

Oct. 4, 1927.

1,644,542

J. A. PEASE

BOTTLE CLOSURE

Filed Feb. 25, 1927

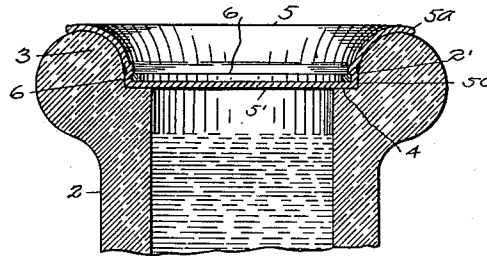


FIG. 1

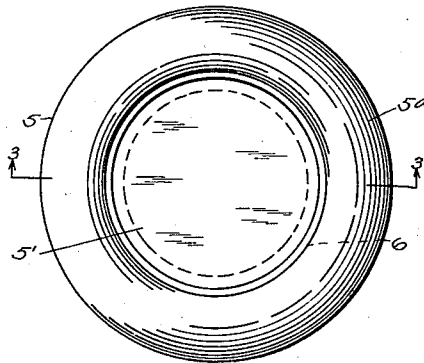


FIG. 2



FIG. 3



FIG. 4

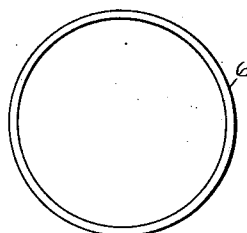


FIG. 5

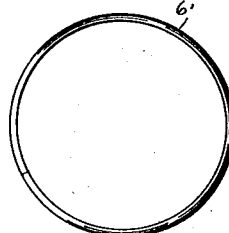


FIG. 6

Inventor.

John A. Pease.
By Harry DeWallace,
Attorney.

UNITED STATES PATENT OFFICE.

JOHN A. PEASE, OF SYRACUSE, NEW YORK.

BOTTLE CLOSURE.

Application filed February 25, 1927. Serial No. 170,889.

This invention relates to improvements in bottle closures, designed particularly for use in connection with milk, cream, and like containers, and has for its object to provide a unitary circular fibrous closure having a depressed central disc-shaped portion that snugly fits the recess of the bottle mouth, the said body being formed with an integral flexible apron that overlies the annular bead and protects the pouring surface of the mouth. A further object is to provide novel means for reinforcing and stiffening the peripheral margin of the central disc for effecting a relatively deep seal where said margin engages the recess of the mouth. A further object is to provide a ring-like core around which the peripheral portion of the central disc is folded and molded for regulating and maintaining the depth of said sealing margin, the said ring or core preferably comprising a suitable metal wire of sufficient flexibility to enable the disc to be firmly seated by the capping mechanism in case of slight inequalities of the said recess.

I attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawing, in which—

Figure 1 is a central vertical section of the neck and mouth of a common milk bottle, to which my improved closure is applied. Fig. 2 is a top plan view of the closure. Fig. 3 is a central vertical cross-section, showing the closure as it comes from the molding machine; also showing a reinforcing ring of square cross-section. Fig. 4 is a similar section, showing the ring made from round wire. Fig. 5 is a plan view of the ring shown in Fig. 3. And Fig. 6 is a similar view of the ring shown in Fig. 4, the ring being split.

In the drawing, 2 represents the neck of an ordinary milk bottle, and 2' is the depressed mouth, which is surrounded by a flaring bead 3. The bottom of the recess 2' comprises an annular ledge 4, upon which the central portion of the closure, as 5, is seated.

The closure 5 preferably consists of a relatively large circular fibrous body of relatively thin gage, which is preferably of such flexibility as to enable the body to be molded and flexed during the manufacture, as well as during the application of the closure of the bottle. The closure 5 consists of a depressed central disc-shaped portion 5', which

is arranged to snugly fit the bottom portion of the recess 2', the said disc being surrounded by an integral rolled convex apron 5^a, which overlies the convex bead 3, when the closure is applied to the bottle mouth.

In order to provide for suitably molding the closure, the gage of the fibrous stock must be relatively thin. This thin stock, it has been found, is incapable of effecting the satisfactory sealing at the point where the periphery of the central disc engages the walls of the recess 2', and requires to be reinforced and thickened in the vicinity of said periphery, in order that the closure may be self-retaining, and at the same time resist leakage and accidental ejection during the handling of the bottle.

Heretofore, closures of this class have been provided with plain discs of similar but usually stiffer fiber, the said discs usually being mounted upon the central portion 5', for reinforcing the said portion generally, and at the same time thickening and stiffening the peripheral margin, at 5^c, of said central portion. The use of the said reinforcing discs greatly increases the amount of fibrous stock, and entails considerable extra expense, and besides the said discs cause more or less trouble during the manufacture of the closures. In the present case, it is proposed to eliminate the aforesaid reinforcing disc, and to substitute therefor an annular core or ring, as 6, which is mounted concentrically upon the disc 5', after which the peripheral portion of the disc 5' is folded inwardly upon the said ring, and is then folded outwardly for providing the convex apron 5^a, as shown in Figs. 1, 2 and 3. By the use of the ring 6, the peripheral margin 5^c of the disc 5' is given the proper depth to effect the positive sealing of the joint between the portion 5^c and the walls of the recess 2'. The ring 6 is preferably of square cross-section (see Figs. 1 and 3), which tends to form the periphery 5^c of the disc 5' at right angles to the plane of said disc, and enable the said periphery to snugly fit the recess 2'.

The particular advantage of the ring 6 lies in the cheapness of its manufacture, and being preferably composed of metal wire, which is usually hard and smooth, the said ring is not liable to become battered, frayed, soiled or distorted, by handling. In practice the rings 6 are made of relatively light but stout wire, and weigh less than the pasteboard discs formerly employed for rein-

forcing closures of this type. By substituting the core 6 for the common fibrous disc, the reinforced margin 5^c is rendered so rigid as to prevent distortion of the closure after it leaves the molding machine. 5
The use of the rings 6 eliminates one set of dies heretofore employed for stamping out the discs, and the rings may be readily and cheaply made by modern wire-working machines without any waste. Furthermore, 10
the stamping of the old discs from sheets or fibre always results in a great waste of the stock, which greatly increases the cost of producing the said discs. The older closures are manufactured by automatic machines, which are equipped with separate 15
magazines for supplying the larger discs comprising the main body of the closures, as well as the reinforcing discs, and these relatively thin fibrous discs, generally become 20
so closely packed in the magazines that it is extremely difficult to feed single discs from the bottom of the stacks, and the fibrous discs being more tenacious than the smooth metal of the wire rings tend to cling 25
to each other and interfere with and slow down the feeding, as well as the output of the machines. The rings 6 being more rigid than the paper discs, not only improve the reinforcing of the sealing margins 5^c, but 30
when the closures are forced tightly into the recess 2', the rings exert sufficient radial pressure against the wall of the recess, as to render reinforcing of the exposed central portion of the disc 5' unnecessary. 35

Obviously, the rings 6—6' may be made of non-metallic materials of suitable rigidity, and that other changes may be made within the scope defined by the appended claims.

40 Having thus described my invention, what I claim, is—

1. A bottle closure composed of a fibrous body having a depressed central portion 45
formed for seating within the recess of the bottle mouth and having an annular apron formed to overlie the bead of the mouth,

said body being folded upon itself to form a continuous annular ledge which overlies the said depressed portion in spaced relation thereto, and a ring of substantially uniform cross-section throughout disposed in the 50
space between the depressed portion and the ledge and being held in fixed position on said depressed portion by the ledge, the marginal wall defining the depressed portion being at right angles to the latter and 55
the periphery of the ring being also at right angles to the depressed portion so as to reinforce and maintain said marginal wall of the depressed portion at right angles to the depressed portion. 60

2. A bottle closure composed of a fibrous body having a depressed central portion formed for seating within the recess of the bottle mouth and having an annular apron 65
formed to overlie the bead of the mouth, said body being folded upon itself to form a continuous annular ledge which overlies the said depressed portion in spaced relation thereto, and a ring seated on the depressed 70
portion and held permanently thereon in a fixed position by the ledge so that the body and ring constitute a unit, said ring engaging the marginal wall that defines the depressed portion throughout substantially 75
the entire circumference thereof so as to reinforce same.

3. A bottle closure composed of a fibrous body having a central depressed portion to seat within the recess of the bottle mouth 80
and having an annular apron formed to overlie the bead of the bottle mouth, and a ring seated on the depressed portion and against the marginal wall defining the depression so as to reinforce the marginal 85
wall, said body being formed with an integral continuous part that overlies and permanently holds the ring onto the depressed portion so that the body and ring constitute a unit. 90

In testimony whereof I affix my signature.
JOHN A. PEASE.