle, said band being formed with a discharge opening through which the contents of said receptacle may be discharged by said means, spaced rails formed on said band and located on opposite sides of said opening a sealing device slidably movable along said rails into and out of position to seal said opening, a sealing element carried by said device, a projection on the outer face of said device to facilitate sliding movement of said device and means projecting inward from said device and engaging said sealing element to secure the sealing element to the device.

9. A container having a band extending about the same and formed with an opening therein through which the contents of the container may be discharged, said band having inwardly turned upper and lower edges forming rails, a member for sealing said opening having an inwardly extending part engaging one of said rails and resilient means engaging the other of said rails and serving to urge the member inward toward the surface of said band and a sealing element carried by said member and engageable with said band to seal said opening.

LE ROY P. ROOT.