June 18, 1963 E. G. SWANSON ETAL 3,094,268

CARRYING HANDLE CONSTRUCTION FOR CARTONS

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Fig. 1.

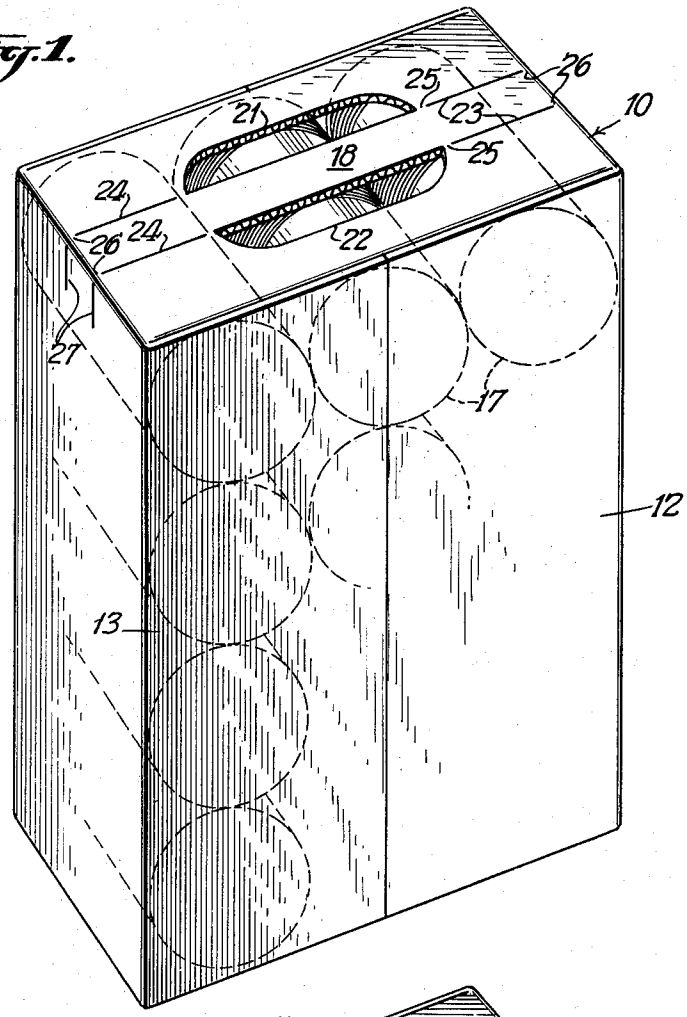
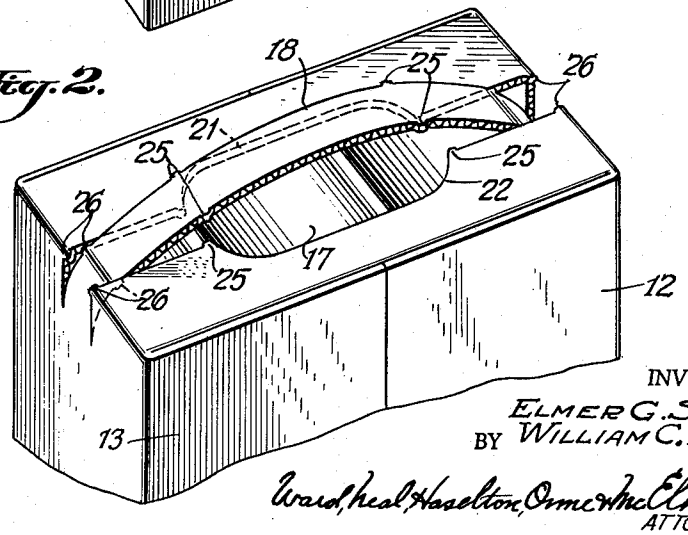


Fig. 2.



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Fig. 3.

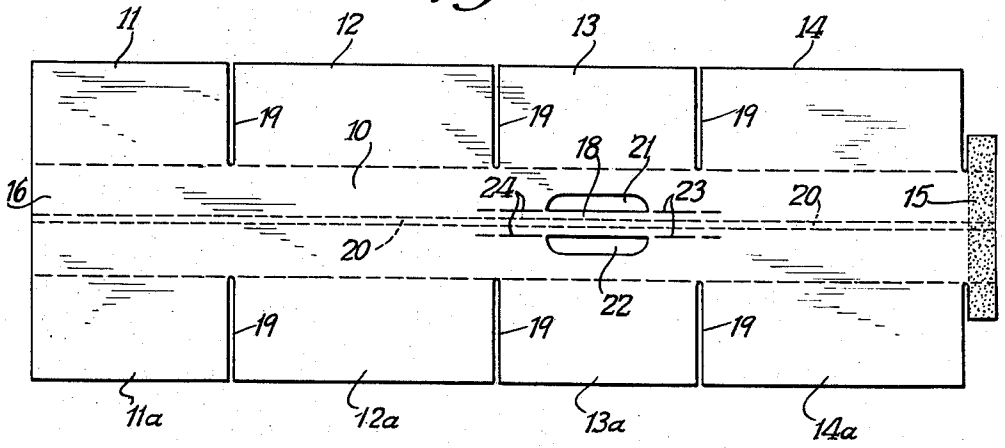


Fig. 4.

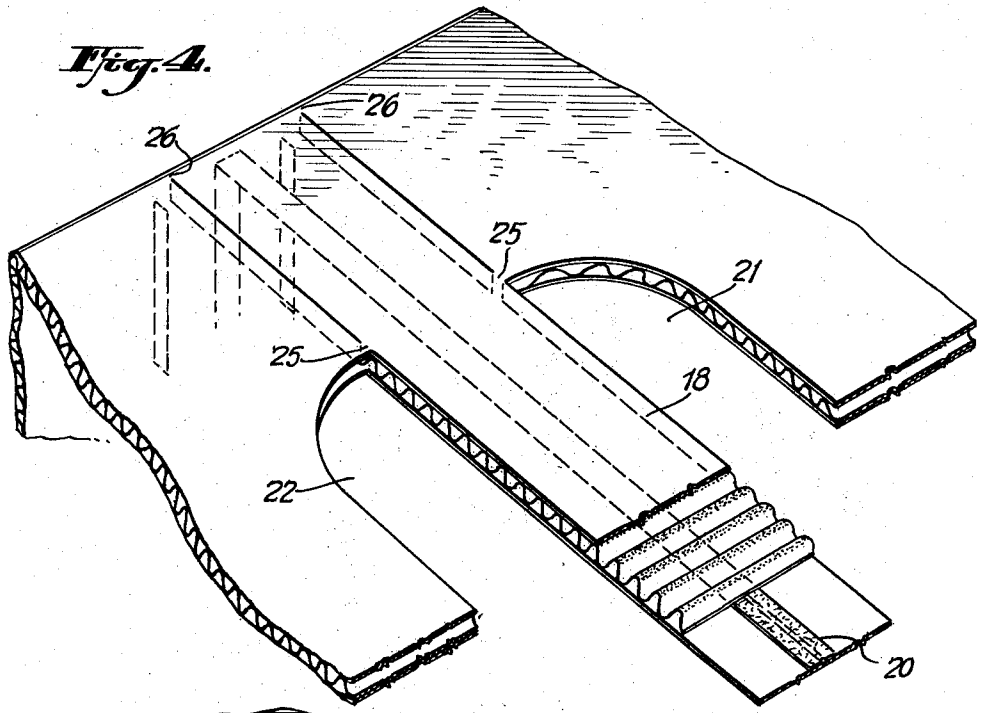
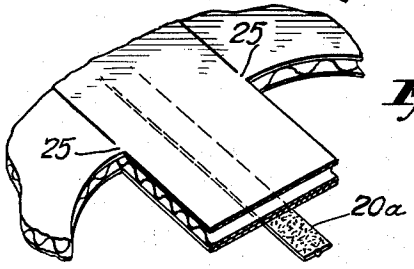


Fig. 5.



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CARRYING HANDLE CONSTRUCTION FOR CARTONS

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This invention relates to carton blanks and cartons embodying carrying handle means, the invention being particularly adapted among other possibilities for embodiment in corrugated paperboard cartons as used for the carrying or shipment of various commodities, such for example as pluralities of cans of comestibles or beverages.

While such cartons have been made with numerous types of carrying handles, the handle feature thereon has generally been such as to necessitate uneconomical steps or apparatus for the manufacture thereof and the resulting handle means have also generally been subject to various shortcomings as to strength and convenience, and with respect to the possibilities of compactly storing or easy handling of the cartons.

The present invention makes possible a handle construction of unusual convenience and strength and at the same time a construction which can readily and economically be formed during the manufacture of the corrugated paperboard and the forming of the cartons with conventional well-known types of equipment as used in most corrugated paperboard box factories.

More particularly, the invention provides a reinforced handle means integrally formed as a part of the carton blank and preferably extending in a direction transverse to the direction of the corrugations in cases where corrugated paperboard is used to form the cartons, and in a direction so that the reinforcement of the handle means may encircle or embrace the entire contents of the carton, and by the use of a reinforcing strand embodied within the double-faced corrugated paperboard, in case that type of paperboard is used, or else adhered to the inner wall surfaces of the carton blank. In cases where the carton is to be used for example for the shipment of a group of cans, the reinforcing strands embodied in the handle means and extending around the walls of the cartons may be such as to form with the handle means and extension portions at the ends of the handle means, a construction which, when the handle is put under tension, will tightly embrace the whole group of cans and tend to conform with the rounded corner portions of the group, thus providing an exceptionally durable arrangement.

Also, in accordance with the invention, the handle portion itself as originally integrally formed of a part of the carton blank material, will lie flatwise of one of the wall surfaces of the carton and not tend to bulge from the plane of such wall surface, thereby avoiding problems which would otherwise occur in running the carton blanks through the conventional folder-gluer machine. Furthermore, extension portions are provided at each end of the handle, so formed of portions partially severed from the carton blank material, but still held in place by small "islands" or uncut portions, so that not only the handle but such extension portions will be retained flat and not bulge from the carton surfaces either during the formation of the carton or the filling or shipment thereof. Thus the handle extension portions will at all times retain the handle itself against the objectionable bulging above referred to until the ultimate customer grasps the handle in order, for example, to carry the filled carton out of a store. Then, upon

applying lifting tension to the handle, the small islands or uncut portions of the handle extensions will give way, allowing the handle to bulge upwardly for convenient grasping, and at the same time providing in effect a longer handle which will tend to conform to the curvature of the contents of the carton and securely embrace same.

Various further and more specific objects, features and advantages of the invention will appear from the description given below, taken in connection with the accompanying drawings, illustrating by way of example preferred forms of the invention.

In the drawings:

FIG. 1 is a perspective view of a carton embodying a preferred form of the invention with the handle means in the position which it assumes prior to being grasped for use;

FIG. 2 is a view of the top portion of the same structure, but showing the formation which the handle will assume after it has been grasped to lift the carton;

FIG. 3 is a view showing the carton blank prior to formation of same into a carton;

FIG. 4 is an enlarged perspective view, parts being broken away, showing certain features of the handle construction in further detail; and

FIG. 5 is a view showing a portion of a somewhat modified construction.

Referring to the drawings in further detail, a carton blank as shown in FIG. 3 comprises a body portion **10**, adapted to form the walls of a carton of rectangular cross-section and having conventional closure flaps as at **11** to **14** inclusive at one end of the carton and similar flaps as at **11***a* to **14***a* inclusive forming the other end closure. A tab or extension portion **15** carrying adhesive, is adapted to be adhered to the opposite end at **16** of the blank when the carton is shaped and set up in the conventional way to form a carton such as shown in FIG. 1.

In FIG. 1, the carton is indicated as containing, for example, a dozen cans of comestibles or beverages, as indicated by the dotted lines **17**, so arranged that the axes thereof within the upper portion of the carton extend transversely or at right angles to the length of the handle means indicated at **18**.

Except for the construction of the handle features, the carton blank of FIG. 3 may, of course, be made on conventional equipment found in corrugated paperboard box plants for the manufacture first of the double-faced corrugated paperboard, and then for cutting the blanks with the usual slots as at **19**, for separating the flap portions. Also conventional corrugated paperboard box blank folding and gluing apparatus may be used to form the blanks into boxes as shown in FIG. 1.

However, with the present invention, when the corrugated paperboard is being made, a reinforcing tape, as indicated at **20** (FIG. 4) is placed between the liner ply and the corrugated medium and preferably in a direction running at right angles to the direction of the corrugations. This may be conveniently done in a manner similar to that in which easy-opening tape means has heretofore been inserted in the formation of corrugated paperboard for boxes. Such reinforcing tape may be of various well-known types, such as a ribbon or a pair of side-by-side ribbons formed of numerous strands adhered together side by side, and if needed, with a further reinforcing strand along the mid-portion, as indicated. Alternatively, as indicated in FIG. 5, the reinforcing strand may be adhered as at **20***a*, to the inner surface of the liner ply of the paperboard, although the form shown in FIG. 4 is preferred in that same will insure that the strand will be more securely held in place by reason of its being adhered and gripped between the corrugating medium and the outer surface of the liner ply.

As the corrugated paperboard is being passed through the usual rotary equipment, such as a printer-slotter, for forming a carton blank as shown in FIG. 3, the same machine equipped with suitably shaped dies, may be used to cut the outline of the handle arrangement, as shown in various figures. That is, the original handle portion itself **18** is formed by cutting out areas as at **21** and **22**, to afford access for grasping the handle, and at the same time, the cuts which extend longitudinally at the handle edges may be extended as at **23** and **24**. As best shown in FIG. 2, such extension slits or cuts are each interrupted at two or more points, as indicated at **25**, **26**, either by interrupting the slit on one, two or more plies of the material, thereby leaving small severable "islands" initially uncut, but which may readily be severed upon pulling up on the handle to pull the handle into the position shown in FIG. 2. As shown, preferably the extension cuts extend not only to the edges of the top of the carton as shown in FIGS. 1 and 2, but also downwardly for a desired distance as at **27** on the vertical walls of the carton. Consequently when the handle is grasped and pulled up so that the "islands" are severed apart, the handle end portions or extensions will, together with the original handle portion, assume a curved shape affording more easy access by the hand through the spaces **21**, **22** and at the same time causing the handle structure to embrace the cans or other contents within the carton. Thus the handle, in conjunction with the reinforcing strand therein or thereon, will firmly embrace the carton contents, and since the reinforcing strand extends entirely around the contents within the carton, it will relieve the carton walls of any tendency to become damaged or torn, even though the package may be quite heavy.

As best shown in FIG. 1, when the carton is initially formed and even after it has been filled and shipped, all the handle portions still remain flat and free of bulging, thus avoiding the problems which would otherwise occur in running the container blank through the usual folder-gluer apparatus. Furthermore, by thus retaining the handle flat, the carton may be readily run through available machinery for packing same without obstructions occurring due to the handle, and thus without danger of tearing the handle. Also the finally filled packages may be carried on conveyors, packed and stacked without resulting in one carton obstructing another because of any handle means. Yet, when the ultimate customer desires actually to use the handle, it may be readily pulled up to the easily grasped position shown in FIG. 2, while at the same time this reinforced handle arrangement

will serve to bind and embrace the whole contents of the package.

Although certain particular embodiments of the invention are herein disclosed for purposes of explanation, further modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains. Reference should accordingly be had to the appended claim in determining the scope of the invention.

What is claimed and desired to be secured by Letters Patent is:

A carton formed of a corrugated paperboard carton blank which includes opposite side wall areas and top and bottom surface areas, reinforcing tape means forming a part of the carton blank and adhered in place at a location inwardly of the corrugated medium thereof and extending entirely around the carton, the corrugations of the paperboard material extending transversely of said tape means, and handle means comprising a strip integrally formed of the material of the blank and defined by cuts extending in spaced relationship to and respectively along opposite sides of the position of said tape means, said cuts extending across the top surface of the carton and partially down into the opposite side walls thereof, the mid portion of said strip providing a grip portion at the mid portion of the top of the carton, the blank being formed with cut-out areas at each side of said grip portion whereby said grip portion is accessible for grasping by the hand, said cuts at the end portions of said grip portion being interrupted by small uncut portions acting normally to retain the strip flatwise of the paperboard material, said cuts being also interrupted by small uncut portions at the top corners of the carton normally to retain such corners closed but said uncut portions being separable by reason of lifting of the carton by the grip portion, whereupon the handle strip extends in an upwardly bulging form and the end portions of the strip tend to embrace the contents of the carton and said reinforcing tape as embodied with said strip then acting to embrace and apply lifting force to such contents.

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