L. P. BROWN.

SANITARY CLOSING AND SEALING DEVICE FOR CONTAINERS.

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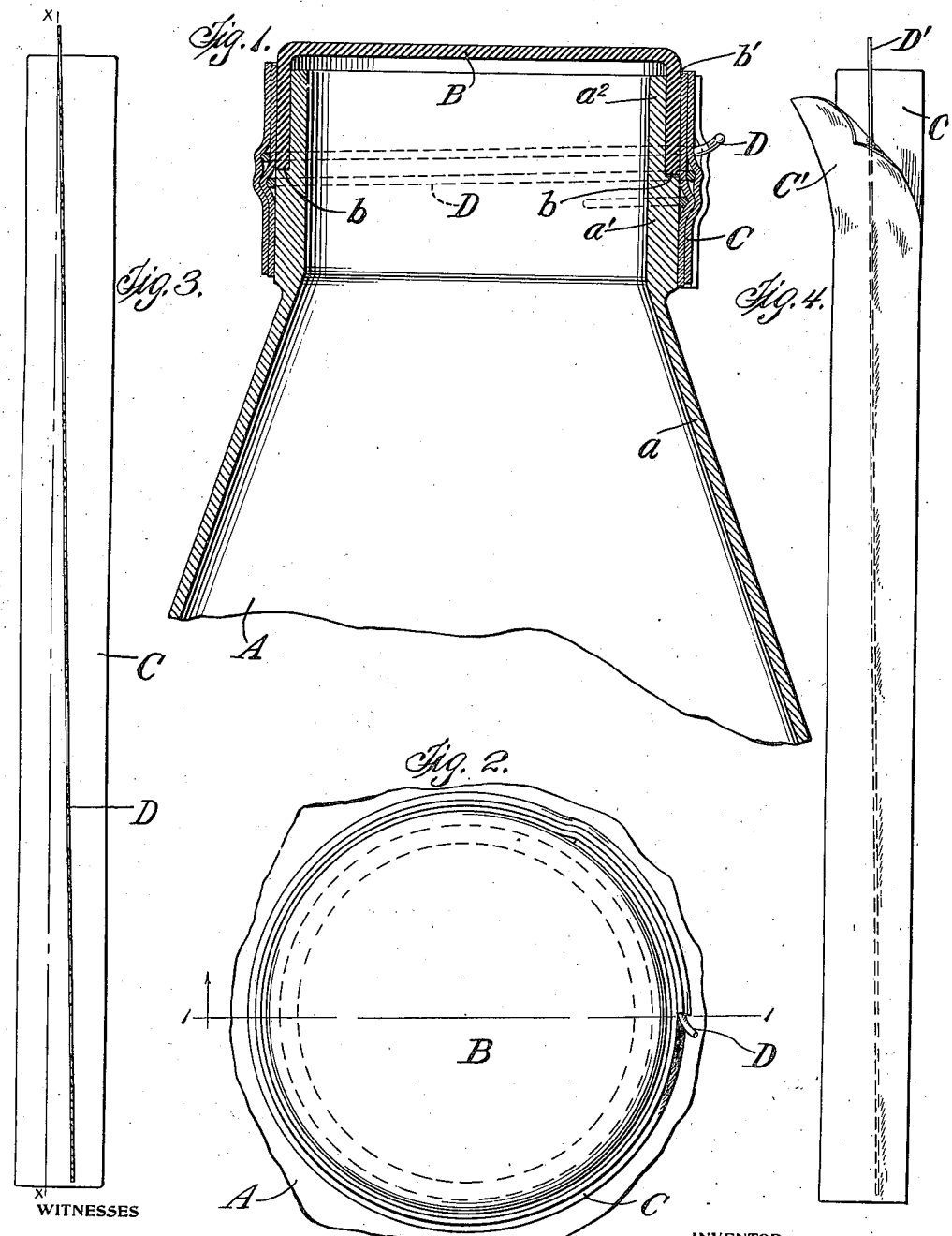
1,243,699. Patented Oct. 23, 1917.



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SANITARY CLOSING AND SEALING DEVICE FOR CONTAINERS.

1,243,699. Specification of Letters Patent. Patented Oct. 23, 1917.

Application filed January 8, 1912. Serial No. 669,956.

To all whom it may concern:

Be it known that I, LUTHER P. BROWN, a citizen of the United States, residing in Ramsey, county of Bergen, and State of New Jersey, have invented a certain new and useful Sanitary Closing and Sealing Device for Containers, of which the following is a specification.

This invention is a sanitary closing and sealing device for containers, more especially for fibrous containers, such as paper bottles, and the object of the invention is a closure of the class described which is liquid and air tight and also dust proof, but, moreover, a device which can be readily applied to, and easily removed from, the said container.

With the foregoing object in view, the invention, in its broad aspect, embodies a removable closure, the juncture between which and the container is sealed by a plurality of layers of suitable material and between which layers extends a ripping cord or wire. This wire or cord may be either secured to the layer of sealing material and this is preferably the case where a cord is employed or it may be detached from and confined between the said layers of sealing material, this latter construction being the preferred one in the event wire is employed. The construction specified results in a container having the closure securely sealed therein by a plurality of coils of suitable material, and with a ripping cord or wire incased within the sealing device, whereby the container may be filled through the mouth thereof, the closure placed thereon, and the sealing device and the ripping element then applied, as specified. The layers of sealing material are, preferably, glued or cemented together and also to the container and the closure, thereby making the container and its closure substantially integral and entirely avoiding leakage from the receptacle or the entrance of air or dust thereto. When the container is to be opened, a pull on the ripping element, which is spirally wound around the juncture of the closure and the receptacle, successively tears or cuts the several layers of sealing material, whereupon the closure may be removed from the receptacle or container.

Heretofore it has been proposed to use a single layer of material to seal a part only of the juncture between a container and its closure with a ripping cord confined between the closure and the receptacle at such point, but it will be manifest that such a construction would be entirely ineffective and unsuitable in sealing receptacles adapted to contain liquids. Furthermore, it has been proposed heretofore to incorporate a ripping wire within the material of the container, in this case the receptacle and the closure being made integral, and a pull on the ripping wire resulting in so mutilating the receptacle as to preclude its subsequent use.

In the accompanying drawings I have illustrated different practical embodiments of the invention, but the constructions shown therein are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 is a vertical section through a portion of a container with a closure fitted to the mouth of said container and with my improved sealing device and ripping element applied to the mouth portion of the container and to the closure, the plane of the section being indicated by the dotted line 1—1 of Fig. 2.

Fig. 2 is a plan view illustrating the closure and the sealing device applied to the container, an end portion of the ripping element being exposed for convenient access.

Fig. 3 is a plan view of the sealing band and the ripping cord attached to said band, the parts being shown in a spread out or flat condition prior to the application of the sealing band and the ripping cord to the container and the closure.

Fig. 4 is a plan view somewhat similar to Fig. 3 illustrating a two-ply sealing band with a ripping wire inclosed between the plies of said band.

A designates a portion of a container having a tapering neck, *a*, and a substantially cylindrical mouth, *a'*. The container is composed preferably of fibrous material, such as paper pulp, although it may be preferred to manufacture the container from one or more sheets of paper substantially as disclosed in a co-pending application filed on even date herewith. It will be understood, however, that the container may be composed of other material. As shown, a

portion of the wall forming the mouth, a', of the container is substantially reduced in thickness, as at a^2, in Fig. 1. This reduced wall of the mouth, a', provides an annular shoulder, b, externally on the mouth portion and at the base of the reduced part a^2 of the wall.

B designates the closure which is composed of a single piece of paper, or other suitable material, said closure being provided with a depending annular flange, b', said flange being of such diameter that it will fit snugly upon the reduced part, a^2, of the mouth, whereby the lower edge of the flange, b', is adapted to substantially contact with the annular external shoulder, b, of the container. The closure or cap, B, is adapted to be positioned upon the container after said container shall have been filled, whereby the container is adapted to be filled with any suitable material introduced through the mouth portion thereof, thus obviating the necessity for a special construction of the container, as has been heretofore proposed; that is to say, the container has been provided with a removable bottom and an integral closure for the mouth portion thereof so that such container is adapted to be filled through the bottom portion thereof, after which the bottom of the container is placed in position and sealed.

C designates a sealing band, the same consisting of a single piece of pliable or flexible material, preferably composed of paper. This sealing band is of a width suitable for engagement with the mouth portion, a', of the container and the flange, b', of the closure. The sealing band is long enough to be wrapped two or more times around the container and the closure subsequent to the application of said closure to the container, and said sealing band is united to the container by cement, or any other suitable adhesive material, the plies or layers of the coiled sealing band being united to each other by the cement or other adhesive material.

With the sealing band there is associated a ripping element, which may be either a cord, D, as shown in Fig. 3, or a wire, D', as shown in Fig. 4. In the construction of Fig. 3 the sealing band is composed of a single layer or ply of material and the ripping cord D is laid or imposed upon one face of the sealing band, said ripping cord being united by cement or other adhesive to the sealing band. The ripping cord extends lengthwise of the sealing band, it being preferred to position the ripping cord at a slight angle to the side edges of the band and to the medial line thereof, the relation of the ripping cord to the sealing band being clearly understood by reference to Fig. 3, wherein the medial line of the sealing band is indicated at x—x, the angular position of the ripping cord being clearly shown in said figure.

When a ripping wire is employed, as in the construction of Fig. 4, it is preferred to inclose the ripping wire between two layers of material, one of which is indicated at C, and the other at C'. The ripping element, D', consists of a fine wire which is positioned between the plies of material, C, C', at a slight angle to the side edges and to the medial line of said band, the position of the ripping wire, D', to the two-ply band being the same as the ripping cord, D, to the one-ply band in Fig. 3. The two plies composing the sealing band are united by a suitable adhesive, and the ripping wire is inclosed between said plies of material. It is evident that the plies of material may be equal in width as shown in Fig. 4, or one ply may be much narrower than the other for the purpose of incasing the ripping wire between the two plies of material. In the construction of Fig. 3, as well as in the construction of Fig. 4, one end of the ripping element extends beyond the corresponding end of the sealing band, thus exposing the ripping element to convenient access when it is desired to cut through the band for the purpose of breaking the seal and removing the closure from the container.

In using the device, container A is filled with any suitable material, such as liquids, the container being especially designed for packing and dispensing milk. After the container has been filled with the desired quantity of material, cap B is placed in position for the flange, b', to engage with the reduced part, a^2, of the wall forming the mouth of the container, the inner edge of said cap contacting with the external annular shoulder, b, of the container. The package is now in condition to be sealed. The sealing band, with the ripping element, having been previously prepared, said band and ripping element are now applied to the container and its closure, the band is wrapped or coiled two or more times around the container mouth, a', and the flange, b', of the closure, said band being united to the container and the closure by cement or other adhesive, and the layers or turns of the band being united to each other by cement or other adhesive. It will be observed, by reference to Figs. 1 and 2, that the sealing band overlaps or extends across the juncture between the container mouth and the closure, and thus the sealing band is adapted to be so securely united to the container and the closure as to effectually and thoroughly seal the container against the ingress of dust and air, as well as against the leakage of the liquid contents of the container. When the container is handled some of the liquid

contents thereof may splash or flow over the edge of the container mouth and have a tendency to leak between the flange, b', of the closure and the shoulder, b, of the container, but by applying the band in two or more layers around the container and the closure, it is evident that any leakage of the liquid contents is effectually precluded.

When the sealing band is applied to the container and its closure, the ripping element is coiled with said band around the parts which it is desired to seal, the successive turns of the sealing band operating to position the ripping element spirally with relation to the container, its closure and the sealing band, as clearly shown in Fig. 1. For the purpose of breaking the seal and permitting the closure to be removed from the container, the user grasps the protruding end of the ripping element and pulls outwardly thereon, the effect of which is to cut successively through the superposed layers of the sealing band and to sever the layers above and below the juncture between the flange of the cap and the shoulder of the container, as will be evident by an inspection of Fig. 1. This results in cutting through the layers of the sealing bands successively in order to effectually destroy the seal at the juncture between the shoulder of the container and the flange of the cap, and thus the cap may be easily and quickly removed from the container, a part of the sealing band adhering to the container and the remainder of the sealing band adhering to the cap. The entire mouth portion of the container is thus exposed when the cap is removed, and the liquid contents of the container may be poured through the mouth portion with the same unobstructed flow and facility as is the case with ordinary milk bottles.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A paper bottle provided with a neck portion, a flanged cap fitted to said neck portion, a sealing band successively wound upon and united to said neck portion and the flange of the cap, and a ripping member incased within the windings of said sealing band, said ripping member being positioned diagonally to the medial line of the sealing band and attached thereto so that the ripping member is adapted to be coiled with the sealing band around the botttle in a manner to separate or space the successive windings of the ripping member.

2. A paper bottle provided upon a neck portion thereof with an external shoulder, a cap provided with a flange which is in abutting engagement with said shoulder and in substantially flush relation to the exterior surface of the neck portion, a sealing band successively wound upon said neck portion and the flange of the cap and united thereto, and a ripping member positioned diagonally to the medial line of, and united to the, sealing band so as to be wound therewith around the neck and the cap, the successive windings of the ripping member being separated from each other and positioned above and below the contacting edges of the flange of the cap and the shoulder of the neck.

3. In a device of the class described, a sealing band embodying a continuous strip of frangible material, and a ripping member unitary with said strip and extending lengthwise between the side edges thereof, said ripping member being positioned diagonally to the medial line of the strip, whereby in the operation of winding the strip said ripping member is coiled therewith and the spirals of said ripping member are separated from each other.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LUTHER P. BROWN.

Witnesses:
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