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[21] Appl. No. **773,846**

[22] Filed **Nov. 6, 1968**

[45] Patented **Nov. 2, 1971**

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[32] Priority **Nov. 18, 1967**

[33] **Germany**

[31] **P 15 86 641.8**

[50] Field of Search..... 99/171 B,
171 S, 171 M, 78; 206/47 B, 65; 229/53

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[54] **SEALED BEVERAGE DRINKING CUP**
6 Claims, 5 Drawing Figs.

[52] U.S. Cl..... **99/171 M,**
99/171 S, 99/171 B, 206/47 B

[51] Int. Cl..... **B65d 5/02,**
B65d 31/18

ABSTRACT: A sealed drinking cup containing a small quantity of a dry pulverized or granulated substance which, after the cup is opened, may be dissolved by the addition of a liquid to form a beverage which may be drunk from this cup. The cup is first folded from its original open condition into the shape of a flat bag into which the substance is filled and which, when the cup is to be used, may be easily unfolded to its original shape after its sealing element in the form of a string or tape which is coated with a thermoplastic adhesive is pulled out of the bag.

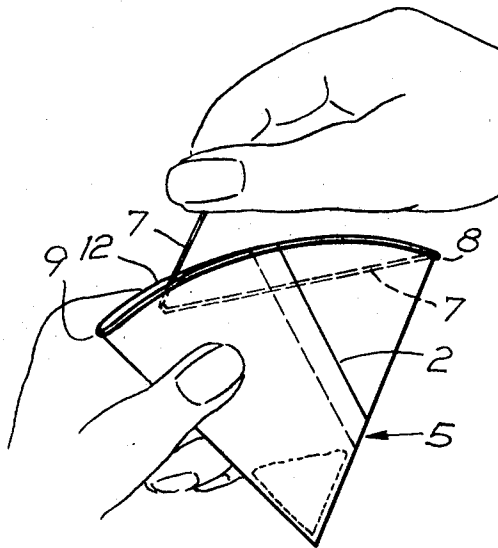


Fig. 1.

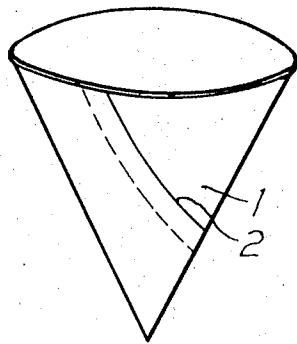


Fig. 2.

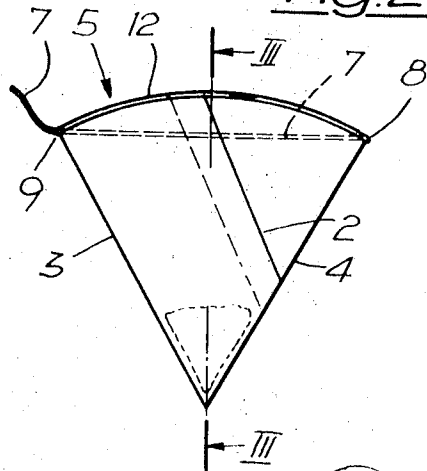


Fig. 3.

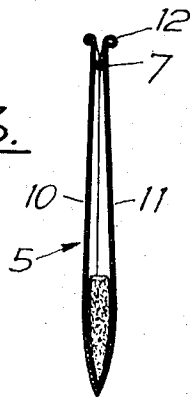


Fig. 4.

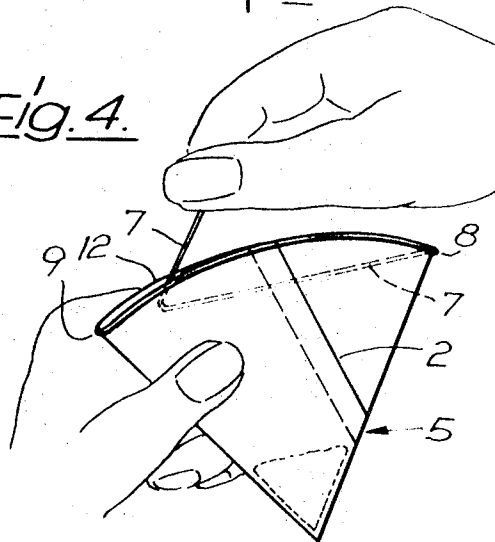
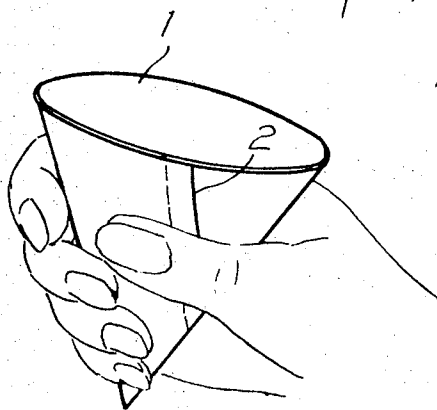


Fig. 5.



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SEALED BEVERAGE DRINKING CUP

The present invention relates to a drinking cup which contains a dry pulverized or granulated substance for preparing a beverage by the addition of hot or cold water or another suitable liquid.

Prior to this invention there have been cardboard drinking cups in which a dry pulverized or granulated substance was enclosed within a chamber formed between the bottom of the cup and a false bottom above it which had to be removed before a liquid was to be filled into the cup to dissolve the substance to produce a beverage which could be drunk from this cup. Apart from the difficulties of inserting and removing this false bottom, these cups have the disadvantage of being relatively expensive, of taking up considerable space which increases the difficulty of storing and transporting them and also of employing them in dispensers, especially in automatic beverage dispensers which, due to the rigidity of these cups and their relatively large size, also have to be of a relatively large size and complicated construction.

It is an object of the present invention to provide a drinking cup of the general type as first mentioned above which eliminates the disadvantages of the last-mentioned cups by taking up very little space before being used and by being more sanitary than the previous cups.

According to the invention this object is attained by designing the drinking cups so as to permit them to be easily folded into the form of flat bags which contain the dry substance from which by the addition of a liquid, for example, hot or cold water, a beverage may be prepared, and the opposite walls of which adjacent to their upper edges forming the rim of the drinking cup are tightly but detachably connected to each other so as to seal the inside of the bag including the dry substance therein from contamination and access of the outer air.

Such a flat bag takes up very little space and may be easily packed, stored, and transported. Since it is folded together from its original cup shape, it may be easily returned to this shape to form a relatively solid drinking cup into which a liquid may then be filled to dissolve the dry substance and thus to produce a beverage which may be drunk from the cup.

Although the cup in its folded or unfolded condition may be of different constructions and shapes, a preferred embodiment of this cup in its unfolded condition has a conical shape and is folded along two diametrically opposite lines. This has especially the advantage that such a cup may be very easily folded into a flat bag which may also be easily unfolded to its original conical shape when it is to be used for preparing the beverage and for drinking it. Furthermore, such a cup may be easily sealed when folded into a flat bag shape.

The closure of the bag may also be of different types. According to a preferred embodiment of the invention, it comprises a connecting element in the form of a string or tape which is inserted between the inner surfaces of the cup or those of the flat bag adjacent to its open end. This connecting element which may be impregnated or coated with an adhesive permits the flat bag to be easily sealed and also opened without difficulty. This adhesive preferably consists of a heat-sealing adhesive, for example, a thermoplastic, which sets very quickly and exerts its sealing effect after being heated for a very short time when heat and pressure is applied upon the opposite outer sides of the bag adjacent to this connecting element.

Such a stringlike or tapelike connecting element has not only the advantage of permitting the bag to be very easily sealed, which is of considerable importance when the sealing operation is carried out automatically by a machine, but it has the further advantage of permitting the bag to be sealed only along a very narrow strip adjacent to its opening which may be easily unsealed by exerting a small pulling force on the connecting element. The cup itself may be made of plastic or of paper or cardboard which is impregnated or coated so as to render it waterproof. If by pulling off the connecting element the inner side of such a paper or cardboard cup might be damaged, this damage will be restricted to a very narrow part of the inner surface and will not affect the appearance or usefulness of the cup.

Such a string- or tape-shaped connecting element has the further advantage that at least one end thereof may project from the flat bag and may be easily gripped to pull the entire connecting element out of the bag which will thereby be opened.

The features and advantages of the present invention will become further apparent from the following detailed description thereof which is to be read with reference to the accompanying drawings, in which:

FIG. 1 shows a perspective view of a drinking cup according to the invention after it has been unfolded from its flat condition;

FIG. 2 shows a side view of the same cup in its flat, sealed condition;

FIG. 3 shows a cross section which is taken along the line III—III of FIG. 2;

FIG. 4 shows a perspective view of the flat cup and of the manner in which it is held while being opened; while

FIG. 5 shows another perspective view of the cup in the same condition as shown in FIG. 1 and illustrates the manner in which the cup is to be held.

As illustrated in FIGS. 1 and 5, the drinking cup according to the invention has preferably a conical shape and may consist of waterproof paper or cardboard or of a sheet of a suitable plastic. Unless it is molded to the desired shape without a seam, it is molded so that its opposite edges overlap and are tightly glued to each other along a strip 2.

This cup is at first folded along two diametrically opposite lines 3 and 4, as shown in FIG. 2, so as to form a flat, substantially triangular bag, i.e., a sector of a circle or envelope 5. After this folding operation, the particular dry substance is filled into this bag 5 which is intended for preparing the beverage. This substance may consist, for example, of so-called "instant" coffee or tea powder or of another pulverized or granulated substance which may be easily dissolved in a liquid. This substance is preferably filled into the cup after it has been folded to form a flat bag, so as to insure that the tip of this bag will also be properly creased. The amount of this substance which is to be filled into each bag 5 at the apex depends upon its particular type and concentration and the amount of liquid which has to be added to fill the cup to its capacity with the desired beverage.

For sealing the bag, a string or narrow tape 7 is employed which is impregnated or coated with a thermoplastic adhesive which, according to one preferred embodiment of the invention, is provided with an addition of wax. This string or tape 7 is inserted into the opening slot of bag 5 so as to extend like a chord to the curved upper edge of its two layers or sides 10 and 11 from one upper corner or lateral edge 8 along the entire width of the opening to the opposite corner or lateral edge 9. When the flat bag 5 is subsequently unfolded, the curved upper edge 12 of its two layers 10 and 11 forms the rim of the cup 1. After the string or tape 7 has been inserted, the two layers 10 and 11 are applied against it under heat and pressure so that its thermoplastic coating or impregnation will be heated to the required temperature to render it adhesive. This pressure needs to be exerted only for a short time since the heat will be transmitted very quickly through the thin layers 10 and 11 to the string or tape 7 and the adhesive on the latter will also set very quickly.

In the particular embodiment of the invention as illustrated, one end of the string or tape 7 is glued to the bag 5 within the upper corner 8 thereof, while the other end projects beyond the opposite corner 9 for one or two centimeters. This projecting end of the string or tape 7 may be gripped in order to open the bag which only requires a small force since the string or tape only needs to be pulled out of the bag 5 in the manner as illustrated in FIG. 4.

Bag 5 may thereafter be easily refolded to its original conical cup shape, as shown in FIGS. 1 and 5, whereupon the required amount of hot or cold liquid may be added to the pulverized substance to dissolve the latter and to fill the cup.

Although our invention has been illustrated and described with reference to the preferred embodiment thereof, we wish

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to have it understood that it is in no way limited to the details of such embodiment but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed our invention, what we claim is:

1. A sealed foldable cup containing a small quantity of a dry beverage-producing substance which, after the cup is unfolded opened forms a drinking cup, and may be dissolved by the addition of a liquid to form a beverage to be drunk from said cup, comprising

a foldable cup having a closed bottom and upper open edges constituting a rim of said cup,

said cup being folded into the shape of a flat bag, constituting a folded position,

a substance in said cup,

said cup in said folded position constituting two planar opposite sides of said cup, and means for detachably sealing said two opposite sides at facing interior portions thereof and interior of said bag to each other adjacent to and continuously completely across said edges, whereby said sealing means being adapted to secure and protect said dry substance in said bag,

said sealing means comprises a connecting element intermediate to said two sides of said flat bag and detachably connected thereto so as to seal said bag containing said substance,

said connecting element comprises a strip which extends from one lateral edge of said two sides to the opposite lateral edge adjacent to said rim of said cup,

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said strip projecting at least beyond one of said lateral edges so as to form a handle on which said strip may be pulled out of said bag, whereupon said bag may be opened to a cup in an open position, and

said strip being treated with said adhesive at least along the part thereof between said lateral edges of said bag.

2. The drinking cup, as set forth in claim 1, wherein said cup has a conical shape when unfolded into an open position open at its base, the latter constituting said upper open edges forming said rim, and

said cup is folded along two diametrically opposite lines to form said shape of a flat bag, the latter having a shape of a sector of a circle.

3. The drinking cup, as set forth in claim 2, wherein said dry substance is disposed at the apex of said sector in said bag.

4. The drinking cup, as set forth in claim 2, wherein said connecting element is intermediate to said two sides of said bag and detachably connected thereto along a chord of said sector traversing the ends of the arc of said sector, said arc constituting said rim.

5. The drinking cup, as set forth in claim 1, wherein said connecting element comprises a narrow strip of a flexible material which is treated with an adhesive.

6. The drinking cup, as set forth in claim 5, wherein said connecting element comprises a string of a fibrous material which has a coating of a thermoplastic adhesive.

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