

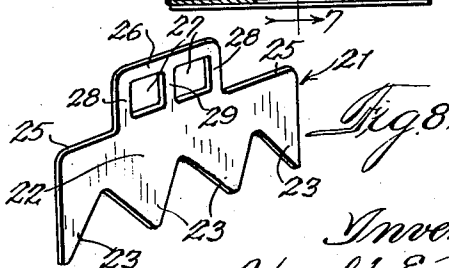
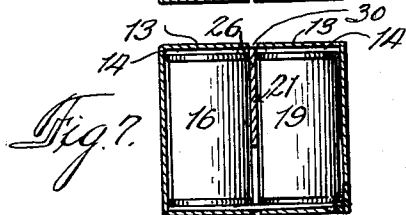
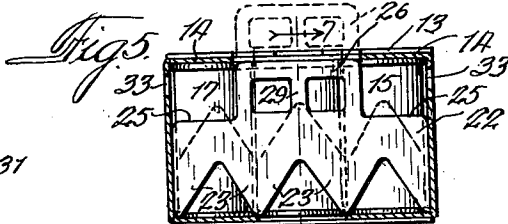
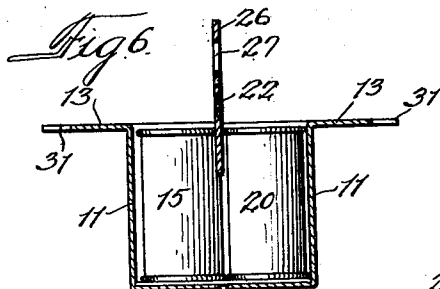
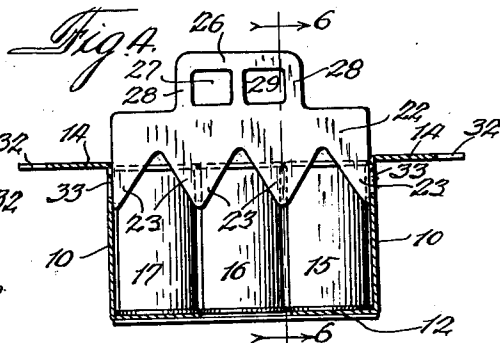
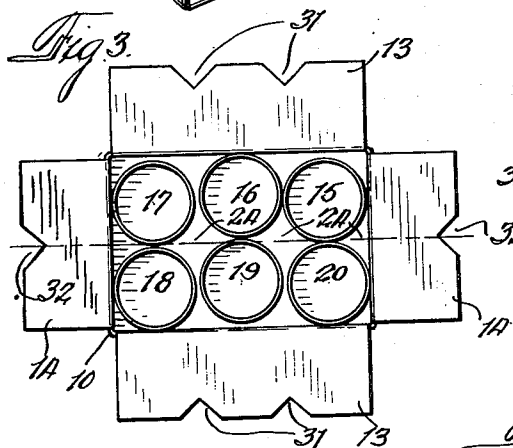
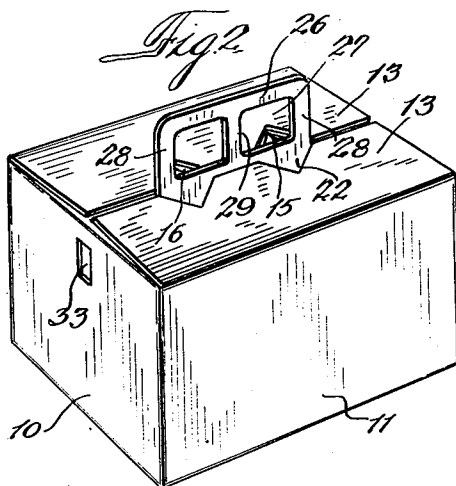
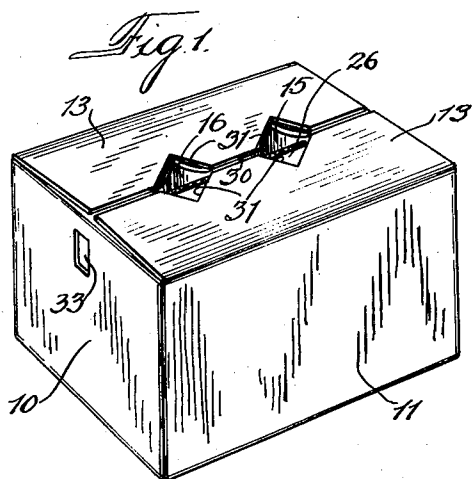
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H. E. RUE

2,284,989

CARTON CONSTRUCTION

Filed Nov. 8, 1940



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UNITED STATES PATENT OFFICE

2,284,989

CARTON CONSTRUCTION

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14 Claims. (Cl. 229—52)

My invention relates to carrying cartons, more particularly to cartons of the type having a separately formed handle member adapted to be inserted into the carton during the filling and sealing operation, and my invention has for an object the provision of improved carton constructions of this character.

Carrying cartons have heretofore been provided with shiftable handle members which nest between the packages or articles in the carton and include a gripping portion projectable through a slot in the carton cover for carrying purposes. In cartons heretofore known, the handle member constitutes one of the partitions or dividers usually provided in cartons for carrying bottles or the like. My invention relates particularly to cartons for carrying packages or articles of the type wherein no partitions or dividers are necessary, such packages being, for example, beer cans or the like. Packages or articles of this type are characterized by substantially vertical side walls which meet the package tops in abrupt peripheral edges and are usually of a generally cylindrical shape.

The packing and sealing operations by means of which beer cans or similar packages are deposited in cartons and the cartons closed and sealed, are usually carried out at a high rate of speed by automatic or semiautomatic machinery in which the cartons are carried on high speed traveling conveyors, and it has been found that difficulties are encountered in inserting suitable handle members between the beer cans during the packaging and sealing operation.

Beer cans or similar packages upon being deposited in a carton of course do not arrange themselves in uniform rows, and an attempt to properly align and spread the cans by hand so as to permit insertion of a handle member between adjacent rows of cans is too time consuming to be practicable. Furthermore, handle members of the type to which my invention relates are usually provided with a handhole or a gripping portion which normally nests between the upper portions of the cans and is slidable through the carton cover to a projected position for carrying or lifting purposes. Packages such as beer cans having substantially vertical side walls meeting the can tops in abrupt peripheral edges have a tendency to interfere with proper sliding movement of such handle members due to the fact that the cans may tilt slightly and cause the peripheral top edges to extend into the handhole slot so as to prevent movement of the handle member to its lowermost

position, either when the handle member is initially inserted into the carton before the carton is closed or when the handle member is subsequently shifted between its projected and its retracted positions. Accordingly, it is a further object of my invention to provide an improved carton construction including a handle member which is readily insertable into a carton containing beer cans or similar packages, and which automatically aligns the cans and maintains the cans in such alignment as to prevent the peripheral top edges of the cans from interfering with desired movements of the handle member.

In carrying out my invention in one form, I provide a sheet-like handle member formed from any suitable material such as fiber board, cardboard, or the like, and comprising a body portion nestable between adjacent rows of beer cans within the carton. The body portion has its lower edge formed to provide tapered teeth or projections adapted when the handle member is initially inserted into the carton to enter the spaces between the beer cans and engage the peripheral top edges thereof as the handle member moves downwardly into the carton so as to move the cans out of obstructing positions and into alignment, whereby the body portion may readily pass into nesting relation with the cans. The handle member also includes a gripping portion having a handhole slot therein, and in order to prevent the cans from tilting so that the peripheral top edges of the cans project into the handhole and prevent proper movement of the handle member, I provide a bridging portion extending across the handhole for guiding the gripping portion of the handle member into the space between the cans and maintaining the adjacent cans in proper alignment during movement of the handle member. To facilitate withdrawal of the handle member to its projected position, the carton cover is provided with finger holes positioned directly above the spaces between the beer cans so that the gripping portion of the handle member may readily be grasped and withdrawn.

For a more complete understanding of my invention, reference should now be had to the drawing in which:

Fig. 1 is a perspective view of a carrying carton embodying my invention with the handle member occupying its retracted position so as not to interfere with stacking of the cartons during storage or transportation;

Fig. 2 is a similar perspective view showing the carton of Fig. 1 with the handle member in its

projecting position so that the gripping portion of the handle may readily be grasped for carrying purposes;

Fig. 3 is a top plan view of the carton shown in Figs. 1 and 2 before the cover of the carton has been closed and before the handle member has been inserted into the carton;

Fig. 4 is a sectional elevational view of the carton shown in Fig. 3 with my improved handle member shown partially inserted between adjacent rows of beer cans;

Fig. 5 is a sectional elevational view showing the carton of Figs. 1, 2, and 3 with the handle member in its retracted position and with the cover of the carton closed;

Fig. 6 is a sectional view taken along the line 6-6 of Fig. 4;

Fig. 7 is a sectional view taken along the line 7-7 of Fig. 5; and

Fig. 8 is a detail perspective view of the improved handle member shown associated with the carton in Figs. 1, 2, and 4 to 7, inclusive.

Referring now to the drawing, I have shown my invention as applied to a carrying carton of the type adapted to contain and carry six beverage-containing cans which are shown as cylindrical beer cans of the flat topped type, but it will of course be understood that the invention is applicable to cartons of different size for carrying different numbers of other types of packages or cans. The carton as shown comprises end walls 10, side walls 11, and a bottom wall 12, the bottom wall being formed in the usual manner from a plurality of flaps which are folded inwardly from the side and end walls respectively. As shown best in Fig. 3, each of the side walls 11 is provided with a flap 13, and the end walls 10 are provided with flaps 14, which flaps are adapted, when folded inwardly and sealed, to form a cover for the carton. It will of course be understood that the carton may be formed from any suitable material such as cardboard, fiber board, or the like.

In Fig. 3, the carton is shown as containing six beer cans 15 to 20, inclusive, arranged in two rows with three cans in each row. The width of the carton is slightly greater than the total width of two cans so as to facilitate packing of the cans in the carton and so as to provide space for receiving the sheet-like handle member nested between the two longitudinal rows of cans. When the cans are deposited in the carton they of course do not assume accurately aligned positions but may be slightly staggered with respect to each other as shown in Fig. 3, the cans 16 and 19 being offset in one direction and the remaining cans being offset from their proper positions in the opposite direction. It will of course be clear that any attempt to insert a sheet-like member having a straight lower edge between the two rows of cans shown in Fig. 3 would be interfered with by the cans, and it would be necessary to individually move the cans into the proper position before such a member could be inserted.

In order to obviate this difficulty, I provide an improved handle member 21 which is constructed as shown best in Fig. 8 and comprises a sheet-like body portion 22, the lower edge of which is formed to provide a plurality of tapered projections or substantially triangular teeth 23. Because of the fact that the beer cans 15 to 20, inclusive, are substantially cylindrical in form, a plurality of spaces 24 are provided within the carton between the cans or packages,

which spaces may be termed interpackage spaces and which spaces exist even though the cans are in contact with each other. The tapered projections or teeth 23 on my improved handle member are so arranged that when the handle member 21 is initially inserted into the carton containing the cans 15 to 20, inclusive, the projections or teeth 23 initially enter these interpackage spaces 24 regardless of whether the cans are in proper alignment or not, and as the handle member 21 is pushed downwardly the tapering edges of the projections 23 engage the peripheral top edges of the cans and move the cans into alignment and out of the path of the body portion 22 so that the handle member moves into nesting relation with the cans without obstruction by the peripheral top edges of the cans. In Figs. 4 and 6 the handle member is shown inserted to a position in which the tapered edges of the projections 23 have just engaged the peripheral top edges of the cans, and in Figs. 5 and 7 the handle member 21 is shown in its lowermost or retracted position nested entirely within the carton and between adjacent rows of cans. After the handle member has reached this position the carton may be closed and sealed by folding the flaps 13 and 14 inwardly to the position shown in Figs. 5 and 7, with the flaps 13 overlying the flaps 14 to form the carton cover.

In order to provide for lifting or carrying of the carton the body portion 22 of the handle member 21 is provided at its upper edge with shoulder portions 25 and with a gripping portion which is in the shape of an inverted U, having a yoke portion 26 spaced from the body portion to provide a handhole slot 27 and connected to the body portion at its opposite ends by legs 28. It will be apparent that since the cans 16 and 19 are free to tilt within the carton, the upper peripheral edges of these cans may interfere with downward movement of the handle member 21 by engaging the lower edge of the yoke 26 of the gripping portion. In order to prevent such interference with downward movement of the handle member and to insure that the cans are maintained in proper alignment, the gripping portion of the handle member 21 is provided with a bridging member 29 which extends across the handle slot 27 at substantially the point where the cans 16 and 19 would tend to engage the yoke 26 which forms the upper edge of the hand-hole slot. During both upward and downward movement of the handle member 21 this bridging portion 29 prevents the cans 16 and 19 from entering the handhole slot 27 so as to interfere with such movement.

After the handle member has been inserted into the carton and the cover of the carton closed and sealed, it will be apparent that the handle member is loosely nested between adjacent rows of cans and is entirely confined within the carton. Accordingly, the handle member does not interfere with stacking of the cartons during storage and transportation. In order that the handle member may be used for carrying purposes, the cover of the carton is so arranged that the handle member may be drawn upwardly to the position shown in Fig. 2 and indicated in broken lines in Fig. 5, in which position the gripping portion 26 projects through the cover member so that the portion 26 may be readily grasped, and the shoulder portions 25 engage the undersurface of the carton cover in load transferring relation.

To facilitate withdrawal of the handle member 21 to the position shown in Fig. 2, the side flaps 13 are preferably arranged so that when folded inwardly and sealed a small gap or slot 30 is provided between the inner edges thereof as shown best in Fig. 7. Likewise, in order to facilitate withdrawal of the handle member the side flaps 13 are provided with suitable notches 31, and each of the end flaps 14 is provided with a similar notch 32. These notches are so arranged that when the flaps 13 and 14 are folded inwardly the notches co-operate to form a pair of finger holes, as shown best in Figs. 1 and 2, through which the gripping portion of the handle member 21 may be grasped whenever it is desired to shift the handle member to the withdrawn or projected position shown in Fig. 2 and indicated in broken lines in Fig. 5. When the carton is used to carry flat topped cans such as the cans 15 to 20, inclusive, herein illustrated, it is of course desirable that the finger holes formed by the notches 31 and 32 come directly over certain of the interpackage spaces 24 so that the cans will not interfere with ready grasping of the handle member for withdrawal to its projected position, and accordingly the notches 31 and 32 are so arranged in the flaps 13 and 14 as to form finger holes which are directly over two of the interpackage spaces 24.

It will now be apparent that I have provided a carton construction of the type having a shiftable handle member and adapted to carry packages of the type having substantially vertical side walls meeting the package tops in peripheral edges, wherein the handle member may be readily inserted into the carton during the packing and sealing operation without prealignment of the cans and without obstruction of the handle movement by the cans, the handle member also being constructed so as to prevent interference of the cans with subsequent movement of the handle between its projected and retracted positions.

When the carton is used for beer cans or similar beverage containing packages that should be cooled before usage or should be maintained at some desired low temperature, it may be desirable to provide the end walls of the carton with suitable ventilating apertures 33 as shown best in Figs. 1 and 2.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications may be made, and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A handle member adapted to be restrained in lifting relation to a carton upon closure and sealing thereof and adapted to be readily inserted into a carton containing a plurality of individual packages shaped to provide interpackage spaces when in contact with each other and having substantially vertical walls meeting the package tops in peripheral edges, said handle member including a sheet-like body portion nestable between adjacent rows of said packages in said carton, said body portion having its lower edge formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of the packages to move the packages out of the path of said

body portion as the handle member is inserted into the carton.

2. A handle member adapted to be restrained in lifting relation to a carton upon closure and sealing thereof and adapted to be readily inserted into a carton containing a plurality of individual packages shaped to provide interpackage spaces when in contact with each other and having substantially vertical walls meeting the package tops in peripheral edges, said handle member including a sheet-like body portion nestable between adjacent rows of said packages in said carton, said body portion having tapered cam means projecting from the lower edge thereof, said cam means being spaced apart sufficiently to cause adjacent cam means to enter corresponding adjacent interpackage spaces as said handle member is inserted into said carton, said cam means engaging the peripheral top edges of said packages to move the packages out of the path of said body portion.

3. A handle member adapted to be restrained in lifting relation to a carton upon closure and sealing thereof and adapted to be readily inserted into a carton containing a plurality of individual packages shaped to provide interpackage spaces when in contact with each other and having substantially vertical walls meeting the package tops in peripheral edges, said handle member including a sheet-like body portion nestable between adjacent rows of said packages in said carton, said body portion having spaced projecting means on the lower edge thereof, adjacent projecting means being sufficiently spaced to enter corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages defining said interpackage spaces to move said packages into aligned rows and provide a continuous space therebetween in which said body portion nests upon insertion of said handle member into said carton.

4. A handle member adapted to be restrained in lifting relation to a carton upon closure and sealing thereof and adapted to be readily inserted into a carton containing a plurality of individual packages shaped to provide interpackage spaces when in contact with each other and having substantially vertical walls meeting the package tops in peripheral edges, said handle member comprising a sheet-like body portion nestable between adjacent rows of said packages and having shoulder portions on its upper edge engageable with the cover of said carton for transferring lifting forces to said carton, said body portion having a gripping portion extending from said upper edge between said shoulder portions adapted to project through the cover of said carton for lifting the carton, said body portion having its lower edge formed to provide spaced tapered projections, adjacent projections being spaced to enter corresponding adjacent interpackage spaces as said handle member is inserted into the carton and engage the peripheral top edges of said packages to move said packages out of the path of said body portion.

5. A handle member adapted to be restrained in lifting relation to a carton upon closure and sealing thereof and adapted to be readily inserted into a carton containing a plurality of individual packages shaped to provide interpackage spaces when in contact with each other and having substantially vertical walls meeting the package tops in peripheral edges, said handle member being movable between projected and retracted positions and including a sheet-like

body portion nestable between adjacent rows of said packages, said handle member including also a gripping portion extending from one edge of said body portion adapted to project through the cover of said carton when said handle member is in projected position and to be confined within said carton when said handle member is in retracted position, said body portion having its lower edge formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages as said handle member is inserted into said carton to move the packages out of the path of said body portion, said gripping portion having a handhole therein and a bridging portion for guiding said gripping portion to a nesting position between said packages and preventing said peripheral top edges of said packages from engaging the upper edge of said handhole as said handle member is moved to retracted position.

6. A shiftable handle member for a carton containing a plurality of individual packages having substantially vertical walls meeting the package tops in peripheral edges, said handle member being sheet-like in form and nestable between adjacent rows of said packages for movement between a projected position and a retracted position, said handle member including a body portion having a gripping portion of inverted U-shape extending from its upper edge to provide a handhole between the upper edge of said body portion and the yoke of said U, said U-shaped gripping portion extending through the cover of the carton when said handle member is in projected position and being within the confines of said carton between said adjacent rows of said packages when said handle member is in retracted position, and a bridging member extending across said handhole between said yoke and said body portion to prevent the peripheral top edges of said packages in said adjacent rows from engaging the lower edge of said yoke when said handle member is moved from projected to retracted position.

7. A shiftable handle member for a carton containing a plurality of individual packages having substantially vertical walls meeting the package tops in peripheral edges, said handle member being sheet-like in form and nestable between adjacent rows of said packages for movement between a projected position and a retracted position, said handle member including a body portion adapted to be disposed within said carton and a gripping portion adapted to extend through the cover of said carton when the handle member is in projected position and to be confined within said carton between said rows of packages when the handle member is in retracted position, said gripping portion having a handhole therein and a bridging portion for guiding said gripping portion to said nesting position between said rows of packages and insuring that the peripheral top edges of said packages do not engage the upper edge of said handhole when said handle member is moved to retracted position.

8. As an article of manufacture, a handle member comprising a sheet-like body portion having load engaging shoulder portions on its upper edge and a gripping portion extending from the upper edge of said body portion between said shoulders, said body portion having its lower edge formed to provide a plurality of spaced projections tapering throughout the entire length

thereof and extending in the plane of the body portion.

9. As an article of manufacture, a handle member comprising a sheet-like body portion having load engaging shoulder portions on its upper edge and a gripping portion extending in the plane of said body portion between said shoulders, said gripping portion having a handhole therein and a bridging portion extending across said handhole, said body portion having its lower edge shaped to provide a row of substantially triangular teeth in the plane of the body portion.

10. A carrying carton for a plurality of individual flat topped packages having vertical side walls of substantially the height of said carton and being shaped to provide interpackage spaces when positioned in said carton in contact with each other, said carton having bottom, side and end walls and having flaps on the upper edges of said side and end walls foldable inwardly to form a cover, a handle member adapted to be inserted between adjacent rows of said packages after said packages have been deposited in said carton and before closure of said cover, said handle member including a sheet-like body portion the lower edge of which is formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages to move said packages out of the path of said body portion as said handle member is inserted into said carton, said cover upon closure thereof permitting a portion of said handle member to project therethrough for lifting purposes, said handle member having shoulder portions for engaging the underside of the carton cover in load transmitting relation.

11. A carrying carton for a plurality of individual flat topped packages having vertical side walls of substantially the height of said carton and being shaped to provide interpackage spaces when positioned in said carton in contact with each other, said carton having bottom, side and end walls and having flaps on the upper edges of said side and end walls foldable inwardly to form a cover, a handle member adapted to be inserted between adjacent rows of said packages after said packages have been deposited in said carton and before closure of said cover, said handle member including a sheet-like body portion the lower edge of which is formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages to move said packages out of the path of said body portion as said handle member is inserted into said carton, said handle member including an extending gripping portion forming a handhole and being shiftable between a position wherein said handle member is wholly confined within said carton and a projecting position wherein said gripping portion extends through the cover of said carton for lifting purposes, said side and end flaps having notches co-operating when folded inwardly and sealed to form finger openings directly above certain of said interpackage spaces for withdrawing the handle member to said projecting position.

12. A carrying carton for a plurality of individual flat topped packages having vertical side walls of substantially the height of said carton and being shaped to provide interpackage

spaces when positioned in said carton in contact with each other, said carton having bottom, side and end walls and having flaps on the upper edges of said side and end walls foldable inwardly to form a cover, a handle member adapted to be inserted between adjacent rows of said packages after said packages have been deposited in said carton and before closure of said cover, said handle member including a sheet-like body portion the lower edge of which is formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages to move said packages out of the path of said body portion as said handle member is inserted into said carton, said side and end flaps having notches co-operating to form finger openings in the carton cover directly above certain of said interpackage spaces when said flaps are folded inwardly, said handle member including a gripping portion normally nested between the packages forming said interpackage spaces, said handle member being shiftable to a position in which said gripping portion extends through said cover for lifting purposes, said finger openings permitting grasping of said handle member for shifting the same, said gripping portion having a handhole therein and a bridging portion extending vertically across said handhole for guiding said gripping portion between said packages upon initial insertion of said handle member and upon subsequent shifting movements thereof.

13. A carrying carton for a plurality of individual packages, said packages having substantially vertical side walls meeting the package tops in peripheral edges and shaped to provide interpackage spaces when positioned in said carton in contact with each other, a cover for closing said carton, a handle member adapted to be inserted between adjacent rows of said packages after said packages have been deposited in said carton and before closure of said cover, said handle member including a sheet-like body portion the lower edge of which is formed to provide

spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages to move said packages out of the path of said body portion as said handle member is inserted into said carton, said cover upon closure thereof permitting a portion of said handle member to project therethrough for lifting purposes, said handle member having shoulder portions for engaging the underside of the carton cover in load transmitting relation.

14. A carrying carton for a plurality of individual packages, said packages having substantially vertical side walls meeting the package tops in peripheral edges and shaped to provide interpackage spaces when positioned in said carton in contact with each other, a cover for closing said carton, a handle member adapted to be inserted between adjacent rows of said packages after the deposit thereof in said carton and before closure of said cover, said handle member including sheet-like body portion the lower edge of which is formed to provide spaced tapered projections, adjacent projections being insertable in corresponding adjacent interpackage spaces for engaging the peripheral top edges of said packages to move the packages out of the path of said body portion as said handle is inserted into said carton, said cover having finger openings therein positioned above certain of said interpackage spaces when said cover is closed, said handle member including a gripping portion normally nested between the packages, and being shiftable to a position in which said gripping portion extends through said cover for lifting purposes, said finger openings permitting grasping of said handle member for shifting the same, and said gripping portion having a hand hole therein and a bridging portion extending vertically across said hand hole for guiding said gripping portion between said packages upon initial insertion of said handle member and upon subsequent shifting movements thereof.

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