Aug. 24, 1965 R. E. JOHNSTON 3,202,340

CARTON OR THE LIKE WITH HANDLE

Filed Dec. 21, 1962 2 Sheets-Sheet 1

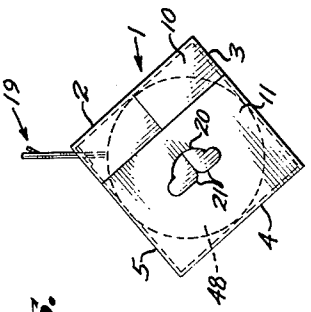


Fig. 5.

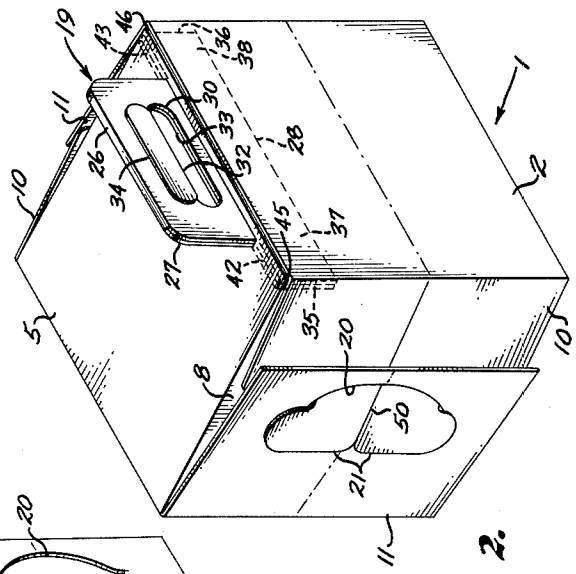


Fig. 2.

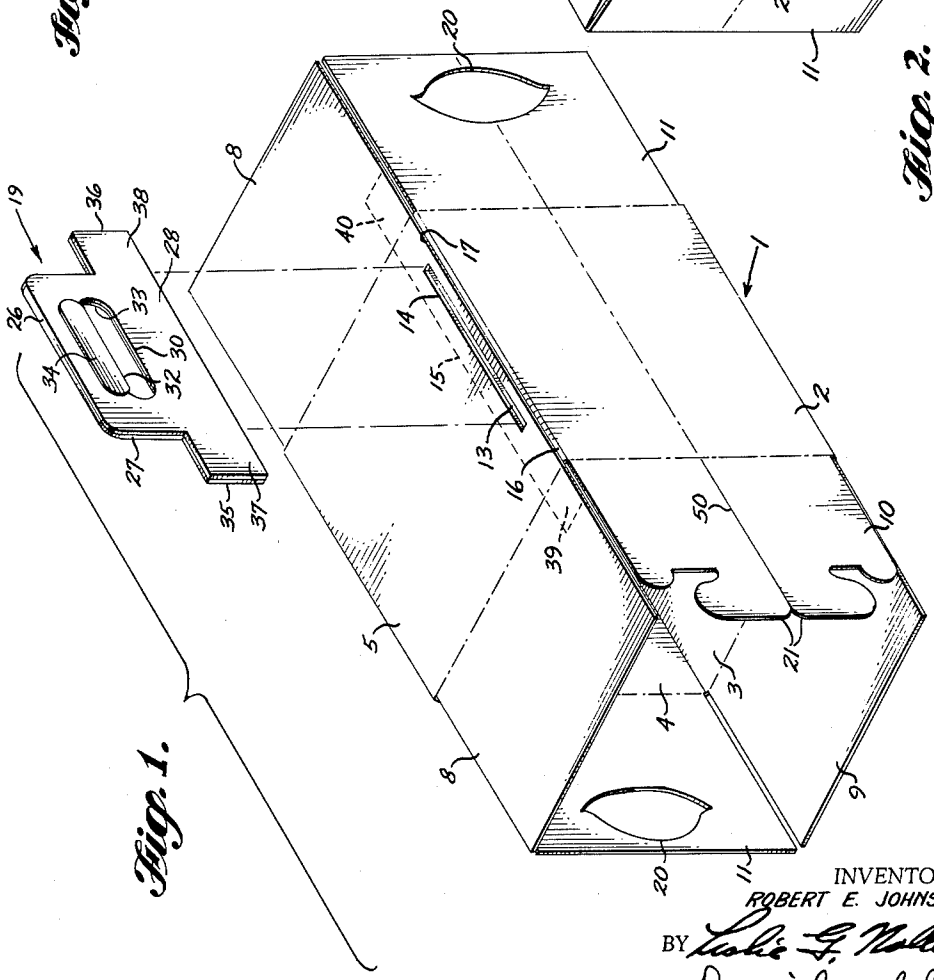


Fig. 1.

INVENTOR.
ROBERT E. JOHNSTON
BY Louis G. Hoffman &
Daniel C. Block
ATTORNEYS

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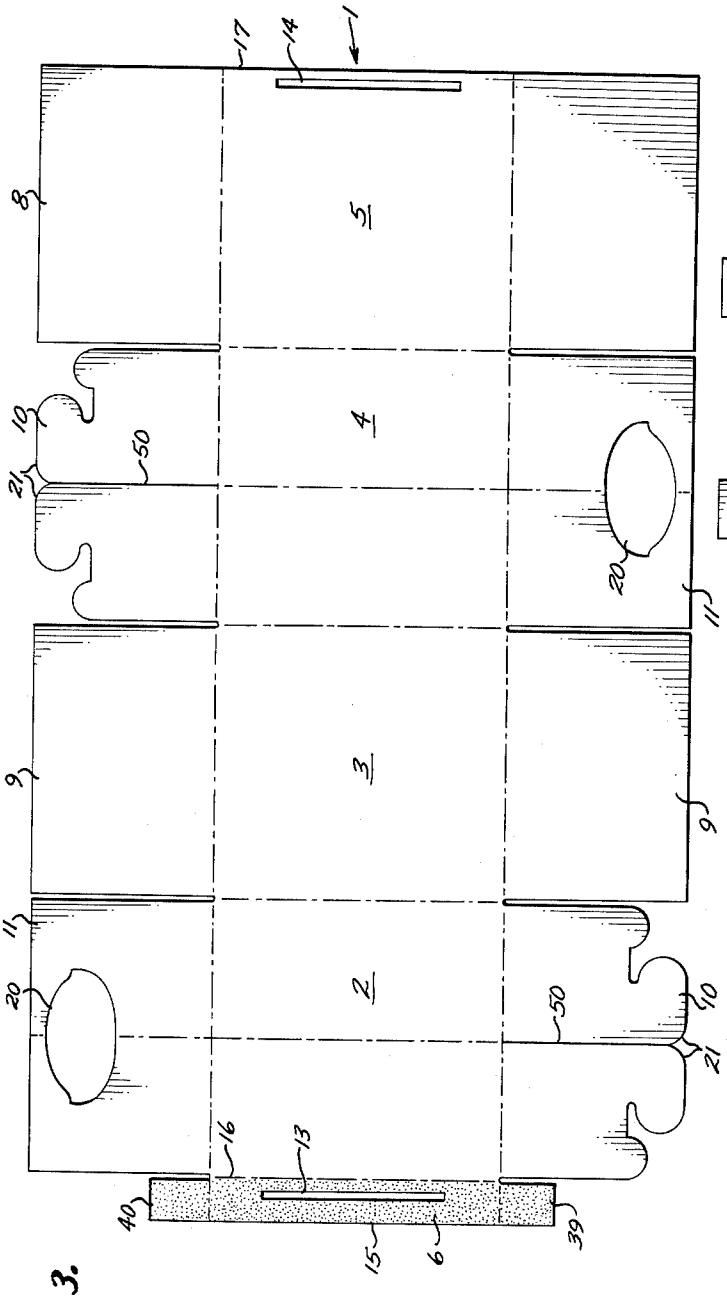


Fig. 3.

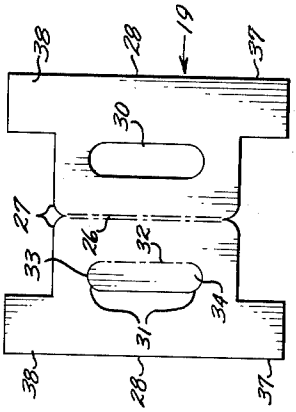


Fig. 4.

INVENTOR.
ROBERT E. JOHNSTON
BY Leslie G. Haller &
Daniel C. Block
ATTORNEYS

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CARTON OR THE LIKE WITH HANDLE

Robert E. Johnston, Chicago, Ill., assignor to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

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3 Claims. (Cl. 229—52)

This invention pertains to cartons and the like and more particularly, it covers a novel carton or the like with carrying handle.

It is a primary object of the invention to provide a carton or the like for containing a heavy load which carton has a lifting and carrying handle and associated structure that are exceptionally strong and shock and abuse proof.

Another object of primary importance is to provide a carton or the like for containing an exceptionally heavy load for its size, as for instance and not by way of limitation a bowling ball, having a lifting and carrying handle and associated structure which are many times stronger than cartons heretofore known for containing such loads and will not tear or fail in any way whatsoever, even under the roughest possible treatment or worst abuse including substantial impact loading or shock of the exceptionally heavy contents of the carton on the carrying handle and associated structure, unlike any such carton presently known.

Another important object of the invention is to provide a carton or the like as indicated in either of the above objects in which an overlapping portion of the sidewall structure conventionally used for the attachment of the latter together during formation of the carton or device is employed with the addition essentially of merely a slot and a handle portion extending therethrough, such extremely simple, inexpensive and practical arrangement yet achieving the exceptional performance above indicated.

Still another important object is to provide a carton or the like as indicated in either of the first two objects having an ordinary glue flap or manufacturer's joint at one corner for securing the sidewall structure together in which the glue flap joint at said one corner is employed as part of the associated carrying structure and through which a handle portion extends from within the carton to the outside thereof.

Yet another object of importance is to provide a carton or the like as indicated above in which the handle portion passes through the overlapping portion or glue flap joint especially close to the corner formed by the glue flap and the adjacent sidewall face in order to utilize the strength of said face and of the corner during the carrying operation.

A further object of considerable significance is to provide a carton or the like as indicated above in which there is no visible strain or deformation of any sort when it is lifted or carried in its loaded condition but rather the carton remains rigid and substantially as it was before lifting.

A still further object of great importance is to provide a carton or the like as indicated above which is supported on the handle portion thereof, when lifted and carried by it, in freely pivotable relation thereto, whereby the carton is free to swing on the handle portion and assume a balanced, centered condition for ease of carrying as the carton is raised from a supporting surface, the off-center position of the handle portion near the corner of the carton providing ample clearance between said portion and load for this adjusting movement of the carton.

Other objects, advantages, and features of the invention will appear upon proceeding with the following illustrative description, read in conjunction with the accompanying drawing, in which:

FIGURE 1 is an isometric exploded view of an open bowling ball carton or box and handle incorporating a preferred form of the invention, the handle being directly above its location in the completed carton;

FIGURE 2 is an isometric view of the closed carton with the handle mounted;

FIGURE 3 is a top plan view of the blank from which the carton is constructed;

FIGURE 4 is a top plan view of the blank from which the handle is made; and

FIGURE 5 is an end elevational view of the carton showing the position of the same and the relation of the handle to the rest of the carton when the carton is being carried by the handle.

Referring to the drawing figures in detail and first to FIGURES 1 and 2 thereof, the bowling ball carton or box therein shown comprises a sidewall generally designated by the numeral **1** consisting of flat, square faces **2**, **3**, **4** and **5** and an overlapping glue flap **6**, the carton also having end flaps **8**, **9**, **10**, and **11** at each end of the sidewall **1**.

The sidewall **1** is formed from a single sheet of cardboard, as seen in FIGURE 3, of suitable strength and thickness, the glue flap portion **6** extending from the face **2** and overlapping, on the underside thereof, the adjacent face **5**. This flap portion is firmly secured throughout its extent to the face **5**, except for the opening therethrough, by glue or other suitable adhesive, or by other means as, for instance, staples. Each of the faces **2**, **3**, **4**, and **5** is at right angles to the faces adjacent thereto, thus forming a cubical carton or box when closed, as seen in FIGURE 2.

The overlapping portion **6** and the face **5** each has an aperture **13** and **14**, respectively, therethrough being in the form of a long, narrow slot centrally disposed between the ends of the carton and extending parallel to the transverse terminal edge **15** of the overlapping portion and to the transverse sides **16** and **17** of the faces **2** and **5**, respectively. The two slots are of exactly the same dimensions and are in full registry with each other, in effect forming a single aperture or slot **13**, **14** through the double thickness of the sidewall at this location. As can be observed more clearly by looking at the overlap portion **6** in FIGURE 3, and also face **5** therein, the slot **13**, **14** is substantially closer to the sides **16** and **17** of the faces **2** and **5** than to the terminal edge **15** of the overlapping portion **6**. This arrangement of having the slot **13**, **14** very close to and parallel to the corner of the carton defined by edges **16** and **17**, and extending through the double thickness of material provided by the contiguous members **5** and **6** at the manufacturer's joint adjacent this corner provides great and substantially inflexible or non-distorting support of the carton, on the handle structure **19**, to be covered later, when the carton and its contents are raised and carried by the handle.

Referring to the end flaps, which are identical at both ends of the carton, the flaps **11** are each provided with an aperture **20** while the flaps **10** are each provided with projecting portions **21** for interlocking engagement within the apertures **20** when the end flaps are closed as seen in FIGURE 2. The flaps at each end of the carton are closed after the bowling ball has been placed and snugly received within the carton by folding or bending the flaps **8** and **9** into overlapping relation with each other to form inner walls at the ends, and then folding or bending and interlocking the outer flaps **10** and **11** with each other.

The handle **19**, as can be seen from FIGURE 4 as well as from the other figures, consists of two halves cut from a single piece of cardboard stock of suitable strength and

rigidity and joined along their upper limits at 26 and along which the two halves are folded on themselves from the blank seen in FIGURE 4 to form a double thickness handle of considerable total strength.

Each half of the handle 19 further consists of an upper portion 27 projecting or extending outwardly from the carton or box, at least during use, and a lower portion 28 which is within the carton at all times when the handle is mounted in the carton. One of the upper portions 27 contains an aperture or opening therethrough in the form of a transversely centrally positioned slot 30 as can best be seen in FIGURE 4. The other of the upper portions 27 is slit along three sides at 31, FIGURE 4, to form a flap 34 which is folded along its fourth and upper side at 32 through the slot 30 of the other upper portion when the handle is in its fully formed condition ready for or in use. The slit 31 and the score 32 in effect produce an aperture or opening of slot form 33 substantially registering with the slot 30 in the other half to produce a combined hand hole opening 30, 33.

The flap 34, of course, provides a smooth rounded upper surface of the combined slot for the hand to comfortably bear against when raising and carrying the carton with its heavy load. The flap 34 also secures or retains the two halves of the handle firmly together in full contact with each other as a fixed unit for ease of handling prior to mounting in the carton as well as for thereafter. This flap 34 is not bent through aperture 30 until the upper parts 27 of the handle have been passed upwardly through the slot 13, 14 of the carton during mounting of the handle in the carton. After being bent through the aperture 30, the flap 34 projects outwardly of the handle and prevents the handle from dropping within the carton and becoming lost or inaccessible should the engagement of the handle with the sides of the slot 13, 14 and at the ends of the handle at 35 and 36 becomes loose or insufficient to retain the handle in its full uppermost position shown in FIGURE 2 or should the handle be pushed inwardly. Also, if desired, the handle may be pushed down within the carton until the outwardly projecting flap 34 engages the top of the face 5 adjacent the slot 14 therein, thus providing a retractable handle and one which will stop short of complete passage through the slot 13, 14 so as not to be lost within the carton and rendered inaccessible for further use.

The lower handle portions 28 have extensions 37 and 38 which extend outwardly of the upper portions 27 and extend outwardly beyond each end of the slot 13, 14, in the mounted condition of the handle. The portions 28 extend substantially the entire inside width or length of the carton and contact the reinforcing end bearing pads or portions 39 and 40 which are secured by a suitable adhesive to the end flaps 8, adjacent the face 5. The bearing pads 39 and 40 extend from each end of the glue flap or overlapping portion 6. The relatively tight engagement or snug fit of the handle extensions 35 and 36 with the end walls of the carton and, more particularly, with the reinforcing bearing portions 39 and 40 together with a snug fit between the handle and the sides and ends of the slot 13, 14 in the carton normally is sufficient to retain the handle in the uppermost position, seen in FIGURE 2. The tightness or snugness of fit, however, is not so great as to prevent relatively easy pushing of the handle downwardly into the retracted position, if this is desired, or of the swinging movement of the handle and of the carton relative to each other, to be described subsequently.

In the uppermost or carrying position of the handle, as seen in FIGURE 2, the handle extensions 37 and 38 extend along the inner surface of the sidewall 1, actually the inner surface of the overlapping portion 6, in alignment with and beyond each end of the slot 13, 14, at 42 and 43, and substantially all the way to the opposite sides or ends of the carton. Therefore, the handle 19 has a continuous bearing engagement with the slot 13, 14, the glue flap 6, and the pads 39 and 40 on the end walls. This engagement with the sidewall at the double thickness manufacturer's joint and adjacent a corner between two faces of the sidewall provides great strength. The additional engagement of the handle 19 with the pads 39 and 40 at the corners 45 and 46 prevents buckling of the sidewalls and provides rigid support for the carton and its contents. This construction insures the retention of the handle within the carton, and prevents tearing and failure of the handle and supporting structure under conditions of abuse, dynamic impact or shock.

The portions 39 and 40, of course, give added support to the handle 19 should the latter and through it the entire carton with contents be turned or inclined slightly or even greatly to one side or the other out of the horizontal thereby creating an end thrust, said portions 39 and 40 acting as end bearings thereto. These pads or portions 39 and 40 further provide smooth surfaces and wear strips against which the ends of the handle can turn or swing relative to the rest of the carton when the latter is raised from a supporting surface and carried by the handle, especially when the carton is tipped slightly or more than slightly out of the horizontal into a thrust relation with one or the other of the end walls.

As has been previously indicated, the handle 19 and the rest of the carton are free to pivot or swing relative to each other when the carton is raised and carried by the handle. This pivoting, of course, takes place between the upper edges of the laterally extending portions 37 and 38 of the handle and the under surface of the overlapping portion 6 of the carton at 42 and 43 and by virtue of a certain compaction or deformation of each side of the slot 13, 14 of the carton sufficient to allow such swinging. This swinging motion between the handle and the rest of the carton is of the greatest significance since the handle is mounted at one extreme side of the carton adjacent one edge thereof. This extreme side mounting of the handle, conveniently and most importantly through the corner connection joint of the sidewall 1 as it is, creates a condition of great unbalance which, if it were not for the swingable connection, would with great force twist the flat handle abruptly in one's hand or cause a person's hand to substantially and abruptly twist if he is gripping the handle rather tightly. Such a condition would be most uncomfortable to the person carrying the carton in either case and quite unsatisfactory. By virtue of the swingable mounting of the handle on the carton, however, the latter automatically swings or shifts on the handle as it is being raised and carried so as to automatically adjust itself and the exceptionally heavy load thereof into a condition of perfect balance on the transversely extending portions 35 and 36 of the handle. FIGURE 5 shows the position of the carton and the handle thereof while being carried by the latter, the bowling ball 48 also being shown therewithin in dotted lines.

This swingable mounting of the handle and automatic adjustment of the carton and load to a perfectly balanced position on the handle, therefore, allows the carton to be carried most easily and comfortably with no feeling of discomfort on the part of the person lifting and carrying the carton whatsoever.

To complete the description, FIGURE 3, as previously indicated, shows the blank from which the carton body is formed. Referring briefly to this figure, the sidewall portion 1 is shown comprising sidewall face portions 2, 3, 4 and 5 and the overlapping glue flap portion 6 with its side extensions 39 and 40. The slots 13 and 14 are also shown in the portion 6 and face 5. End flap portions 8, 9, 10 and 11 are shown on each side extending from the respective sidewall faces to which they are joined. Besides the formations previously noted in connection with the end flaps, flap portions 10 and the flaps themselves are additionally cut or severed along the center lines thereof at 50 to produce two-part or divided tabs to facilitate insertion of the same within and removal from the locking

openings 20 of the flaps 11 to in turn facilitate closing and opening of the carton.

The blank shown in FIGURE 4 from which the handle is produced has already been mentioned and it is not believed necessary to dwell on it further, the various parts thereof forming the parts of the handle itself being clearly indicated and agreeing in the numeral designation.

The use of the word "overlapping" in the appended claims in connection with a portion such as 6 of the carton shown in the drawing and just described or in any other connection is intended to cover a portion extending either over or under, that is, either on the outer or inner side of another portion of a carton, container or the like. Use of the word "overlapping" is also intended in the same broad sense of including underlapped.

It should, of course, be appreciated and understood that the drawing and detailed description are illustrative of the invention only inasmuch as variations of details and other forms of the invention in its various aspects and of its application to cartons or the like including other containing and carrying means may be had and are contemplated. Accordingly, it is desired and intended that the invention be limited only by the terms of the appended claims construed in the overall broad spirit thereof in its various aspects and applications.

What is claimed is:

I claim:

1. A carton for carrying heavy loads, comprising: a wall including a plurality of faces and end closure flaps closing the ends of said carton; one of said faces provided with a glue flap hingedly connected thereto and extending the entire length of said face and secured to an adjacent face; reinforcing pads secured to the end flaps adjacent said glue flaps at each end thereof; said adjacent face and glue flap having an elongated aperture extending therethrough; said aperture through said glue flap positioned a distance closer to said hinge connection than the outer end thereof; said aperture in said glue flap and adjacent face being coextensive; a double thickness carrying handle for said carton; said handle having a first portion extending through said aperture in said glue flap and adjacent face and being the same width as said aperture and a second portion abutting the glue flap and reinforcing pads on said end flaps and being the same width as said wall; said handle being provided with hand holes in said first portion whereby said second portion of said handle supports said carton and inadvertent buckling of said carton is prevented by the abutment of said second portion of said handle with the reinforcing pads secured to said end flaps.

2. A carton for carrying heavy loads, comprising: a wall including a plurality of faces and end closure flaps closing the ends of said carton; one of said faces provided with a glue flap hingedly connected thereto and extending the entire length of said face and secured to an adjacent face; said glue flap provided with an extension at each end thereof secured to the adjacent end flaps; said adjacent face and glue flap having an elongated aperture extending therethrough; said aperture through said glue flap positioned a distance closer to said hinge connection than the outer end thereof; said aperture in said glue flap and adjacent face being coextensive; a double thickness carrying handle for said carton; said handle having a first portion extending through said aperture in said glue flap and said adjacent face and being the same width as said apertures and a second portion abutting the glue flap and extensions thereof and being the same width as said wall; said handle being provided with hand holes in said first portion whereby said second portion of said handle supports said carton and inadvertent buckling of said carton is prevented by the abutment of said second portion of said handle with the extensions on the glue flap.

3. The carton as set forth in claim 2 wherein one of the thicknesses of said handle is provided with a flap hingedly connected thereto adjacent to the hand hole therein and extending through the hand hole through the other thickness of said handle whereby said flap will abut said wall to prevent inadvertent extension of said handle into the interior of said carton.

References Cited by the Examiner

UNITED STATES PATENTS

152,636	6/74	Heyl	229—39
267,698	11/82	Ludlow	229—39
696,468	4/02	McFadden	229—16
1,084,216	1/14	Lyons et al.	206—7
1,524,399	1/25	Krueger	229—52
2,344,009	3/44	Trogman	229—52
2,553,803	5/51	Zinn	229—37
2,609,137	9/52	Toensmeier	220—105
2,645,407	7/53	Bergstein	229—52
2,769,589	11/56	Moore	229—37
3,034,682	5/62	Carran	220—105
3,123,204	3/64	Baker et al.	150—52
3,146,937	9/64	Vesak	229—52

FOREIGN PATENTS

1,061,436	11/53	France.
407,566	3/34	Great Britain.
111,753	9/44	Sweden.

GEORGE O. RALSTON, *Primary Examiner.*

FRANKLIN B. GARRETT, *Examiner.*