April 17, 1945. T. MEREDITH 2,373,701

CARTON

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Fig.1.

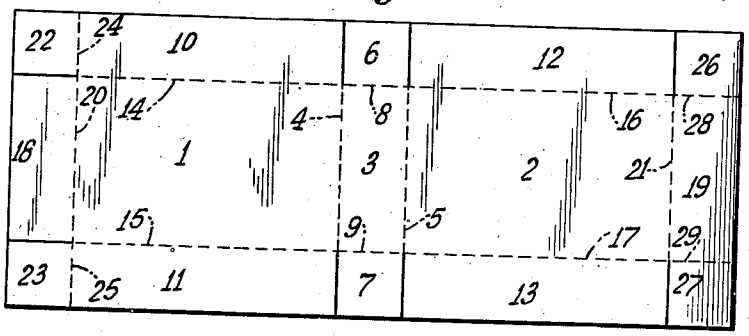

Fig.2.

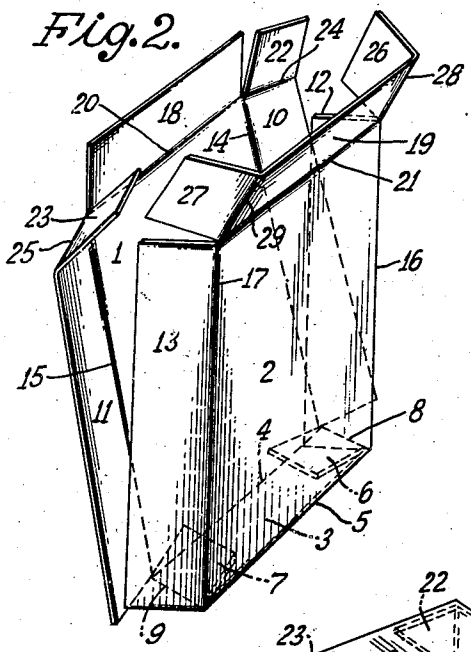

Fig.3.

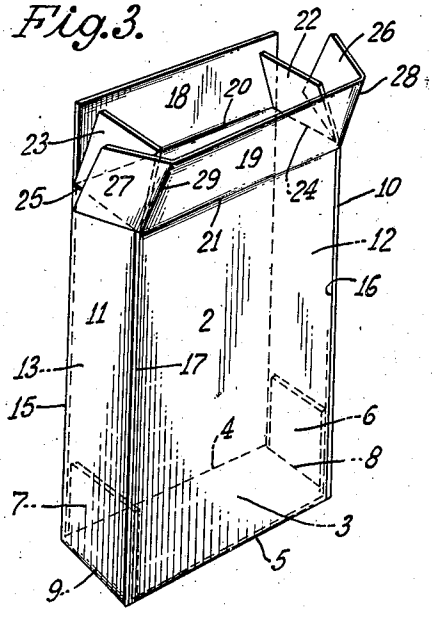

Fig.4.

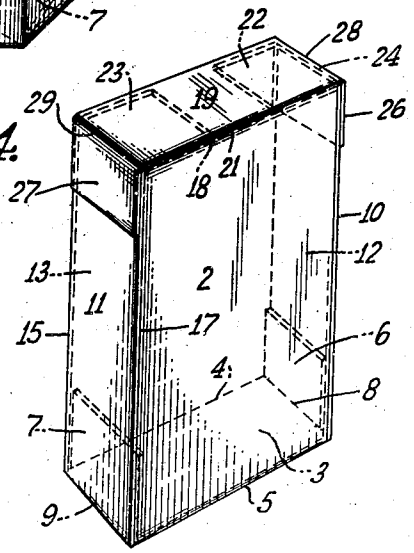

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Fig.5.

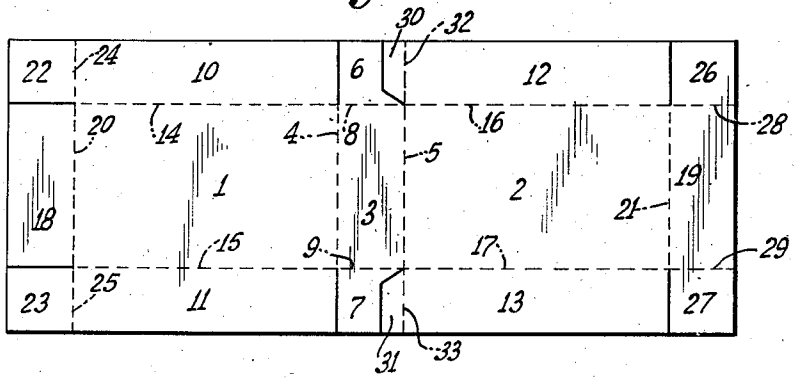

Fig.6.

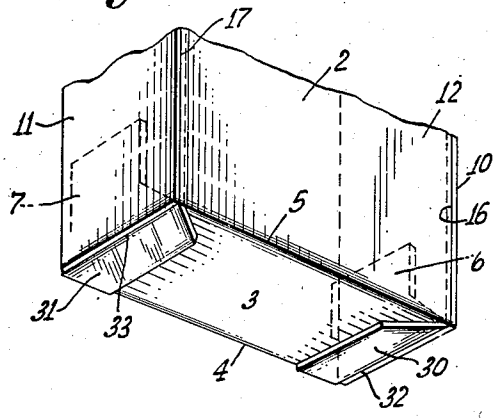

Fig.7.

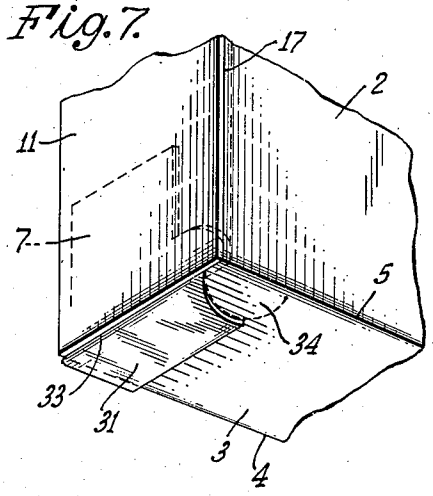

Fig.8.

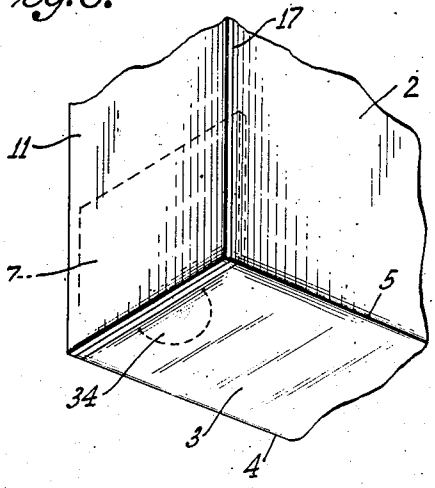

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Fig.9.

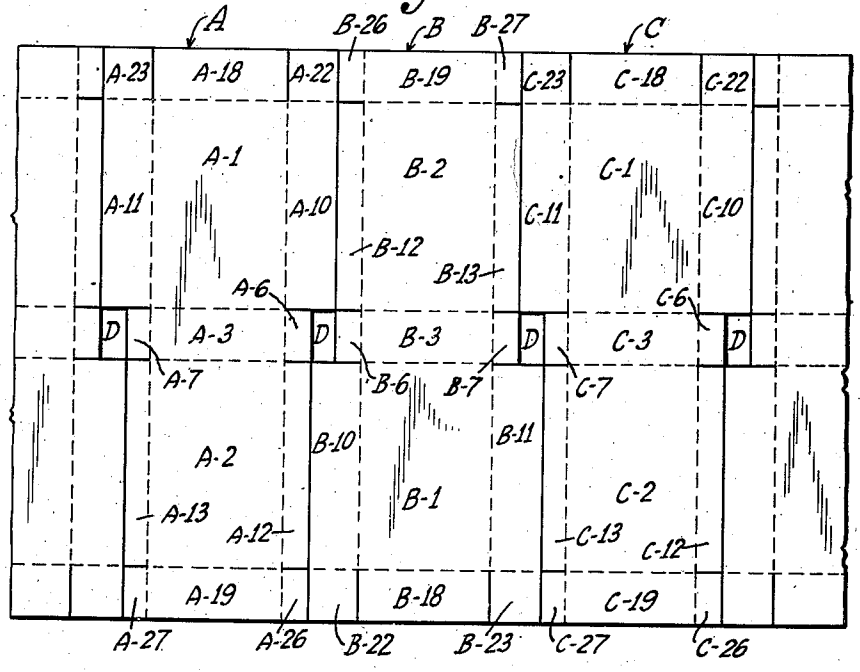


Fig.10.

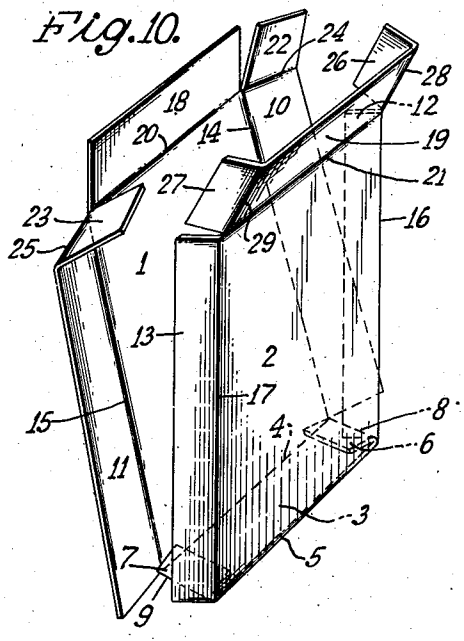
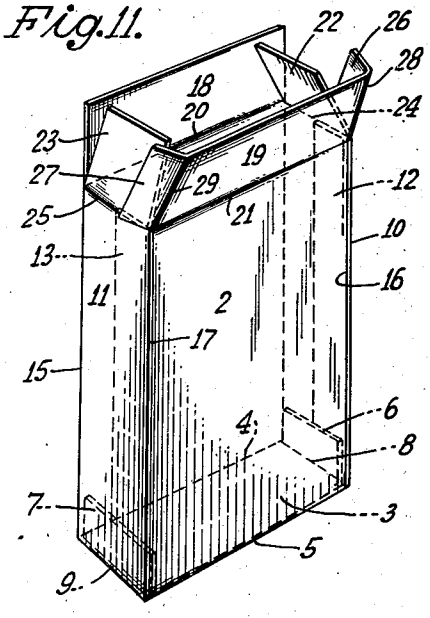


Fig.11.



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UNITED STATES PATENT OFFICE

2,373,701

CARTON

Tranton Meredith, New York, N. Y., assignor to Colgate-Palmolive-Peet Company, Jersey City, N. J., a corporation of Delaware

Application April 22, 1941, Serial No. 389,720

2 Claims. (Cl. 229—16)

The present invention relates to cartons and, more particularly, to cartons of pasteboard, cardboard and the like adapted for improved retention of pulverulent material.

The container industry has for many years experienced difficulty in packaging granular, powdered and flaky material in pasteboard and cardboard cartons in such manner that the material does not sift through the folds of the carton. Among the methods employed in overcoming this difficulty are the use of waxed paper and other linings and the use of inner bags and sacks for holding the material. The prior art has also furnished various special forms of cartons designed for more efficient closing of the carton folds, but none of these, so far as I am aware, has been entirely satisfactory, especially when used on a practical and industrial scale.

I have discovered a novel carton construction which provides an effective and retentive container for comminuted materials.

It is an object of the present invention to provide a tight container of improved construction for retaining pulverulent materials, irrespective of how finely comminuted.

It is another object of my invention to provide a carton of such construction that material contained therein will not sift through the folds of the carton.

It is also an object of the invention to provide a carton having a rigid bottom and effective closure members for preventing leakage therethrough of contained materials.

A further object of this invention is to provide a blank so constructed as to be readily and economically formed into a carton adapted for improved retention of finely divided materials.

Other objects and advantages of the invention will be apparent from the following description, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a plan view of a carton blank illustrating my invention;

Fig. 2 depicts a perspective view of this blank during formation of a carton therefrom;

Fig. 3 shows a perspective view of the carton formed and ready for filling;

Fig. 4 is a perspective view of the same carton with the top closed;

Fig. 5 illustrates a plan view of a blank for another modification of my novel carton;

Figs. 6, 7 and 8 are perspective views, partly fragmented, of the bottom portions of three cartons constructed in accordance with my invention;

Fig. 9 depicts a plan view of a section of stock, illustrating a manner of dividing the same into blanks for cartons according to my invention; and

Figs. 10 and 11 show perspective views, similar to Figs. 2 and 3, of a carton formed from a blank as depicted in Fig. 9, during its construction.

The carton according to my invention comprises front and back sections respectively connected at one end of each to a solid, one-piece bottom section. These sections are provided with wings and tabs adapted for folding across each other to form the sides of the carton, and the same can be securely glued and sealed in such relationship while upon a form, thus leaving only the top open for filling the carton with the material to be contained therein. At the other end of each of front and back sections, respectively, there is an extension, and said extensions are adapted to fold across the top of the carton from opposite positions and to overlap rectangular tabs folded over the top from wings upon opposite sides of the carton. One of these extensions is provided with sealing flaps adapted to be folded down upon the sides of the carton along their full width and there sealed.

A feature of my invention is the provision of two rectangular tabs at the top of the carton for the entire width of its sides in combination with said sealing flaps, giving a particularly effective closure against sifting of contained material therethrough. Another feature is the inclusion in this novel combination of a solid, single-piece bottom, providing strength and rigidity during formation of the carton. The carton is so constructed as to provide great economy in the cutting of the blank, as will become apparent hereinafter.

My invention will now be more fully described for the benefit of those skilled in the art with respect to particular embodiments thereof. Reference may be had to the accompanying drawings, wherein like characters denote similar parts in the respective figures.

Referring to Figs. 1 to 4, my novel carton blank comprises two large rectangular sections 1 and 2, alternatively the front and back of the carton. These sections are connected by an intermediate rectangular section 3 which forms the bottom, fold lines 4 and 5 being provided between sections 1—3 and 2—3, respectively. Rectangular tabs 6 and 7 are respectively attached to the other two sides of the bottom section, and fold lines 8 and 9 are provided at the juncture of said tabs, respectively, with section 3. Each of sections 1 and 2 is provided with rectangular wings 10,

11 and 12, 13, respectively at the sides thereof, said wings being coextensive in length with the sides of the sections. Fold lines 14, 15, 16 and 17 are located between these wings, respectively, and the front and back sections. The wings are adapted to overlap and form the sides of the carton. At each end of the blank, a rectangular extension 18, 19 is provided at a central portion thereof, said extensions being connected with sections 1 and 2, respectively, at fold lines 20 and 21. A rectangular tab 22, 23 is attached to each of wings 10 and 11 at the end thereof adjacent to extension 18, and said tabs fold inwardly from the wings along lines 24 and 25. The extension 19 at the opposite end of the blank is provided with sealing flaps 26 and 27 at opposite sides of said extension, and these flaps are adapted to fold along lines 28 and 29, respectively, and to be sealed along the sides of the carton.

In forming a carton from this blank, sections 1 and 2 are folded at right angles to section 3 along lines 4 and 5, respectively, to provide a front and back for the carton. Tabs 6 and 7 are also raised to a position perpendicular to bottom section 3 by folding the tabs up along lines 8 and 9. Wings 12 and 13 are then folded inwardly along lines 16 and 17 to a position perpendicular to section 2 and substantially parallel to tabs 6 and 7. Thereafter, wings 10 and 11 are folded inwardly (that is, in an opposite direction from wings 12 and 13) along lines 14 and 15 to a position perpendicular to section 1 and substantially parallel to wings 12 and 13 and tabs 6 and 7, the four wings and two tabs thus cooperating to form the sides of the carton. I have also found that a suitable carton can be produced by folding wings 10 and 11 over the tabs and folding wings 12 and 13 outside of wings 10 and 11. In either case, it is preferred to make the carton up to this point upon a form and to glue the inner wings firmly upon the tabs and the outer wings firmly upon the inner wings. The presence of a form within the carton permits sufficient pressure to be applied to provide a good seal, and it is desirable that the glue or other suitable adhesive be permitted to dry before the carton is filled with the material to be contained therein.

The carton is now as shown at Fig. 3, the bottom and sides being firmly sealed and substantially sift-proof, and the top being open to receive its ultimate content. After the carton is filled, the extensions 18 and 19 and the tabs 22 and 23 are folded down along lines 20, 21, 24 and 25, respectively, to form a top for the carton. While these tabs and extensions may be folded down in any desired order, I prefer to fold the tabs in first, then to fold extension 18 thereover, and finally to fold extension 19 upon the outside. Each of the extensions is glued upon the surface beneath it, and the sealing flaps 26 and 27 attached to extension 19 are folded down along lines 28 and 29 and are glued to the outer wings at the sides of the carton.

The provision of the two rectangular tabs 22 and 23 having the same width as the sides of the carton is effective in preventing the carton from buckling at the top thereof during the sealing of the extensions, keeping the corners of the carton substantially at right angles and thus providing a better seal. Furthermore, the presence of two such rectangular tabs assists in maintaining the carton in its original shape and in decreasing the danger of subsequent warping or crushing with consequent breakage of the adhesive seal. Moreover, the combination of these rectangular tabs across the entire width of the top of the carton with the sealing flaps, also along this full width, gives an effective seal against the sifting of even the finest materials.

Because of the rectangular shape of the blank illustrated in Fig. 1, it has been expedient to depict the tabs and sealing flaps of my carton as being square in shape. While it is desired to employ tabs and flaps of substantially the same dimension as the width of the side of the carton for greater effectiveness, said closure members may be of any convenient length in their other dimension. They may thus be shorter than their width, as will be shown in greater detail infra.

Where it is desired to provide a more rapid method of forming the cartons of my invention, so that insufficient time for complete sift-proof sealing at the bottom of the carton is provided, a modification of the embodiment described can be employed. Thus, referring to Figs. 5 and 6, the carton blank can be cut in a slightly different manner to give adequate means of non-leakage sealing at the bottom. In the plan view at Fig. 5, where, as in Fig. 1, the full lines represent cuts in the blank and the dotted lines denote folds, tabs 6 and 7 are cut in the manner shown, so that they are of varying width, being coextensive in dimension with the sides of section 3 at their juncture therewith along fold lines 8 and 9. The portions cut out of tabs 6 and 7 are attached to wings 12 and 13 as sealing flaps 30 and 31, respectively, and are adapted to be folded perpendicular to said wings along lines 32 and 33. In the construction of this modification of my invention, the carton is put together essentially in the manner described supra, except that, whether wings 10 and 11 or wings 12 and 13 are outermost at the sides of the carton, sealing flaps 30 and 31 will extend below the bottom of the carton. It will be observed that said sealing flaps 30 and 31 are preferably coextensive in width with the sides of the carton and that they are adapted to be folded perpendicular to said sides and along the bottom section. When sealed in the manner shown at Fig. 6, they form an effective retaining means against the sifting out of materials contained within the carton. I prefer that sealing flaps 30 and 31 be sealed down before the filling of the carton and the closing of the top. It will be observed that this modification in no wise affects the construction of the top of the carton, nor does it modify my novel combination of a solid, one-piece bottom with a top comprising two rectangular tabs and sealing flaps.

The shape of the section cut from the rectangular tabs 6 and 7 is not of importance, but I prefer that the tab be coextensive in dimension with the side of the bottom section at the line of juncture therewith and that the sealing flap cut out be coextensive in width with the wing to which it is attached. Thus, a cut such as that depicted at Fig. 7 would be equally suitable in my invention.

A further advantage of having a solid, one-piece bottom section is that this may be easily punctured by the consumer to serve as a pouring aperture for the material contained. It is evident that this single thickness of pasteboard or cardboard has considerable advantage in this respect over the multiple thicknesses usually employed at the ends of cartons. In order to facili-

tate such puncture by the consumer, I can provide a scored section 34 at the bottom of the carton (see Figs. 7 and 8).

While the present specification has described my novel carton with respect to a particular position for holding the same, it will be appreciated that printing and labels may be so applied to the outer surface thereof that the ultimate consumer will be induced normally to hold the carton in a manner and position other than those in which it will ordinarily have been filled. Thus, while it is preferred to introduce the contents through the top end of the carton, as set forth supra, intelligence may be printed upon the carton upside down (or in other desired position). In this manner, the solid, one-piece bottom can appear to be the top of the carton, and the scored section 34 in the single thickness of pasteboard or cardboard apparently furnishes a pouring aperture at the top end.

It has been seen from the plan views of blanks provided at Figs. 1 and 5 that a straight sheet of stock can be employed for stamping out rectangular blanks in accordance with my invention. With these rectangular blanks it is obvious that stock can be selected of such dimension that there will be practically no waste of stock material in cutting out my blanks. However, I have found that I can construct a carton of equal dimensions and still use less stock in the manufacture of the blanks by employing a slightly different shape. A sheet of stock cut in this manner is shown at Fig. 9, and it will be observed that wings 12 and 13, tabs 6 and 7 and sealing flaps 26 and 27 can be halved in their respective dimension laterally of the blank by cutting out the blanks from the stock in staggered position. As shown at Fig. 9, a fair proportion of the stock can thus be saved. In the view shown, A, B and C represent three blanks as cut from a piece of stock according to this modification, and the small sections D represent the only part of the stock which is not used. Figs. 10 and 11 illustrate the construction of a carton from a blank shaped in this manner, and it will be observed that wings 12 and 13 are folded inside wings 10 and 11 and are of only half the width of the carton. Similarly, tabs 6 and 7 and sealing flaps 26 and 27 are shortened, but their effective dimension, that is, along the width of the side of the carton, is in no wise affected. The carton, as formed, has all of the advantages set forth with respect to the carton described supra in connection with Figs. 1 to 4.

Although the present invention has been described with respect to particular embodiments and particular constructive features, it will be appreciated that equivalent elements can be used and that variations and modifications of the invention can be made without departing from the spirit thereof. For example, while I have, by implication, described my carton blank as symmetrical about its longitudinal axis, it is to be understood that equally satisfactory results can be obtained without such symmetry. Thus, referring to Fig. 1, the positions of a tab attached to a wing and a sealing flap attached to an extension, both on one side of the blank, can be reversed. In the new positions, each of extensions 18 and 19 would have a single sealing flap at diagonally opposite corners of the blank, and at the other two corners there would be tabs attached to the adjacent wings. These and other variations and modifications are believed to be within the scope of the present specification and within the purview of the appended claims.

I claim:

1. As a new article of manufacture, a non-tubular carton which comprises a front; a back; a bottom integral with said front and back and having a scored section adapted to be easily punctured to form a pouring aperture therein; sides comprising overlapping wings; a top comprising tabs extending from said sides and extensions extending from said front and back; sealing flaps extending from at least one of said extensions and overlapping said sides for substantially their full width at the juncture of top and sides; and sealing flaps extending from said sides and overlapping the bottom for substantially its full width at the juncture of bottom and sides, the scored section in the bottom of said carton adjoining at least one of said bottom sealing flaps whereby a reinforced edge for the pouring aperture is provided by said flaps.

2. As a new article of manufacture, a non-tubular carton which comprises a front; a back; a bottom integral with said front and back and having a scored section adapted to be easily punctured to form a pouring aperture therein; sides comprising overlapping wings; a top comprising tabs extending from said sides and extensions extending from said front and back; sealing flaps extending from at least one of said extensions and overlapping said sides for substantially their full width at the juncture of top and sides; and sealing flaps extending from said sides and overlapping the bottom at the juncture of bottom and sides; the scored section being located in a corner of the bottom and providing a pouring aperture, one of said last named sealing flaps being cut away at one end to expose said scored section and provide a reinforced edge therefor.

TRENTON MEREDITH.