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BOX FOR HOLDING CONTENTS UNDER INTERNAL PRESSURE

Bruno Koschatzky and Giuseppe Parini, Milan, Italy, assignors to Pirelli Societa per Azioni, Milan, Italy

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This invention pertains to receptacles adapted to maintain internal superatmospheric gas pressures.

More particularly, it has reference to such receptacles for the shipment and storage of gas-inflated articles, such as tennis balls and the like, so that such articles cannot become deflated during shipment or storage for extended periods of time.

In the storage of articles subject to atmospheric oxidation it is desirable to not only preclude the entrance of air into the storage receptacle by means of hermetic sealing, but for certain types of gas-inflated articles, such as tennis balls and the like, it is also desirable to maintain within the receptacle a gas pressure greater than the inflated pressure of the articles, so that the gas within the receptacle may penetrate into the article and maintain its charged pressure, rather than the reverse phenomenon whereby the inflated article loses its gas charge by external diffusion.

An object of this invention is to provide receptacles of this character which are adapted to automatically generate an internal pneumatic pressure whenever the receptacles are closed and which will maintain such pressure for long periods of time.

Another object is to provide a receptacle of this kind, wherein the internal pneumatic pressure is gradually increased as the receptacle is closed and the degree of internal pressure is adjustable by varying the engagement of the cover with the body of the receptacle.

Another object is to provide a receptacle of simple and inexpensive construction having the characteristics mentioned.

With these and other objects in view which may be incident to our improvements, our invention consists of the combination and arrangement of elements herein-after described and illustrated in the accompanying drawing, in which:

Figure 1 is a vertical sectional view of the cover of one form of my improved receptacle;

Figure 2 shows the body of the receptacle, partly in vertical section and partly in side elevation;

Figure 3 shows the cover of Figure 1 and body of Figure 2 assembled in closed position, the former being in vertical section and the latter in side elevation; and

Figure 4 is a view, similar to Figure 3, showing a modification of the receptacle shown in Figures 1, 2 and 3.

Referring particularly to Figure 1, the cover of the receptacle shown comprises a hollow, cylindrical tube 1 of sheet metal, impervious fibre, plastic, or other similar material, which is closed at its upper end by a disk 2 of the same material, permanently fastened thereto by crimping, swaging or other similar means.

The lower open end of the tube 1 is formed with an outwardly flared portion 3 which terminates in a hollow head or channel 4 for the reception of the outer edge of an elastic gasket 5, of rubber or the like, which is securely seated therein. The gasket 5 has an inwardly extending circular lip 6 of rectangular cross-section, as clearly shown in Figure 1.

The body of the receptacle, shown in Figure 2, comprises a hollow, cylindrical tube 7 of the same material as the cover, but of somewhat smaller diameter, so as to telescope within the cover when the receptacle is assembled in closed position, as shown in Figure 3. The upper edge of the body 7 is folded in to form a rounded shoulder 8 of somewhat reduced diameter. Below the middle of the body 7 is a groove 9 of semi-circular section, and below the groove 9, at a suitable distance, are fixedly attached a plurality of spring hooks 10, adapted to engage the outer edge of the bead 4 on the cover 1 when the cover 1 is assembled to the body 7 in closed position, as shown in Figure 3. The bottom of the body 7 is closed by a circular disk 11 crimped or otherwise attached thereto in the same manner as the disk 2 to the cover 1.

After the articles that are to be stored in the receptacle are placed in the body 7, the open end of the cover 1 is placed over the open end of the body 7 and the cover pushed down, thus telescoping over the body 1, until the bead 4 of the cover 1 is engaged by the spring hooks 10 which then hold the body and cover assembled in closed position, as shown in Figure 3. When the conical shoulder 8 on the body 1 first engages the lip 6 of the gasket 5, the lip is slightly stretched and bent inwardly so as to form an air-tight seal with the outside of the body 1. Moreover, the air trapped between the cover 1 and the body 7 is compressed as the cover and body are telescoped to assembled position (as shown in Figure 3), and acts to increase the contact of the lip 6 against the body 1, so that the sealing force of the gasket 5 increases with the increase of internal pressure in the container.

From the foregoing description, it is evident that the amount of pressure generated in the container upon closure depends upon the relative movement of the cover 1 with reference to the body 7, after the lip 6 of gasket 5 engages the body 1. This relative movement of the cover 1 and the body 7 in turn depends upon their telescoped length when assembled in closed position; hence the longer the length of the cover 1 and the lower the position of the hooks 10, the greater the pressure of the air which is compressed by the cover 1 when closing the receptacle. Where maximum pressure is desired, the cover 1 is made greater in length and the hooks 10 are located lower down on the body 1, as shown in the modification illustrated in Fig. 4.

When it is desired to open the container, the cover 1 is disengaged from the body 7, by first inserting the fingers of the hand grasping the cover 1 between the inner sides of the spring hooks 10 and the cover 1 and pushing outwardly on these hooks until the bead 4 is released therefrom, whereupon the cover 1 will be pushed away from the body 7 by the compressed air in the container.

As the cover 1 moves away from the closed position, the groove 9 in the body 1 engages the inner edge of the lip 6 of the gasket 5 and reverses the inclination of the lip 6 with reference to the body 1. This allows the compressed air in the container to escape and thus prevent the violent disengagement of the cover 1 from the body 7.

The receptacle described above and illustrated in the drawing is but one of the many possible shapes and sizes that may be utilized in practicing our invention which aims essentially at providing a receptacle of any suitable shape and size, made of any suitable material, that will produce an internal pneumatic pressure during its closure operation and maintain said pressure for an extended period. It is apparent that the amount of internal pressure produced upon closure of my receptacle may be selectively varied by varying the length of the cover and the location of the fastening means on the body. The fastening means may also be of any appropriate type equivalent to the spring hooks 10.