Dec. 15, 1942. A. J. TANNER 2,305,361

CLOSURE DEVICE

Filed Oct. 7, 1940 2 Sheets-Sheet 1

FIG. 1.

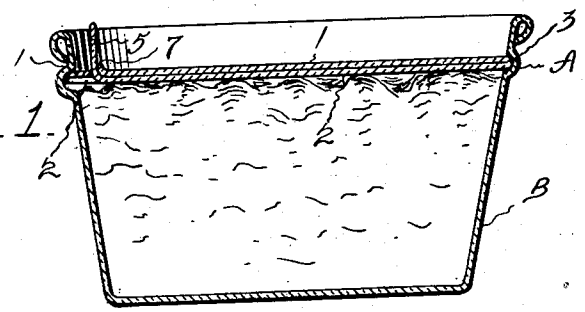


FIG. 2.

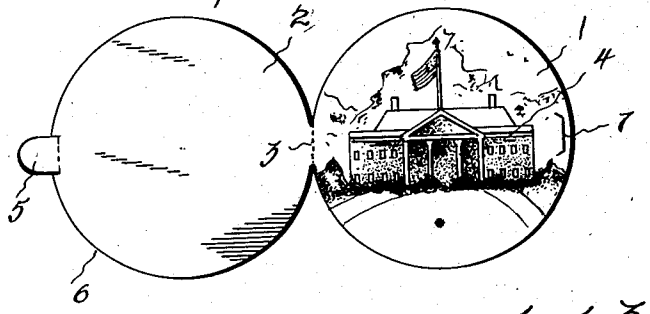


FIG. 4.

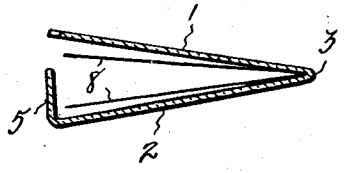


FIG. 3.

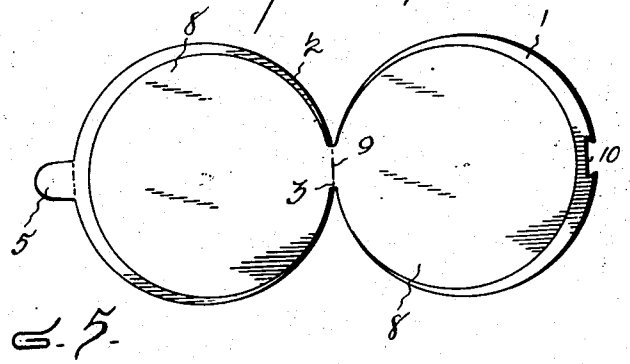
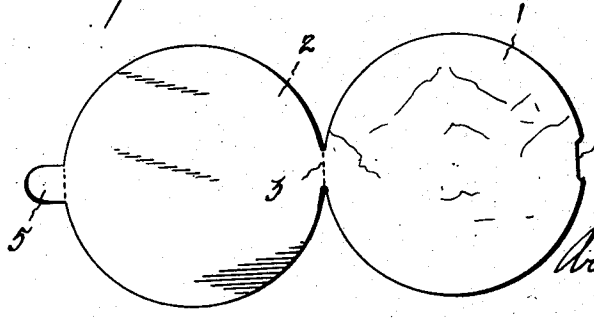


FIG. 5.



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CLOSURE DEVICE

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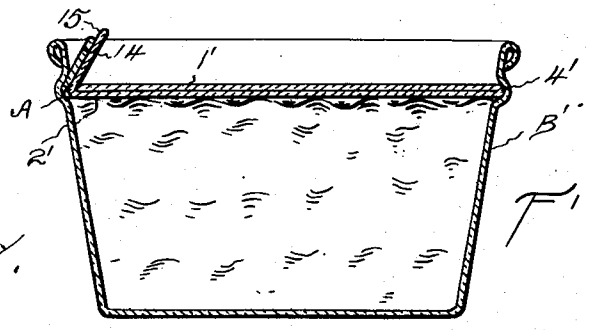


FIG. 9.

FIG. 8.

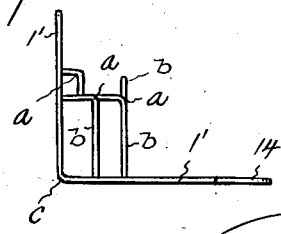


FIG. 7.

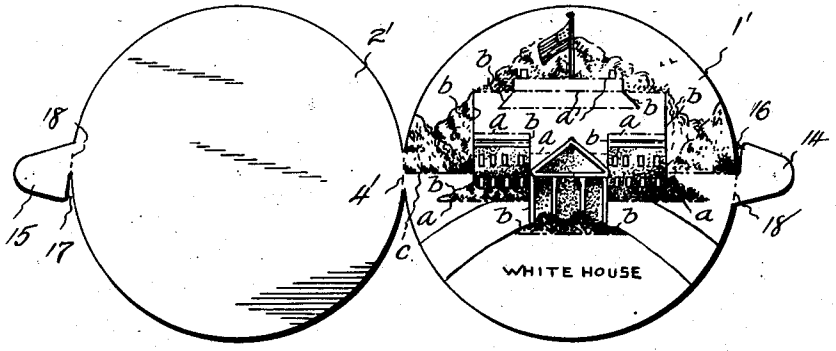


FIG. 10.

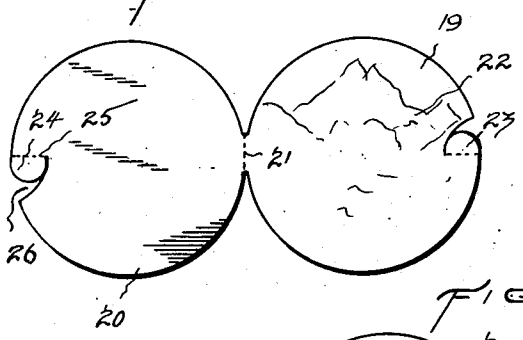


FIG. 11.

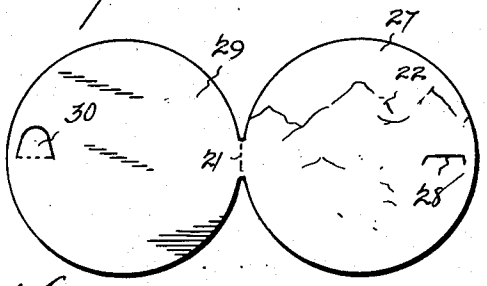
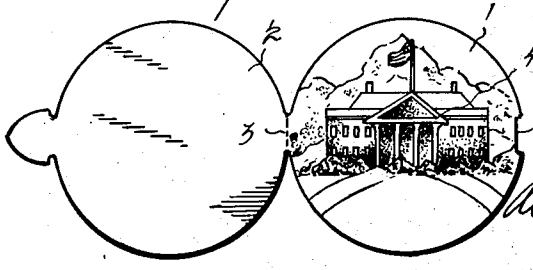


FIG. 6.



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Patented Dec. 15, 1942 2,305,361

UNITED STATES PATENT OFFICE

2,305,361

CLOSURE DEVICE

Arnold J. Tanner, North Haven, Conn., assignor to Lily-Tulip Cup Corporation, New York, N. Y., a corporation of Delaware

Application October 7, 1940, Serial No. 360,080

6 Claims. (Cl. 215—51)

The present invention relates to caps or closure devices for milk bottles and other containers such for example as paper cups or receptacles used for ice cream, candy and other wet or dry goods.

One object of the invention, amongst others, is to produce an efficient and economical cap which is adaptable for use with machine operation generally used for filling and closing containers for products of the kind referred to, especially when comparatively large volume of production is involved.

Another object is to provide from a single blank a double cap of which a portion thereof may be retained after the cap has served its purpose of closing a container and the retained portion can bear differentiating characteristics such as pictures, numbers, characters, or the like so that said portion may serve as an advertising medium or may be collected to form part of a set of cards or the like.

Another object of the invention is to protect and conceal the effective matter printed or otherwise applied on the cap. The purpose of such concealment is to bring in the element of chance so that when purchasing a container, the purchaser cannot inspect said matter to select a particular design, for there is no way of ascertaining what matter is printed on a surface inside the cap without removing the latter from its closing position. Heretofore single disc caps bearing printed matter on the underside have been proposed, and for sanitary reasons the printed matter is covered by a layer of wax paper which should be removed when the cap is to be retained.

This application is a continuation in part of my copending application Ser. No. 314,433, filed January 18, 1940.

It is intended that children will collect these caps, and, should ice cream for example adhere to the underside or printed surface of the single form of cap, a child would be apt to lick the cap and subsequently should these caps be exchanged or distributed amongst other children to make up a collection, contagious diseases might be spread through this distribution.

In carrying out the present invention, the improved double cap is preferably made from a one-piece blank forming a pair of discs which are united together by a hinged connecting portion of the blank so that one section may be folded over the other. Means integral with said blank and spaced peripherally from said hinge are provided whereby the two sections are detachably held together to form a cap of double thickness and said means provides a projecting device which can be employed to lift the cap from its closing position.

Several embodiments of the invention will be hereinafter described with reference to the accompanying drawings, wherein:

Fig. 1 is a sectional view showing a paper cup or container with the improved cap in its closing position;

Fig. 2 is a plan view of the blank of which the improved cap is constructed;

Fig. 3 is a plan view of a modified form of the cap in its open position;

Fig. 4 is a sectional view showing said modified form in its partly closed position;

Fig. 5 is a plan view of the blank used for another modified form of the cap;

Fig. 6 is a plan view of a double cap in open position having one projecting tab and a cooperating open slot or recess slightly modified from the structure of Figs. 3 and 5;

Fig. 7 is a plan view, in open position, of a further modification in which each cap portion has a projecting tab and also an open slot or recess;

Fig. 8 is a side elevation of the severed top of the cap of Fig. 7 with cut-out portions of that part of the cap in relief;

Fig. 9 is a cross-sectional elevation of the device of Figs. 7 and 8 with tabs in locking engagement and the cover or cap shown in position in a container;

Fig. 10 is a plan view, in open position, of a further modification in which each cap portion has a tab within the confines of the cap and also an open slot or recess; and

Fig. 11 is a similar view of a modification in which a tab is provided in one portion within the confines of the cap and a cooperating closed slot is provided in the other portion through which the tab passes to lock the two portions together.

Referring to said drawings, the improved double cap is composed of two discs or members 1 and 2, connected together by a hinged portion 3. When the cap is in its closed position, resting on the annular seat A of the paper cup or container B, the member 1 lies on top and will hereinafter be called the upper member, and this member, on the underside thereof, bears a picture 4 or other individually differentiating characteristic. The under member 2 carries a tab 5 opposite to the hinge 3 and said tab projects beyond the periphery 6 of said disc 2. The upper disc member 1 has a closed slot 7 therein located adjacent to the periphery 6 and is in

alignment with the tab 5 on the other member so that when two members are brought together the tab 5 will register with and can be engaged in said slot, thereby effectually holding the two discs together to form a cap of double thickness. When the cap is seated in its closing position, said tab 5 will stand erect to provide means for lifting the cap as clearly shown in Fig. 1.

It will be understood that when the cap is removed from its closing position, the lower disc may readily be separated from the upper disc which is the only one that would be retained for collection purpose.

Referring now to Figs. 3 and 4, the cap is substantially the same as that above described but with the addition that a separate sheet or sheets 8 are inserted between the covering discs 1 and 2, and these sheets may be loose or they can be pasted on or secured by staples 9 to the cap as shown. Said sheet or sheets provide pages which may bear printed matter, such for example as nursery rhymes or advertising, and the cap would then be of the nature of a book bound by the two members of the cap. In this form the cap could be used with particular advantage for advertising purposes.

The type of closure cap last described would be more suitable for candy or a dry product, and in this case there would be no necessity to completely remove the under member as with the previous example, but instead the two parts 1 and 2 may be used as the covers of a book having the sheets 8. Further, it should be noted in this example that the tab 5 is the same as previously described, but instead of the closed slot 7 the open slot or recess 10 is provided and this recess is undercut to frictionally engage the tab against movement along its length and positively engage the tab against movement transverse its length so as to serve as a locking means to hold the cap in its closed position.

Referring now to Fig. 5, herein the construction is the same as that shown in Fig. 2 with the exception that instead of the closed slot 7 an open slot 11, having straight walls frictionally engaging the tab, is preferably employed. This connection means tends to facilitate machine or automatic assembling of the cap. But, it will be understood that where the product in the container is a liquid, the connection 5—7 shown in Fig. 2 is preferable, for this connection is tight and eliminates the possibility of leakage.

In the embodiment shown in Fig. 6 the same general arrangement is employed as in Figs. 3–5, inclusive, i. e., one tab projecting beyond the closure contour of one fold and a cooperating open slot or recess in the edge of the other fold; but the tab and open slot are somewhat modified over the form of Figs. 3–5 inclusive. In Fig. 6 the tab 12 is provided with a reduced neck portion, providing an outwardly disposed tab shoulder, and the cooperating open slot 13 is of a width to loosely fit the neck portion but narrower than the maximum width of the tab shoulder; thus the folds 1 and 2 are locked together without depending upon the frictional engagement or relatively tight fit as is desirable in Figs. 3–5 inclusive.

Fig. 7 shows a modification in which the similarly arranged upper and lower discs or members are designated respectively as 1' and 2', hingedly connected at 4', and in this embodiment are provided with respective tabs 14 and 15 each projecting outwardly from its adjacent disc and therefore beyond the cap contour or body. Oppositely directed open slots 16—17 extend approximately half the width of the tabs and provide reduced neck portions designated by the bend lines such as 18. When the top portion 1' is folded into position over the bottom portion 2', a slight relative twist of one member over the other will bring the tabs in position to be slid one beneath the other, at which time the oppositely directed slots will receive the respective necks of the alternate tabs, as shown in Fig. 9, where the tabs are interlocked and bent upwardly in their position when inserted in a container such as the container designated B'. This modified form of tab arrangement is a preferred embodiment since the neck width along the bend lines 18 is small for each tab and the tangent or relatively flat portions resulting when the tabs are bent, as in Fig. 9, does not appreciably interfere with the fit of the circular contour of the cover within the circular recess of the container.

With the embodiment of the invention above described I have illustrated an alternate form of picture or design which may be used in lieu of those heretofore described. The upper member 1' (Fig. 8) is intermittently cut or scored for bending on the lines *a* and cut for separation on the lines *b* in such a way that when said member 1' is separated from the member 2', said member 1' may first be folded on the central creased line or fold axis *c* and then on the crease lines *a* in such a manner that the cut-out portions can be folded outwardly to stand up in relief, as shown in Fig. 8. By disposing the main bend line so as to fall on the hinge line 4, a certain rigidity is added by the unscored disc 2', thus serving to protect the disc 1' against ready bending thereof prior to severance from the disc 2'.

In the modified embodiment shown in Figs. 10 and 11, instead of having a tab projecting outwardly beyond the closure contour of one or both of the members, as in the preceding embodiments, the interlocking portions of the discs or members are disposed within the confines of the closure contour so that when the discs are folded in superimposed position the closure presents a continuous contour which not only facilitates an accurate and snug fit within the circular recess or mouth of the container but is additionally advantageous in preventing leakage.

In Fig. 10 the upper disc 19 and the lower disc 20 are interconnected by an uncut portion of the blank along the hinged line 21, as in the preceding embodiments. In this embodiment the pictorial representation disposed between the upper and lower discs is represented as 22 and is printed directly on the inner face of the upper disc in the manner of the embodiment of Fig. 2. The upper and lower discs are respectively provided with tabs 23 and 24 which lie wholly within the disc contour and are adapted to be bent about the lines such as 25 as hinges; it being noted that the tabs are oppositely disposed and are separated from the main body of the discs by open slots such as 26. The disposition and construction of the tabs and slots is such that by a relative twist of the members, as above described in connection with Fig. 7, the tab 23 may be disposed beneath and in interlocking engagement with the tab 24, and in this position the double folded closure presents a substantially continuous contour because of the staggered relationship of the open slots 26. Further, when it is desired to remove the closure from the container the tab 24 serves as a readily engageable

handle for removing the folded closure without disengaging the separate folds.

Referring to Fig. 11: the structure therein disclosed in general has the advantages above referred to in connection with Fig. 10 but instead of employing the two-tab locking engagement as in Fig. 10, in the embodiment of Fig. 11 the upper disc **27** is provided with a closed slot **28** (which is preferably of general convex form directed upwardly) and the lower disc **29** is provided with a tab **30** disposed in cooperative registering position with respect to the slot **28** and also extending upwardly. By a slight relative movement of the two discs, when in superimposed position, the tab **30** may be easily entered within the concave side of the slot **28** to firmly lock the two pulls together and in this position the tab **8** will extend upwardly beyond the outer face of the outer disc to provide means for readily inserting and removing the disc from the container.

Having thus described my invention with particularity with reference to preferred embodiments of the same, and having referred to some of the possible modifications thereof, it will be obvious to those skilled in the art after understanding my invention, that other changes and modifications may be made therein without departing from the spirit and scope of the invention, and I aim in the appended claims to cover such changes and modifications as are within the scope of the invention.

What I claim is:

1. A closure cap for containers of the class described comprising two folds hingedly connected together and arranged to fold one over the other about said hinged connection, said folds being provided respectively with cooperating portions adjacent their marginal edges and spaced peripherally from said hinged connection so as to lie in mutual detachable engagement one with the other when said folds are superimposed, whereby said folds are held in superimposed relation to form a double-fold cap when said cooperating portions are in engagement and are adapted to be bent about said hinged connection when said cooperating portions are detached one from the other.

2. A folding closure cap of the class described composed of a single blank having two disc-shaped portions hingedly connected together, means for detachably retaining said portions in a folded position, said means comprising a tab projecting from the edge of one portion engaging a registering recess in the edge of the other portion.

3. A closure cap for containers of the class described comprising two folds hingedly connected together and arranged to fold one over the other about said hinged connection, said folds being provided respectively with cooperating portions adjacent their marginal edges and spaced peripherally from said hinged connection so as to lie in mutual detachable engagement one with the other when said folds are superimposed, said cooperating portions extending beyond the cap body and having respectively oppositely directed cooperating slots for receiving the respectively alternate tabs in locking engagement, whereby said folds are held in superimposed relation to form a double-fold cap when said cooperating portions are in engagement and are adapted to be bent about said hinged connection when said cooperating portions are detached one from the other.

4. A closure cap for containers of the class described comprising two folds hingedly connected together and arranged to fold one over the other about said hinged connection, said folds being provided respectively with cooperating portions adjacent their marginal edges and spaced peripherally from said hinged connection so as to lie in mutual detachable engagement one with the other when said folds are superimposed, said cooperating portions both lying within the confines of the cap body, whereby said folds are held in superimposed relation to form a double-fold cap when said cooperating portions are in engagement and are adapted to be bent about said hinged connection when said cooperating portions are detached one from the other.

5. A closure cap for containers of the class described comprising two folds hingedly connected together and arranged to fold one over the other about said hinged connection, said folds being provided respectively with cooperating portions adjacent their marginal edges and spaced peripherally from said hinged connection so as to lie in mutual detachable engagement one with the other when said folds are superimposed, said cooperating portions being of tab formation both lying within the confines of said cap body and being oppositely disposed for superimposed engagement of one tab beneath the other tab, whereby said folds are held in superimposed relation to form a double-fold cap when said cooperating portions are in engagement and are adapted to be bent about said hinged connection when said cooperating portions are detached one from the other.

6. A closure cap for containers of the class described comprising two folds hingedly connected together and arranged to fold one over the other about said hinged connection, said folds being provided respectively with cooperating portions adjacent their marginal edges and spaced peripherally from said hinged connection so as to lie in mutual detachable engagement one with the other when said folds are superimposed, the top one of said folds being partially cut out and scored to fold on itself about a fold axis to provide a raised relief of said cut-out portion, said fold axis intersecting said hinged connection and thereby reinforcing said top disc against folding about its said fold axis, whereby said two folds are held in superimposed relation to form a double fold cap with the cut and scored upper fold part covered by the under fold part as a protective covering when said cooperative portions are in engagement and said folds are adapted to be detached one from the other and said upper fold severed to facilitate bending about its fold axis to provide a projection of said cut-out portion.

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