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R. W. NERENBERG ET AL
POURING OPENING FOR CONTAINERS

2,820,585

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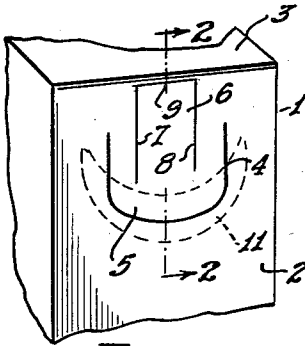


FIG. 1.

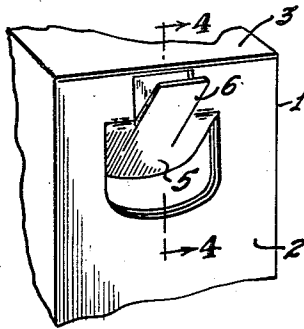


FIG. 3.

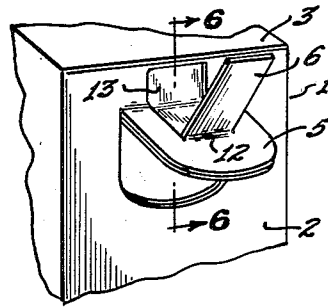


FIG. 5.

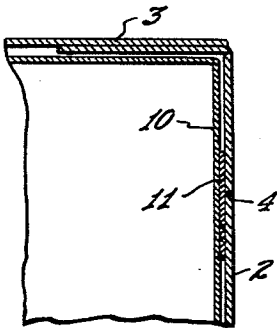


FIG. 2.

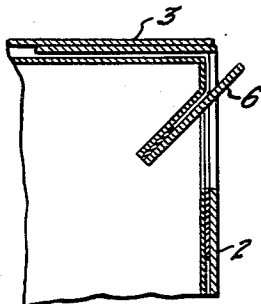


FIG. 4.

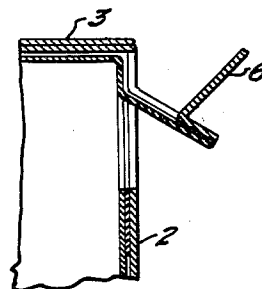


FIG. 6.

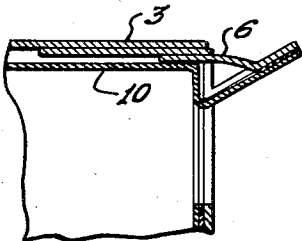


FIG. 7.

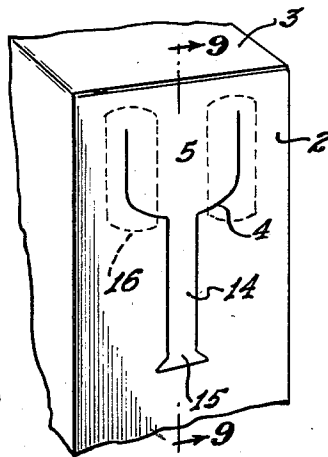


FIG. 8.

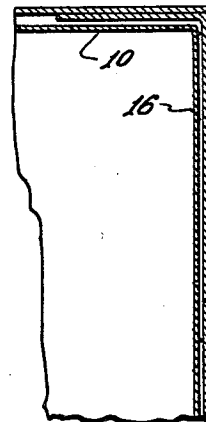


FIG. 9.

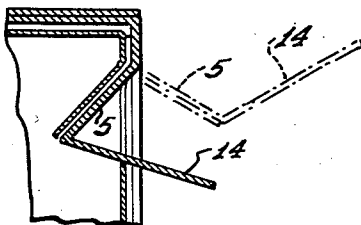


FIG. 10.

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2,820,585

POURING OPENING FOR CONTAINERS

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4 Claims. (Cl. 229—17)

Our invention relates to paperboard cartons and more particularly to cartons provided adjacent their upper ends with a pouring opening by means of which the contents of the cartons may be dispensed.

In the past numerous proposals have been advanced suggesting various pouring openings and pouring spout constructions, ranging from simple depressible tabs adapted to form a pouring opening to complicated spout structures formed from boxboard, metal and diverse other materials. Many such constructions are found in wide spread commercial use, but in general they are found to possess various undesirable features. A simple depressible tab, for example, is undesirable in that once depressed to form the pouring opening, it is exceedingly difficult to withdraw from the interior of the carton and must be pried out with a knife or some other similar tool. It is practically impossible to withdraw such a tab with the fingers. If the tab is not withdrawn, it tends to interfere with the free pouring of the material packaged in the carton and the carton cannot be suitably re-closed.

Pouring spout arrangements present other problems. For the most part they materially increase the cost of the carton and require special handling and equipment to affix them to the cartons. In the case of metallic pouring spouts, for example, a cover sheet is necessary to prevent the contents from sifting out of the carton around the spout and to prevent the spout from being accidentally opened during shipping and handling.

Lined cartons present a special problem in that the primary purpose of the lining is to proof the contents against moisture and the outside air. Consequently if the liner must be severed or otherwise punctured to accommodate the pouring opening, the primary function of the liner is destroyed and the utility of the carton greatly diminished. While various attempts have been made to overcome these difficulties, such attempts have resulted in cumbersome and difficult to open cartons and have increased the cost of the cartons beyond the means of the average packager, particularly those dealing in staple, initially low-cost items.

The instant invention relates to simple, economical and yet effective means for overcoming the difficulties enumerated above.

It is, therefore, a principal object of our invention to provide a carton having an integral pouring opening which may be readily opened by the user, the user having only to push inwardly on the cut area defining the opening and then pull outwardly on a tab member which automatically presents itself as the initial opening is effected.

A further object of our invention is the provision of an effective pouring opening which may be utilized with a lined carton, the puncturing of the carton to form the opening serving to simultaneously effect an opening in the liner which is imperforate until the time the opening is effected.

Yet a further object of our invention is the provision of a pouring opening of the character described which is

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formed as an integral part of the carton structure without any increase whatever in the amount of board required to form the carton itself and without any additional parts or the like which would require special handling. The structure is one which can be formed entirely upon currently available box-making equipment without additional expense.

These and other objects of our invention which will appear hereinafter or which will be apparent to the skilled worker in the art upon reading these specifications, we accomplish by those constructions and arrangements of parts of which we shall now describe certain exemplary embodiments.

Reference is now made to the accompanying drawings wherein:

Figure 1 is a partial perspective view of a preferred form of pouring opening in accordance with our invention.

Figure 2 is a sectional view taken along the line 2—2 of Figure 1.

Figure 3 is a partial perspective view similar to Figure 1 but with the pouring opening depressed inwardly.

Figure 4 is a sectional view taken along the line 4—4 of Figure 3.

Figure 5 is another partial perspective view of the pouring opening showing the parts lifted free of the opening.

Figure 6 is a sectional view taken along the line 6—6 of Figure 5.

Figure 7 is a sectional view similar to Figure 6 illustrating the insertion of the tab beneath the closure flaps to maintain the parts in the open position.

Figure 8 is a partial perspective view similar to Figure 1 illustrating an alternative embodiment of our invention.

Figure 9 is a sectional view taken along the line 9—9 of Figure 8.

Figure 10 is a partial sectional view similar to Figure 4 but illustrating the alternative construction of Figure 8.

Referring now to Figure 1, we have therein illustrated a carton 1 having a body wall 2 and a top closure 3. It will be understood that the carton will be formed of paperboard, boxboard or like material and may be of any shape or form desired. For example, the carton may be of the seal end variety, as illustrated, or it may be of the tuck-in variety or otherwise, as desired; and neither the type nor shape of the carton form limitations upon our invention. Generally speaking, however, such cartons are generally of rectilinear configuration with the pouring opening formed adjacent the top of the narrower body walls of the carton.

In the embodiment illustrated, the body wall 2 is provided with an upwardly opening U-shaped cut 4 defining the flap area 5 which in turn defines the area of the pouring opening. A tab 6 is similarly defined by the lines of cut 7 and 8 joined at their tops by the connecting line of cut 9. The lines of cut 7 and 8 are spaced inwardly from the legs of the U-shaped cut 4 and extend thereabove so that the tab 6 lies partially within the flap area 5 and partially above it.

As best seen in Figure 2, the carton will be preferably internally lined with a liner 10 which, again, may take any desired form and may itself be formed from divers materials. Preferably the liner will be formed from polyethylene or other like material, although coated papers, such as paper coated on one surface at least with polyethylene, may be successfully employed; and the specific nature of the lining material does not constitute a limitation upon our invention.

It is important, however, in the association of the liner with the carton that the liner be adhered to the carton wall in the area of the U-shaped cut 4 defining the flap area 5; and we have found that the liner should

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be drawn as taut as possible across the adhered area. Thus, as seen in Figures 1 and 2, adhesive is applied to the inner surface of body wall 2 substantially in the manner illustrated, care being taken to maintain the tab 6 free from attachment to the liner. By drawing the liner taut across the flap area 5, a kind of drumhead effect is obtained, so that sharp inward pressure along the U-shaped cut will automatically break the liner simultaneously with the formation of the pouring opening in the carton body wall. We thus eliminate the necessity for perforating or otherwise interrupting the imperforate condition of the liner prior to the opening of the carton for use.

The carton is opened in the manner best seen in Figures 3 and 4, wherein inwardly directed pressure is applied to the flap area 5, thereby causing the area 5 to be pivoted inwardly in the manner illustrated. As already indicated, inward movement of the flap area will cause the liner to break or tear along a line following the curvature of the U-shaped cut-out, thereby automatically causing the liner to be opened. We have found that it is unnecessary to score the flap area 5 between the upper ends of the U-shaped cut and the lines of cut 7 and 8, although such score lines may be provided if so desired.

When the flap area 5 is depressed inwardly, it will be noted that the tab moves with the flap area and upper or free end of the tab 6 projects outwardly from the plane of the body wall 2 where it can be easily grasped by the user and employed to remove the flap area from the interior of the carton, in the manner seen in Figures 5 and 6. To this end, it will be noted that the tab 6 will fold upon a transverse line extending between the bottom edges of the lines of cut 7 and 8; such lines being indicated at 12. Again, this does not have to be a score line, but rather the boxboard will simply fold of its own accord as the tab is pulled. It will be noted also that the line 12, which, in effect, connects the tab to the flap area, is positioned substantially at the center of the flap, thus assuring that the flap will be readily removed from the pouring opening. A neat re-closure of the carton may be effected simply by pressing the flap area back into the opening with the tab 6 similarly occupying its initial position.

We have also found that the flap 5 can be conveniently maintained in the open position by inserting the free end of the tab 6 into the upper end of the slot 13 defined by the removal of the free end of the tab from the body wall 2. The free end of the tab is thus engaged beneath the end closure 3 where it will be maintained by the frictional engagement of the parts. In many instances the end of the tab will be sandwiched between the end closure and the top of the liner 10, as illustrated.

In Figure 8 we have illustrated an alternative form of our invention wherein like parts have been given like reference numerals. Thus, an upwardly opening U-shaped cut 4 defines a flap area 5, but in this instance an integral elongated tab 14 projects downwardly from the bottom of the flap area 4, the elongated tab terminating at its lower end in a laterally projecting foot 15. The liner 10 is adhesively secured to the flap area 5 and adjacent areas of the body wall 2 by means of a spot of adhesive, indicated at 16 in the drawings, and in this instance the adhesive may cover the upper portion of the elongated tab 14, as illustrated, to effect a clean break when the carton is opened.

As seen in Figure 10 the carton will be opened by pressing inwardly on the flap area 5, thereby causing the liner to be simultaneously broken along a line following the cut edge of the flap area. In this instance the free end of the elongated tab 14 will be projected outwardly and the tab will ride inwardly along the broken edge of the liner adjacent the bottom edge of the opening. The projecting foot on the bottom end of the tab 14 will prevent the tab from being drawn completely within the carton where it would not be acces-

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sible, the foot engaging in the slot from which the tab is struck. As before, the user has but to grip the free end of the tab and pull it outwardly to cause the flap area to be withdrawn from the interior of the carton.

While in the preceeding description we have described our invention as applied to a lined carton, it will be readily apparent that it will find utility in unlined carton wherein it is desired to provide a convenient pouring opening. This is particularly true of the preferred embodiment illustrated in Figure 1 wherein the carton will be tight up to the bottom edge of the U-shaped cut 4.

Modifications may be made in our invention without departing from the spirit of it. Having, however, described our invention in several exemplary embodiments, what we desire to secure and protect by Letters Patent is:

1. In a carton adapted to have a pouring opening formed therein, a single thickness body wall having a flap formed therein and defined along three sides by a generally U-shaped line for severance; said flap being integrally connected to said body wall along its remaining side and foldable relative to said wall along a line extending between the free end edges of said U-shaped line for severance, and a tab for withdrawing said flap from within said carton; said tab being formed in part in said flap and in part in the wall of said carton lying immediately beyond the line of connection of said flap to said carton wall, said tab being of a width narrower than the width of said flap and defined on three sides by a generally U-shaped line of cut oppositely directed in relation to the line for severance defining said flap, with the base of said tab integrally connected to said flap along a line of connection centrally disposed within the said flap, whereby as said flap is deflected inwardly from the plane of said carton body wall, the portion of the tab lying beyond said flap will be automatically projected outwardly relative to said carton body wall so that the user may then grip the projecting end of the tab to withdraw the flap from within the carton.

2. In a carton adapted to have a pouring opening formed therein, a body wall having a flap therein defined along three sides by a generally U-shaped line for severance, said flap being integrally connected to said body wall along its remaining side and foldable relative to said wall along a line extending between the free end edges of said U-shaped line for severance, a tab for withdrawing said flap from within the carton, said tab being formed in part in said flap and in part in the said carton wall immediately beyond the line of connection of said flap to said wall, said tab being defined on three sides by a generally U-shaped line of cut oppositely directed in relation to the line for severance defining said flap, with the base of said tab integrally connected to said flap along a line of connection centrally disposed within the body of said flap, and a liner within said carton secured to said flap and to the inner surface of said carton body wall adjacent the line for severance defining said flap, said tab being free from attachment to said liner, whereby when said flap is folded inwardly relative to said carton body wall along its line of connection thereto, said liner will be broken away along a line conforming substantially to said line for severance and the portion of said tab lying outside said flap will project outwardly so that the user may grip the extending end of the tab to withdraw the flap and the portion of the liner adhered thereto from within the carton.

3. In a carton adapted to have a pouring opening formed therein, a carton body wall having a flap therein defined by a line for severance, said flap being integrally connected to said body wall along a base edge and hingeable relative to said wall along said base edge, and a tab for withdrawing said flap from within said carton, said tab being formed in part in said flap and in part in the wall of said carton lying immediately beyond the base edge of said flap, said tab being of a width which

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is less than the width of said flap and having a base edge lying within said flap, the remaining edges of said tab being defined by a line of cut traversing the base edge of said flap and extending therebeyond by a distance sufficient to provide a finger grip portion, whereby when said flap is deflected inwardly from the plane of said carton body wall, the finger grip portion of said tab lying beyond the base edge of said flap will be automatically projected outwardly relative to said carton body wall so that the user may grasp the projecting finger grip portion of the tab to withdraw the flap from within the carton.

4. In a carton adapted to have a pouring opening formed therein, a carton body wall having a flap therein defined by a line for severance, said flap being integrally connected to said body wall along a base edge and hingeable relative to said wall along said base edge, a tab for withdrawing said flap from within said carton, said tab being formed in part in said flap and in part in the wall of said carton lying immediately beyond the base edge of said flap, said tab being of a width which is less than the width of said flap and having a base edge lying within said flap, the remaining edges of said tab being defined by a line of cut traversing the base edge of said flap and extending there beyond by a distance sufficient to provide a finger grip portion, and a liner within said carton secured to said flap and to the inner surface of said carton body wall immediately be-

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yond the line for severance defining said flap, the finger grip portion of said tab being free from attachment to said liner, whereby when said flap is deflected inwardly from the plane of said carton body wall, said liner will be broken along a line conforming substantially to the line for severance defining said flap and the finger grip portion of said tab will be automatically projected outwardly relative to said body tab to withdraw the flap from within the carton.

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