Jan. 16, 1962 G. J. PARKS 3,017,067

CARTON ASSEMBLAGE HAVING LOCALIZED ATTACHMENT

Filed April 7, 1958

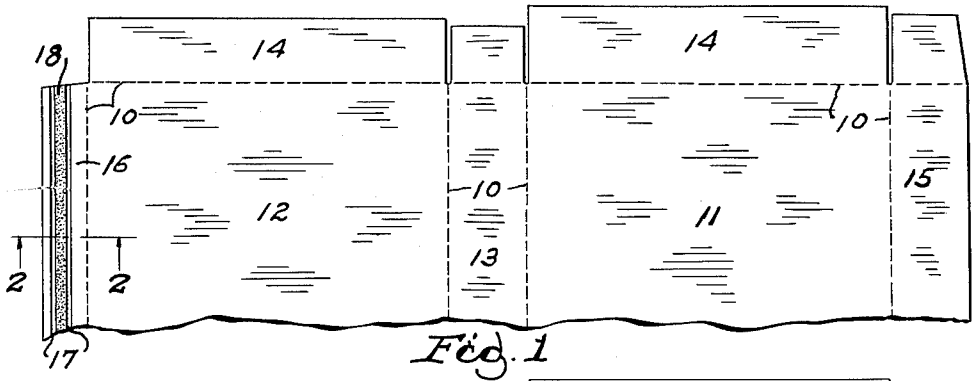


Fig. 1

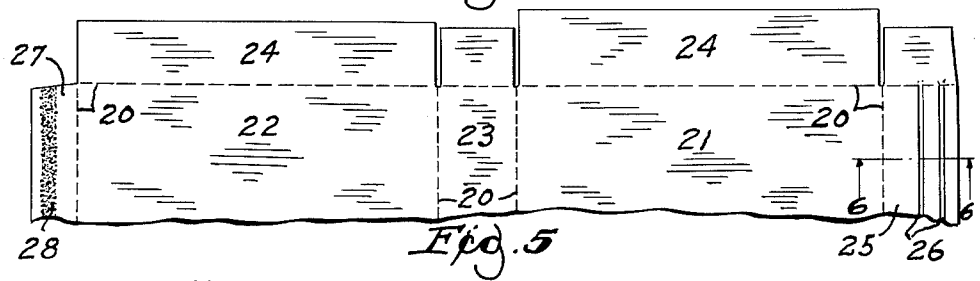


Fig. 5

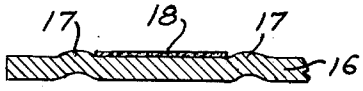


Fig. 2

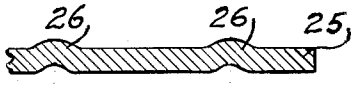


Fig. 6

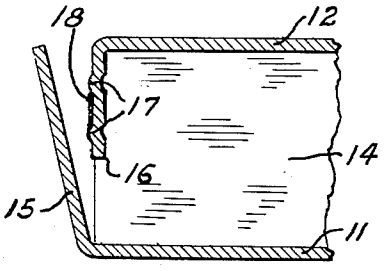


Fig. 3

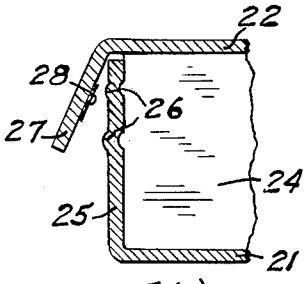


Fig. 7

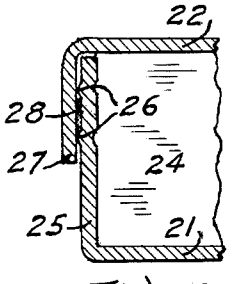


Fig. 8

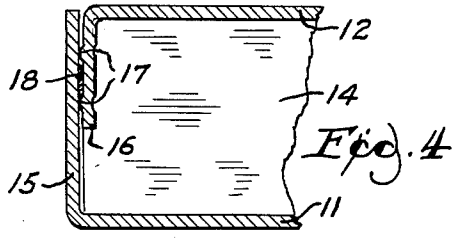


Fig. 4

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CARTON ASSEMBLAGE HAVING LOCALIZED ATTACHMENT

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The invention relates generally to improvements in the art of carton production, and it relates more specifically to improvements in the construction of carton blanks and in the mode of assembling the same in carton formation.

The primary object of the present invention is to provide an improved carton which can be readily assembled to produce a durable structure having localized attaching areas.

In the packaging industry, paper or cardboard cartons are frequently formed of blanks adapted to be folded into box-like formation and to have cooperating flap or wall portions adhesively united to produce the assembled carton structures. The adhesive is ordinarily applied in strip formation along one of the cooperable blank portions which are thereafter pressed together to complete the union, and in order to insure a firm and permanent connection it requires the application of a rather heavy layer of the adhesive, excess quantities of which are often squeezed out and spread laterally considerably beyond the sides of the original strip width, thus producing messy joints and wasting adhesive material. The use of such excessive quantities of liquid adhesive is however necessary especially in cases where the cartons are formed of wax-coated paperboard stock which requires the removal of the wax at the areas which are to be glued together in order to insure complete penetration of the adhesive into the body of the board and to permit enough to remain so as to produce a strong final bond. But such usage of excess adhesive has heretofore resulted in the production of messy assembled cartons and required intricate adjustments of the mechanism, when the assembly was effected with standard box forming equipment such as normally utilized. Then too, it is desirable when producing adhesive bonds, to subject the adhesive to the ambient atmosphere in order to enhance drying thereof.

It is therefore an important object of the present invention to provide simple but effective instrumentalities for obviating this adhesive spreading and wasting difficulty especially when assembling paper or cardboard blanks into carton or box formation.

Another important object of this invention is to provide an improved mode of confining adhesive to predetermined areas while also facilitating the drying of adhesive joints in cardboard carton assemblages, by preventing total surface contact of the adjacent glue flaps and simultaneously providing air access spaces adjoining the zones which are glued together, thus reducing the adhesive drying time to a minimum.

A further important object of the present invention is to provide an improved carton assemblage formed of a wax-coated cardboard blank, wherein overlapping portions of the assembled blank may be most effectively and firmly bonded together along local areas from which the wax has been eliminated.

Still another important object of my invention is to provide an improved paperboard carton formed of a blank having overlappable adhesively united portions or flaps, and wherein the united areas of the assembled blank are segregated from adjacent surfaces by a bounding ridge or ridges capable of preventing excess adhesive from spreading to such an adjacent surfaces when external sealing pressure is applied to the overlapped portions or flaps.

An additional important object of this invention is to

provide an improved cardboard carton blank adapted to be formed and adhesively assembled into box-like formation with standard carton constructing machinery, and without necessity of making tedious and time consuming adjustments in the equipment in order to produce durable assembly joints while avoiding messy spreading and waste of adhesive.

These and other more specific objects and advantages of the invention will be apparent from the following detailed description.

A clear conception of the features constituting the present improvement, and of the construction and mode of assembling several different types of the improved cartons, may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the various views.

FIG. 1 is a fragmentary plan view of one type of paperboard blank provided with foldable assembly flaps at its opposite ends adapted to be overlapped and adhesively united when assembling the carton;

FIG. 2 is an enlarged transverse section through the adhesive coated end flap of the blank of FIG. 1, the section having been taken along the line **2—2**;

FIG. 3 is a sectional fragment of the same blank partially assembled and showing the assembly flaps about to be adhesively united;

FIG. 4 is a fragmentary section similar to that of FIG. 3 but showing the assembly flaps finally glued together;

FIG. 5 is a fragmentary plan view of another type of paperboard blank also provided with foldable and overlappable assembly flaps at its opposite ends but having the adhesive applied in a different manner than in FIG. 1;

FIG. 6 is an enlarged transverse section through the end flap of the blank shown in FIG. 5 which is initially devoid of adhesive, the section having been taken along the line **6—6**;

FIG. 7 is a sectional fragment of the blank of FIGS. 5 and 6, showing the modified blank partially assembled as in FIG. 3, and

FIG. 8 is a fragmentary section similar to that of FIG. 7 but showing the assembly flaps of the modified structure finally glued together.

While the invention has been shown and described herein as having been embodied in or applied to assembly flaps formed at the opposite extreme ends of wax-coated blanks and foldable relative to the blank bodies along score lines, it is not intended to restrict its application to such blanks; and it is also contemplated that specific descriptive terms employed herein be given the broadest possible interpretation consistent with the actual disclosure.

Referring specifically to the embodiment of the invention shown in FIGS. 1 to 4 inclusive, the carton blank comprises in general a unitary sheet of cardboard scored along lines **10** to provide a pair of body portions **11**, **12** foldably interconnected by an intermediate wall **13** and each having likewise foldable side flaps **14**, while the body portion **11** has a plane end flap **15** and the other body portion **12** has a longitudinally ridged end flap **16** foldably connected therewith, the parallel ridges **17** on the flap **16** providing an elongated intervening depressed area covered with a strip or layer of adhesive **18**.

The carton blank may be of any selected size or shape capable of producing the desired box when finally assembled, and the paperboard stock utilized in these blanks is frequently coated with wax which must be removed from the areas with which the adhesive finally coacts before such adhesive is applied. When the wax is thus locally removed, the dewaxed surfaces of the cardboard are in relatively porous condition capable of absorbing liquid such as fluent glue, so that it is necessary to apply a rather heavy or thick layer of adhesive **18** in order to finally leave

enough adhesive to insure firm final adhesion throughout the united areas.

If the relatively thick layer of adhesive **18** which is applied to the area of the flap **16** between the ridges **17** of the carton blank, is in excess of the amount absorbed by the cardboard stock plus the amount required to produce a strong and firm attachment to the overlapped flap **15** when the latter is finally pressed against this layer during assembly of the box, then the excess glue will naturally spread laterally toward the ridges **17**. These ridges **17** should therefore be formed of sufficient height so as to clearly define the elongated depressed area of attachment and to receive and retain any excess adhesive **18** which might be squeezed out laterally during the final bonding operation; and the ridges **17** should also be of sufficient height to provide air spaces adjacent to the bonded areas which will aid in rapid drying of the glue.

Referring specifically to the modified embodiment of the invention illustrated in FIGS. 5 to 8 inclusive, here the carton blank is similar in general shape to that shown in FIG. 1, and comprises a unitary sheet of cardboard scored along lines **20** to provide a pair of body portions **21, 22** foldably interconnected by an intermediate wall **23** and each having likewise foldable side flaps **24**, while the body portion **21** has a longitudinally recessed flap **25** provided with elongated parallel ridges **26** and the other body portion **22** has a plane flap **27** provided with a strip or elongated layer of adhesive **28**, foldably connected therewith.

This embodiment therefore differs from that shown in FIGS. 1 to 4 inclusive, by having the strip of adhesive **28** initially applied to the plane flap **27**, while the area of the other flap **25** between the ridges **26** is devoid of adhesive until the flaps **25, 27** have been united, as in FIG. 8. However, in both embodiments the zone of application of the adhesive is segregated from the adjacent surfaces of the united flaps, by the relatively high ridges forming depressed areas which not only serve to catch excessive glue when these flaps are pressed against each other but also provide extensive air gaps adjacent to the bonding areas which hasten the drying of the adhesive. Both types of cartons can also be assembled and glued in a well-known manner with the aid of standard assembly equipment and without necessitating tedious and time consuming adjustments, and both embodiments result in the production of clean but exceedingly strong glued joints.

From the foregoing detailed description it should be apparent that the present invention in fact provides an improved carton assemblages having local areas adapted to be adhesively firmly united in a rapid and effective manner. The ridges which segregate the attaching areas from the adjacent surfaces of the stock may be formed either in cooperating flaps as shown or in other cooperating portions of the blanks, in any suitable manner; and should be of sufficient height to provide recessed areas of sufficient size to retain the excess glue and to also produce adjacent extensive air spaces for hastening drying of the adhesive. The glue may also be applied to the blanks either in fluent layer form or as solidified strips adapted to be liquefied by the application of heat when the attachment areas are finally pressed together. While the invention has special utility when applied to cartons formed of wax-coated paperboard blanks, it may also be advantageously applied to other types of cartons.

It has been found that the lanes formed by the parallel ridges may be utilized by the operator of the gluing equipment as a guide for insuring application of the adhesive to proper areas of the carton blanks, and any number of these ridges may be applied to cooperable portions of each blank so as to provide one or more of these gluing lanes depending upon the strength of final carton assemblage required. When gluing is to be effected along the extreme edges of a pair of overlapped portions of the blank, it is only necessary to provide one ridge extending parallel to one of these edges, in an obvious manner; and the use of the segregating ridges makes it possible to obtain a perfect bond on de-waxed carton surfaces without experiencing the difficulties heretofore encountered with respect to over-supply of adhesive and critical machine adjustments which heretofore resulted in excessive scrapping of cartons due to squeeze-out of glue.

It should be understood that it is not desired to limit the invention to the exact details of construction of the cartons herein specifically shown and described by way of illustration, since various modifications within the scope of the appended claims may occur to persons skilled in the art.

I claim:

1. In a carton assemblage, a paperboard blank having a pair of overlappable elongated edge portions adapted to be adhesively united, one of said edge portions having thereon parallel ridges forming an intervening longitudinally unobstructed open ended valley of uniform depth between the overlapped edge portions extending throughout their entire lengths and the other edge portion having thereon a relatively flat surface adapted to cover said valley and to sealingly engage said ridges when said edge portions are overlapped, and a layer of glue of approximately the same thickness as the valley depth initially applied to one of said edge portions and confined entirely within said valley during overlapping of the edge portions to substantially fill said valley and adhesively unite said portions upon application of external pressure to the intervening glue confining area, said ridges being of sufficient height to prevent escape of glue thereover to local areas beyond the valley and to maintain air confining glue drying spaces within said local areas while the open valley ends allow excess glue to escape during said pressure application.

2. In a carton assemblage, a paperboard blank having a pair of overlappable elongated edge portions adapted to be glued together, one of said edge portions having thereon parallel ridges forming an intervening longitudinally unobstructed open ended valley of uniform depth between the overlapped edge portions extending throughout their entire lengths and the other edge portion having thereon a relatively flat surface adapted to cover said valley and to sealingly engage said ridges when said edge portions are overlapped, and a layer of glue of approximately the same thickness as the valley depth initially applied to said ridged edge portion entirely within the valley to substantially fill the latter during overlapping of the edge portions and adhesively uniting said portions upon application of external pressure to the intervening glue confining area, said ridges being of sufficient height to prevent escape of glue thereacross to local areas beyond the valley and to maintain air confining glue drying spaces adjoining the ridges within said local areas while the open valley ends allow excess glue to escape during said pressure application.

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