July 12, 1955 K. T. BUTTERY ET AL 2,712,882

COLLAPSIBLE PARTITIONED CARTON

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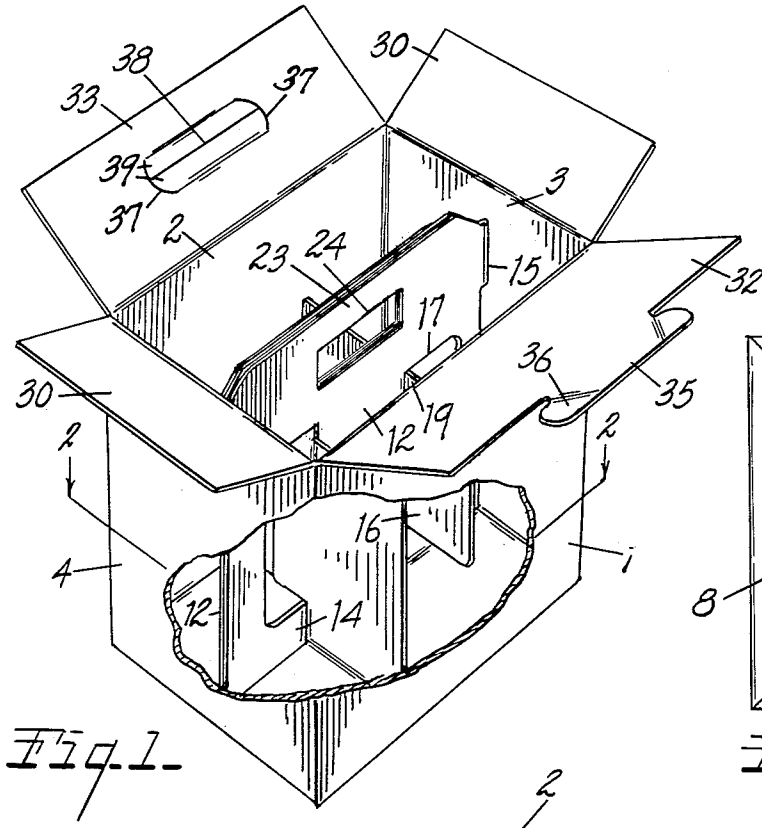


Fig. 1

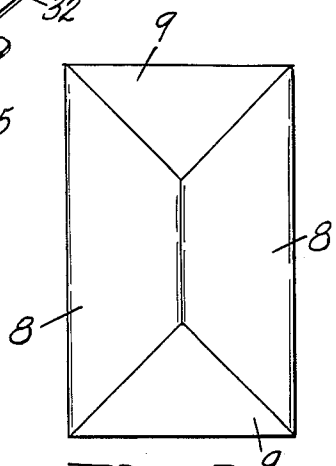


Fig. 3

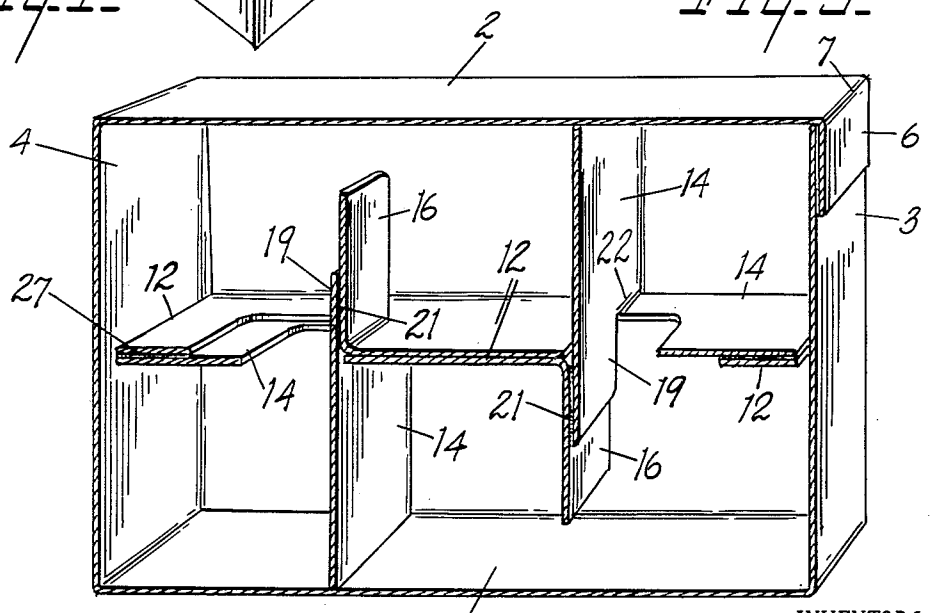


Fig. 2

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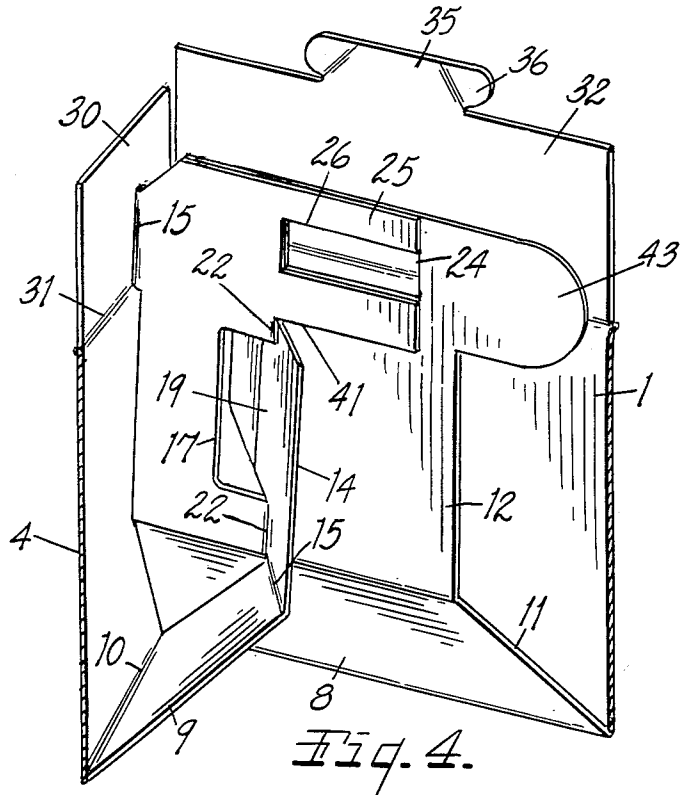


Fig. 4.

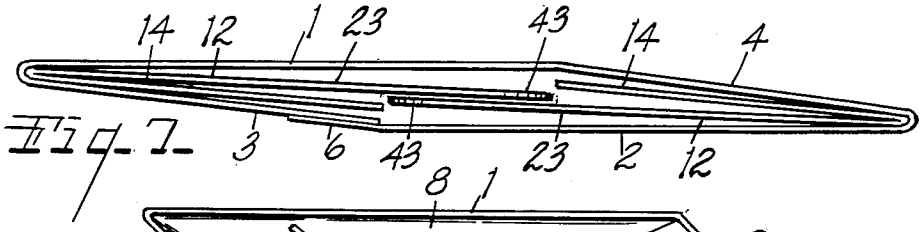


Fig. 7.

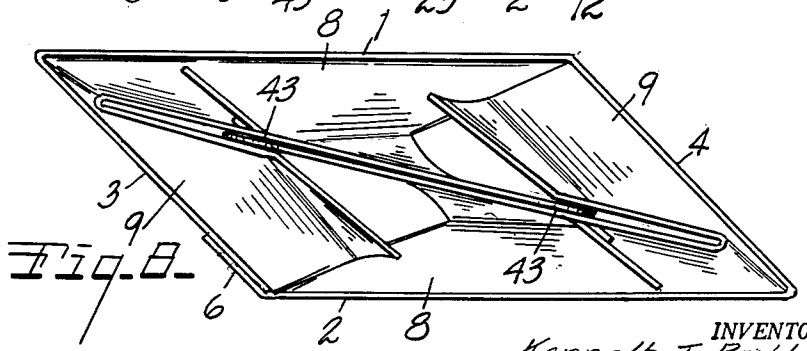


Fig. 8.

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COLLAPSIBLE PARTITIONED CARTON

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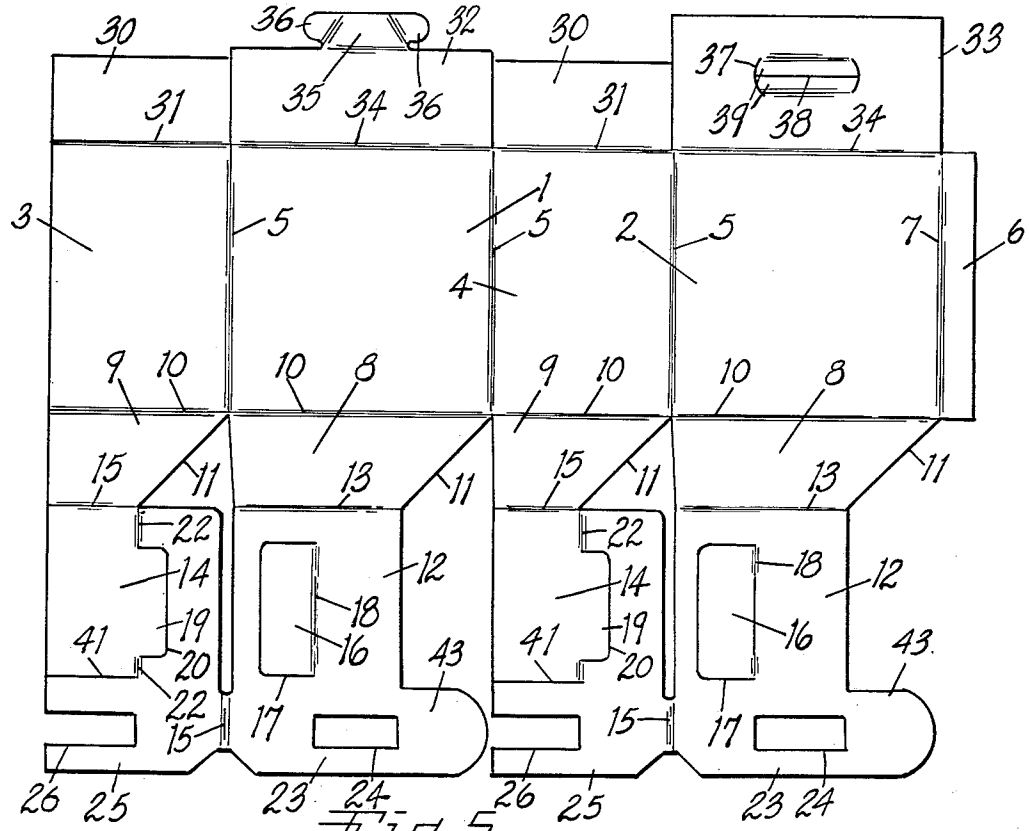


Fig. 5

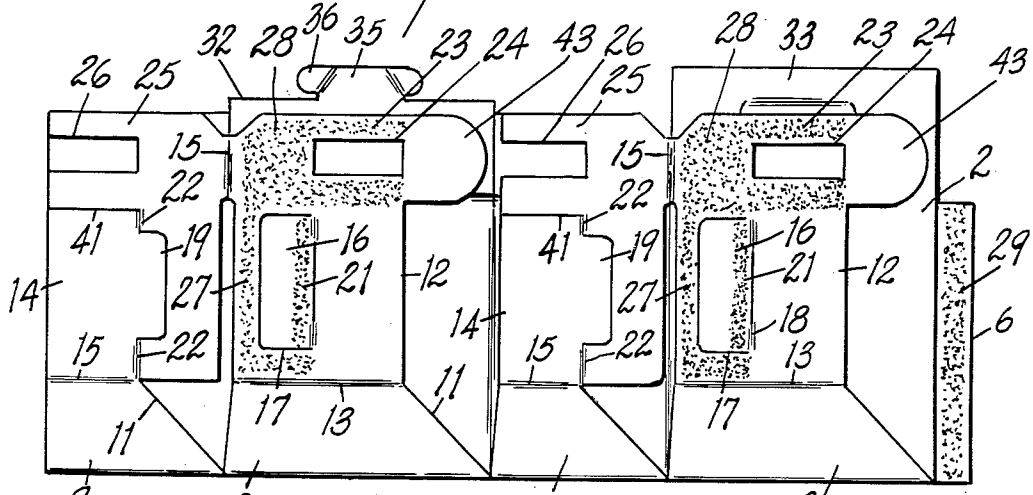


Fig. 6

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COLLAPSIBLE PARTITIONED CARTON

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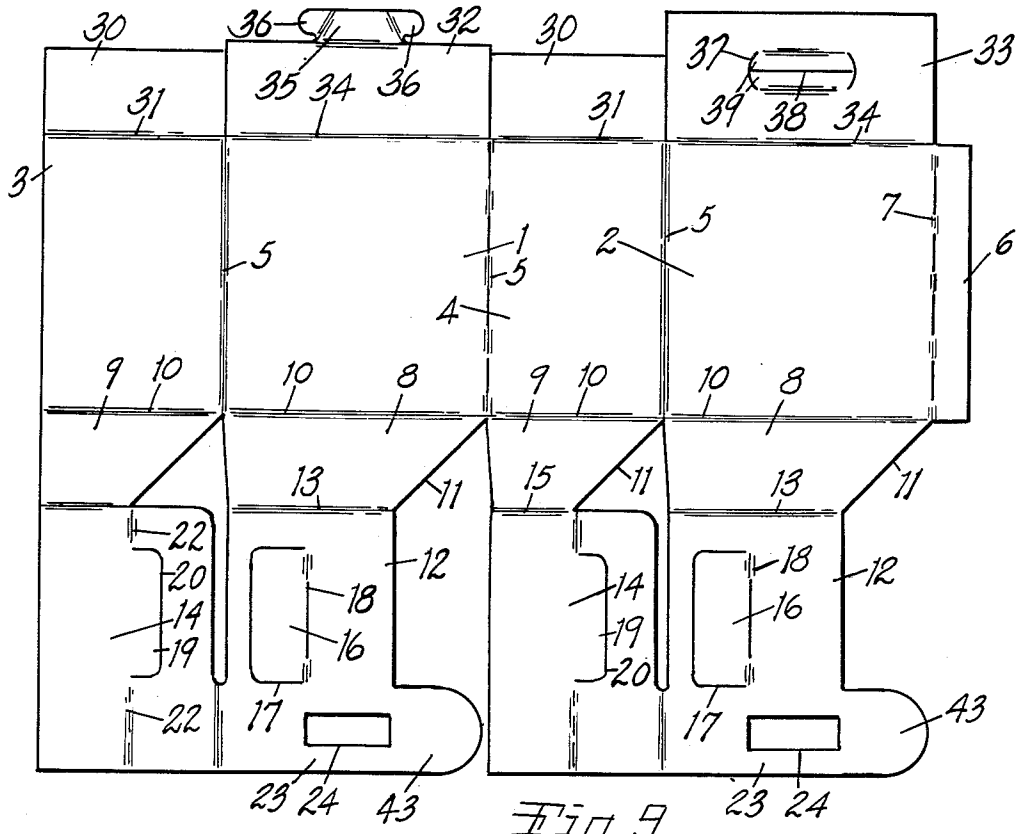


Fig. 9.

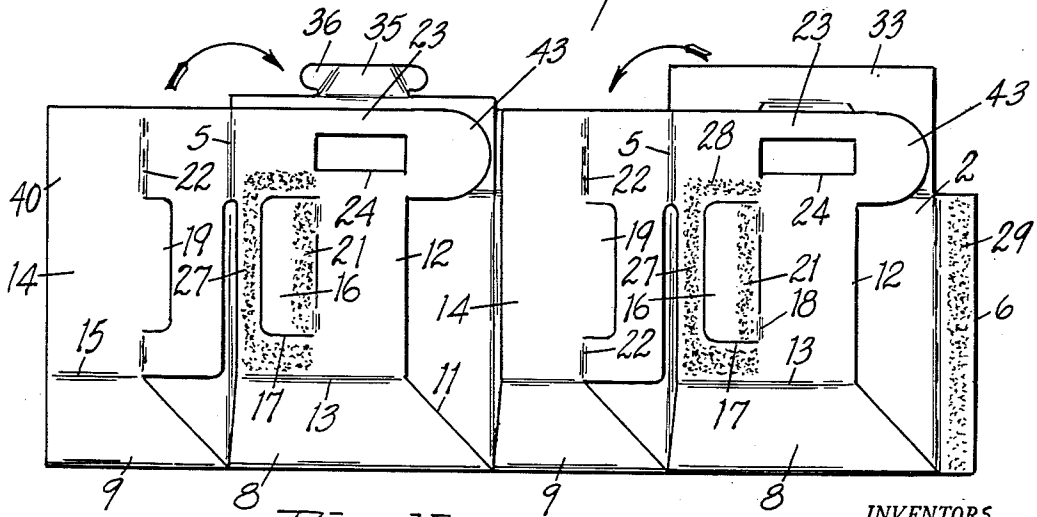


Fig. 10.

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COLLAPSIBLE PARTITIONED CARTON

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Application May 19, 1951, Serial No. 227,204

5 Claims. (Cl. 220—113)

This invention relates to improvements in a collapsible partitioned carton.

The main objects of this invention are:

First, to provide a collapsible partitioned carton formed of an integral blank which may be shipped and stored in the collapsed condition and quickly erected, the partitions being automatically erected upon the erection of the carton from collapsed position as by pressing on opposed edges of the collapsed carton.

Second, to provide a partitioned carton in which the partitions or cell members are very effectively supported in erected position, the partition members coacting to maintain the carton in erected position and brace and reinforce each other.

Third, to provide a structure having these advantages in which the parts are so formed and associated that the adhesive may be readily applied and the adhering parts brought into proper adhering relation by machine folding operations on the blank.

Fourth, to provide a structure having these advantages provided with an effective handhold or handle and with a top closure which permits the grasping of the handle.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view with walls partially broken away of an erected carton or container embodying the invention and with the cover closure members in open position.

Fig. 2 is an enlarged horizontal section on a line corresponding to line 2—2 of Fig. 1.

Fig. 3 is a bottom view.

Fig. 4 is a fragmentary inside perspective view partially in section illustrating parts in partially erected position.

Fig. 5 is a plan view of the blank of the embodiment shown in Figs. 1 to 4, inclusive, in fully extended position.

Fig. 6 is a plan view of the blank in partially folded position and with adhesive indicated on said areas thereof.

Fig. 7 is a top view somewhat conventionalized of a modified form or embodiment of my invention.

Fig. 8 is a top view illustrating a partially opened carton of the embodiment shown in Fig. 7 and illustrating the relationship of certain of the parts.

Fig. 9 is a plan view of the blank with the embodiment of Figs. 7 and 8 in fully extended position.

Fig. 10 is a plan view of the blank partially folded and with adhesive indicated on certain areas thereof.

In this specification and in certain of the claims, the terms "side" and "end walls" are used for convenience in describing the parts. It will be understood that the carton might be square instead of being elongated in horizontal section as in the embodiment shown.

The carton is formed of an integral blank and comprises side walls 1 and 2 and end walls 3 and 4, these

walls being arranged in alignment in the blank and hingedly connected by the hinging scores 5. The side wall 2 is provided with a glue flap 6 hingedly connected thereto by the score 7. This glue flap is lapped upon the wall 3 and adhesively secured thereto which results in a collapsible tubular body. The side walls 1 and 2 are provided with bottom members 8 while the end walls are provided with bottom members 9, these bottom members being hingedly secured to their respective walls by the hinging scores 10. All of the bottom members in the preferred embodiment have inclined end edges 11 which facilitate the swinging of the walls to erected position.

The side wall bottom members have longitudinal partition members 12 hingedly connected to the swinging edges thereof at 13. The end wall bottom members 9 have transverse partition members 14 hingedly connected to their swinging edges at 15. The adjacent pairs of longitudinal and transverse partition members in the blank are foldably connected by the scores 13 and 15. The longitudinal partition members have hinged or swingable transverse partition elements 16 defined by the laterally facing U-shaped slits 17. These slits are spaced from the side and end edges of the longitudinal partition members and are hingedly or swingably connected to the longitudinal partition members at 18.

The transverse partition members 14 have glue tabs 19 defined by the laterally facing U-shaped slits 20 which are spaced from the top, bottom and side edges of the transverse partition members and positioned so as to lap upon the transverse partition element when the pairs of partition members are folded upon each other, the adhesive securing the tabs and swingable transverse partition members being indicated at 21 in Figs. 2 and 6. The transverse partition members have hinging scores 22 extending from the ends of the glue tabs to the ends of the transverse partition members.

The longitudinal partition members have handle portions 23 with hand openings 24 therein while the transverse partition members have handle portions 25 with hand openings 26 therein. As stated, the pairs of longitudinal and transverse partition members are foldably connected at 15 and are adhesively secured together by adhesive indicated at 27 and 28, the adhesive 27 being positioned to secure the adjacent edges of the pairs of partition members together while the adhesive 28 is disposed to secure their top portions together and is desirably extended partially around the hand openings 24 and 26.

The glue flap 6 has adhesive 29 applied thereto. With the adhesive applied as is illustrated, the pairs of partition members are folded together and adhesively secured together while the tabs 19 are adhesively secured to the transverse partition element 16, the partition members then being within the walls of the then tubular body. To erect the carton and the partition members, it is only necessary to apply pressure to the opposite edges of the collapsed carton which automatically swings the parts to erected position as shown in Fig. 1.

In the carton illustrated, the walls 3 and 4 are provided with inner top closure members 30 hingedly secured thereto at 31. The wall 1 is provided with a closure member 32 while the wall 2 has a closure member 33, these closure members being hingedly secured to their respective walls at 34. The closure member 32 is provided with a locking tongue 35 having projections 36 engageable with the slots 37 which are connected by the slit 38 thereby providing deflectable portions 39. When the walls are in erected position as shown in Fig. 1, the closure members can be closed and the locking tongues 36 engaged within the slits 37. The deflectable members can be deflected to permit grasping of the handle resulting from the overlying registering relation of the

handholds of the longitudinal and transverse partition members as shown in Fig. 1. This permits the closing of the container and its being carried while closed.

In the modification shown in Figs. 7 to 10, inclusive, the transverse partition members **40** corresponding to the transverse partition members **14** extend the full height of the partitions, that is, they have no handhold portions such as shown in the preferred embodiment and such as results from the slits **41**. In both embodiments, the longitudinal partition members have tongue-like extensions **43**, the primary purpose of which is to provide a closed end for the handholds **24** and in this embodiment the handle portions are not reinforced by the superimposing and adhering together of the handle portions of the pairs of longitudinal and transverse partition members.

There is a further advantage in providing both the longitudinal and transverse partition members with hand openings and securing them together around the openings in that this results in the portions **43** of the pairs of partition members being automatically and accurately guided into position in the erecting of the carton whereas in the embodiment shown in Figs. 7 to 10, inclusive, the tongue-like extensions **43** may become deflected or bent to permit their catching on the edges of the transverse partitions and prevent erecting the cartons until they are properly positioned. That, however, occurs only where parts may be accidentally bent or deflected. That cannot occur with the preferred embodiment as the parts are so stiffened and connected together that they cannot be deflected without very substantial distortion.

As the carton is erected from collapsed position by pressure on the opposite edges of the collapsed carton, the partition walls are automatically swung to erected position and the partition elements **16**, owing to their connection to the fixed tabs or nonhinged tabs **19**, are swung to erected position as shown in Fig. 2. While these partition elements **16** do not constitute complete partitions, the partitions are effectively braced and supported by the engagement of the ends of the longitudinally extending partitioned parts with the ends of the carton and the engagement of the transverse partition members **14** with the side walls of the box as is perhaps best shown in Fig. 2.

The cartons embodying the invention are formed of suitable container stock cut and scored as indicated in the drawings and they may be glued and folded in standard types of gluing and folding machines, the modifications required being mainly in the matter of application of the adhesive or glue.

We have illustrated and described highly practical commercial embodiments of our invention. We have not attempted to illustrate or describe other embodiments or adaptations which we contemplate as we believe that this disclosure will enable those skilled in the art to embody or adapt our invention as may be desired.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A collapsible partitioned carton formed of an integral blank and comprising hingedly connected side and end walls disposed in alignment in the blank, there being a sealing flap hingedly connected to the wall at one end of the blank and adhesively secured to the wall at the other end of the blank, complementary side and end bottom members hingedly connected to the bottom edges of the side and end walls, longitudinal partition members hingedly connected to the swinging edges of the side wall bottom members and having integral transverse partition elements hingedly connected thereto and defined by laterally facing U-shaped slits spaced from the top, bottom and side edges thereof, and transverse partition members hingedly connected to the swinging edges of the end wall bottom members and having glue tabs defined by U-shaped slits spaced from the top, bottom and side edges thereof, the transverse partition members having hinging scores between the ends of their said glue tabs and the top and bottom edges of the transverse partition members, the longitudinal and transverse partition members being disposed in pairs, each pair comprising a longitudinal and a transverse partition member having a folding connection therebetween and being folded upon each other and adhesively secured together adjacent their folding connection with their said glue tabs adhesively secured to said transverse partition elements whereby each glue tab and the partition element adhesively connected thereto move as a unit from a plane approximately parallel to the longitudinal partition member to which the partition element is hingedly connected to a position approximately at right angles thereto when the carton is moved from a collapsed to an erected position and whereby the transverse and longitudinal partition members bracingly support each other when the carton is erected, the partition members of each pair having registering hand openings and being adhesively secured together at least partially around the hand openings, the hand openings of the pairs registering when the carton is erected.

2. A collapsible partitioned carton formed of an integral blank and comprising hingedly connected side and end walls disposed in alignment in the blank, there being a sealing flap hingedly connected to the wall at one end of the blank and adhesively secured to the wall at the other end of the blank, complementary side and end bottom members hingedly connected to the bottom edges of the side and end walls, longitudinal partition members hingedly connected to the swinging edges of the side wall bottom members and having integral transverse partition elements hingedly connected thereto and defined by laterally facing U-shaped slits spaced from the top, bottom and side edges thereof, and transverse partition members hingedly connected to the swinging edges of the end wall bottom members and having glue tabs defined by U-shaped slits spaced from the top, bottom and side edges thereof, the transverse partition members having hinging scores between the ends of their said glue tabs and the top and bottom edges of the transverse partition members, the longitudinal and transverse partition members being disposed in pairs, each pair comprising a longitudinal and a transverse partition member having a folding connection therebetween and being folded upon each other and adhesively secured together adjacent their folding connection with their said glue tabs adhesively secured to said transverse partition elements whereby each glue tab and the partition element adhesively connected thereto move as a unit from a plane approximately parallel to the longitudinal partition member to which the partition element is hingedly connected to a position approximately at right angles thereto when the carton is moved from a collapsed to an erected position and whereby the transverse and longitudinal partition members bracingly support each other when the carton is erected.

3. A collapsible partitioned carton comprising a tubular body having hingedly connected walls having complementary bottom members hingedly connected to the bottom edges thereof, and a partition member hingedly connected to the swinging edge of each of said bottom members, said partition members being connected in pairs, one partition member of each pair having an integral partition element hingedly connected thereto for positioning transversely thereof and defined by a laterally facing U-shaped slit spaced from the top and bottom edges thereof, the other partition member of the pair having a glue tab defined by a laterally facing U-shaped slit spaced from the top, bottom and side edges thereof and also having hinging scores between the ends of the glue tab and the top and bottom edges thereof, the partition members of the pairs being folded upon each other and adhesively connected adjacent their folding edges with the glue tabs and partition elements in lapping relation and adhesively secured together, the partition members of the pairs having registering hand openings and being adhesively se-

cured along their upper edges and adjacent said hand openings.

4. A collapsible partitioned carton comprising a tubular body having hingedly connected walls having complementary bottom members hingedly connected to the bottom edges thereof, and a partition member hingedly connected to the swinging edge of each of said bottom members, said partition members being connected in pairs, one partition member of each pair having an integral partition element hingedly connected thereto for positioning transversely thereof and defined by a laterally facing U-shaped slit spaced from the top and bottom edges thereof, the other partition member of the pair having a glue tab defined by a laterally facing U-shaped slit spaced from the top, bottom and side edges thereof and also having hinging scores between the ends of the glue tab and the top and bottom edges thereof, the partition members of the pairs being folded upon each other and adhesively connected adjacent their folding edges with the glue tabs and partition elements in lapping relation and adhesively secured together.

5. A collapsible partitioned carton comprising a tubular body having hingedly connected walls having complementary bottom members hingedly connected to the bottom edges thereof, corresponding end edges of the bottom members being diagonally inclined to facilitate the swinging of the bottom members from collapsed to erected position, and a partition member hingedly connected to the swinging edge of each of said bottom members, said partition members being connected in pairs, one partition member of each pair having an integral partition element hingedly connected thereto for positioning transversely thereof and defined by a laterally facing U-shaped slit spaced from the top and bottom edges thereof, the other partition member of the pair having a glue tab defined by a laterally facing U-shaped slit spaced from the top, bottom and side edges thereof and also having hinging scores between the ends of the glue tab and the top and bottom edges thereof, the partition members of the pairs being folded upon each other and adhesively connected adjacent their folding edges with the glue tabs and partition elements in lapping relation and adhesively secured together.

References Cited in the file of this patent

UNITED STATES PATENTS

811,676	Vernon	Feb. 6, 1906
1,137,732	Alfred	May 4, 1915
2,346,788	Rice	Apr. 18, 1944
2,431,932	Hall	Dec. 2, 1947
2,460,229	Lebold	Jan. 25, 1949
2,461,879	Crane et al.	Feb. 15, 1949
2,476,181	Crane et al.	July 12, 1949
2,554,613	Burger	May 29, 1951