

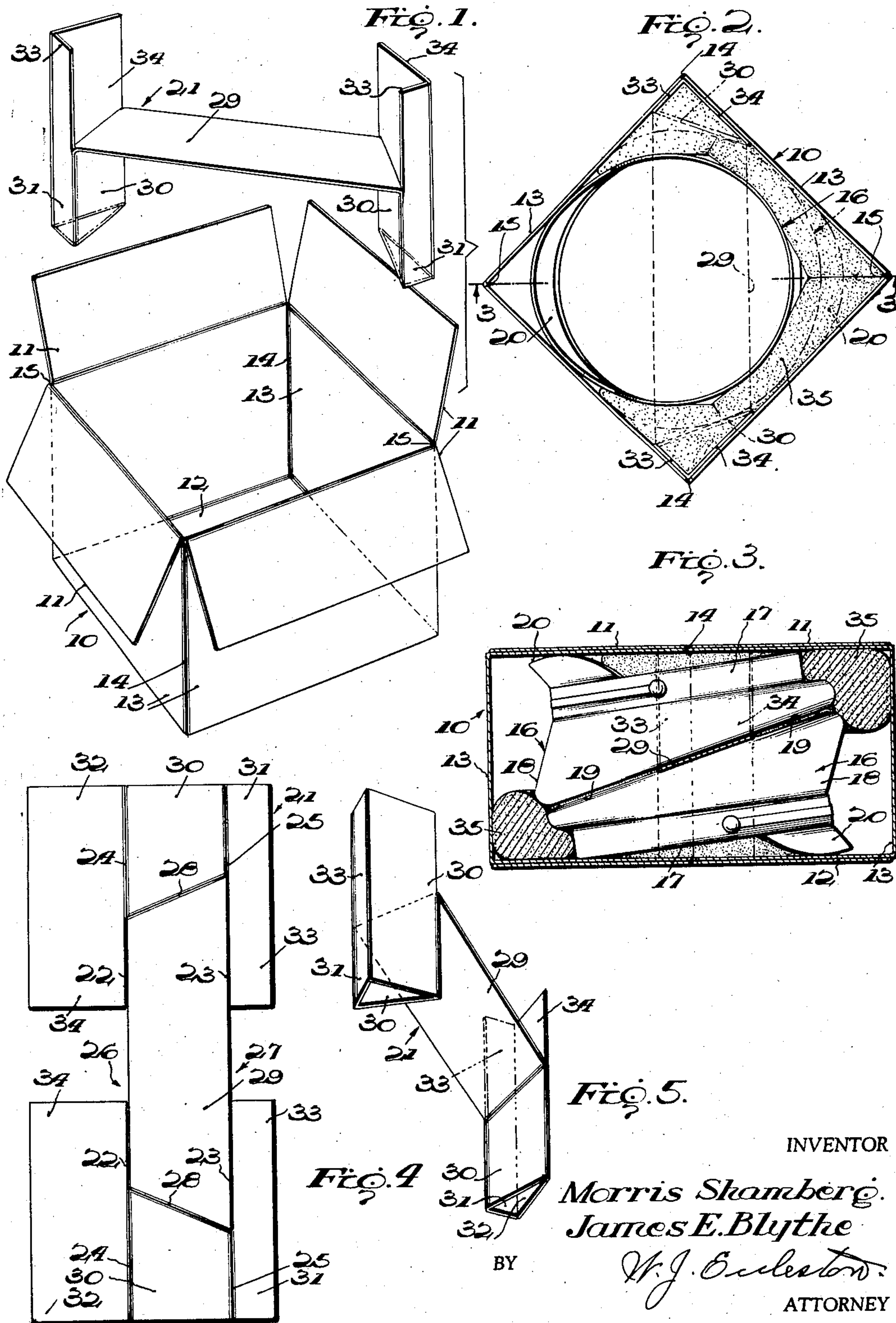
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PACKAGING INSERT FOR PACKING BOX

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PACKAGING INSERT FOR PACKING BOX

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The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

The invention relates to packaging and more specifically to means for packaging two or more articles in a single box so as to prevent movement of the same relative to each other and to the box together with the package resulting from the use of such means.

In the past, many articles of commerce have traditionally been packed one to a box instead of two or more to a box because the expense of supplying means for securing them against relative movement was greater than the expense of the additional boxes and shipping space involved. At the same time, numerous unsuccessful efforts have been made to provide cheap and efficient means for packaging two or more articles in a single container. Obviously, where two or more articles can be safely packaged in a single box which is only slightly larger than a container for a single such article, the saving in container material and shipping or storage space or both is tremendous.

With the foregoing in view, it is an object of the invention to provide improved means for securing two or more articles in a single container against movement relative to the latter and each other, together with an improved package utilizing such means.

A further object is to provide in combination with a box or the like and two or more articles contained therein of improved means for securing said articles against relative movement.

A further object is to provide in such a combination, improved means providing a wedge action for wedgingly securing said articles in fixed relation in a container, box or the like.

A further object is to provide a novel packaging insert of the class described which is formed from a single blank of relatively low priced material; which is capable of being mass produced at low cost; which may be shipped or stored as a flat blank but which is readily set up in its operative form and applied to the package and articles to be packed therein without requiring special tools, skills or trained personnel; yet which will be strong and sturdy in use and which will efficiently retain the articles in fixed position despite the strains inherent in rough handling of the package.

Other objects and advantages reside in the particular structure of the device, the structure of the several parts of the same, combinations and subcombinations of such parts with each other, with a container or the like and/or with the articles secured thereby, all of which will be readily apparent to those skilled in the art upon reference to the attached drawing wherein one embodiment of the invention is disclosed and to the following specification wherein the invention is described and claimed.

In the drawing:

Figure 1 is an exploded perspective view of a standard packing box and an insert according to the invention;

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Figure 2 is a plan view of the assembly of box, insert and packed articles, the cover flaps of the box being omitted;

Figure 3 is a vertical sectional view taken substantially on the plane of the line 3—3 of Figure 2 the cover flaps being shown in the closed positions;

Figure 4 is a plan view on an enlarged scale of a scored and slotted blank for forming the insert; and

Figure 5 is a perspective view on a smaller scale of a set-up insert according to the invention.

Referring specifically to the drawing wherein like reference characters designate like parts in all views, 10 designates generally a suitable container such as the fiber-board box illustrated which comprises a top wall which is formed in the usual manner from a plurality of flaps 11, a similarly formed floor 12 and a plurality of side walls 13 which intersect to provide at least two pairs of opposed corners 14, 14 and 15, 15. In the embodiment illustrated the box 10 is rectangular, so has four side walls 13 and but two pairs of opposed corners. However, it is obvious that the box may be of any well known shape with any number of side walls and corners.

The container or box 10 is adapted to have packed therein, at least two articles 16 each of which includes a base 17, an upright front end 18 and a downwardly and rearwardly inclined top surface 19 so that the article is generally triangular or wedge-shaped in profile. In the embodiment illustrated, the article 16 comprises a military type of cap wherein the base comprises the cap frame, the front 18 includes a visor 20 and the downwardly sloping top surface 19 comprises the crown of the cap. Obviously, other articles or objects having a generally triangular profile, such as shoes might be substituted.

The insert according to the invention is generally indicated by 21 and preferably is formed from a single blank of sheet material, Figure 4, which is generally rectangular and formed with spaced and parallel pairs of aligned slots 22, 23 along with spaced and parallel pairs of aligned score lines 24, 25 which are aligned with the slots 22, 23 respectively at the outer ends thereof.

The aligned slots 22 are shorter than the aligned slots 23 and the pairs of slots extend toward the opposite ends of the blank from central recesses 26 and 27 in the sides of the blank. The outer ends of each pair of slots 22, 23 are connected together by a diagonal score line 28 to define a bridge member 29. Those portions of the blank which are outwardly of the diagonal score lines 28 between the parallel score lines 24, 25, comprise supporting columns 30 for the bridge member 29. The columns 30 are reinforced by flanges 31, 32 which comprise those portions of the blank which are laterally outwardly of the parallel score lines 25 and 24 respectively. The flanges 31 and 32 include integral extensions 33 and 34 respectively which comprise those portions of the blank which are laterally outwardly of the slots 23 and 22.

To set up the insert 21, the flanges 31, 33 and 32, 34 are folded toward each other on the score lines 25, 24 until substantially triangular columns are formed with the end portions 30. The end portions 30 are now folded into parallel relation on the diagonal fold lines 28 so that the columns are at right angles to the bridge member 29. This extends the flange extensions 33, 34 above the bridge member 29 for a purpose to be apparent later. The diagonal fold lines 28 converge in one direction and diverge in the other so that the bridge member 29 although it extends generally horizontally between the columns 30 is canted at an angle which corresponds at least substantially to the angle of inclination of the top surfaces 19 of the packed articles 16, see Figure 3. Thus, the bridge member 29 has inclined upper

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and under surfaces which engage the article surfaces 19 flatly for a purpose to be disclosed.

The folded flanges 31, 33 and 32, 34 preferably are folded at angles which are complementary to the shape or contours of the opposed corners 14 or 15 and the dimensions of the columns 30 and bridge member 29 are such that when the set-up insert 21 is applied to the box 10, the columns 30 are closely held in a pair of opposed corners 14 or 15 by the bridge member 29. The lower ends of the columns 30 rest on the floor 12. The length of the flange extensions 33, 34 are such that their upper ends are flush with the upper edges of the side walls 13 so that the cover flaps 11 when closed to form the top wall bear on the flange extensions to prevent vertical movement of the insert relative to the box 10 or the packed articles 16. By arranging the insert in the box 10 diagonally from corner to corner, the insert is locked against horizontal movement. Thus, although no adhesive or fasteners of any sort are used, the insert 21 is fixed in the box by the mere act of applying it thereto and closing the box. Likewise, the arrangement is such that the insert 21 is fixed in the set-up position by its engagement with the box without the use of adhesive, interlocking tabs, or fasteners of any sort.

To pack the box 10, an article 16 such as the service cap shown is placed on the floor 12 in an upright position with the visor 20 wedged in a corner 15, Figure 2. Then the set-up insert 21 is placed in position with the columns 30 straddling the cap and seated in the other pair of opposed corners 14. When properly applied the bridge member 29 extends transversely of the inclined crown 19 of the cap and in flat engagement therewith. This provides wedge means for retaining the visor 20 in its corner 15 whereby virtually all horizontal movement of the cap relative to the box or insert is prevented. The second cap 16 is now reversed and placed in the box upside down so that its crown lies flatly atop the bridge member 29 and its visor 20 is wedged in the other corner 15 of the first pair of opposed corners. The top flaps 11 are now closed and secured so that they engage the upper edges of the flanges 33, 34 as well as the visor 20 and frame 17 of the upper cap 16. Thus, this second cap is wedgingly fixed in position exactly as is the lower cap. Both caps are now secured in the box 10 against movement relative to the same or to each other. If desired, although generally unnecessary, wads of packing 35, such as tissue paper may be applied behind each cap 16 to supplement the wedge action of the bridge member 29 and prevent all horizontal movement of the caps 16.

It is apparent from the foregoing that the insert 21 may be cheaply mass produced from low priced material such as corrugated board and may be shipped and stored in flat condition. At the same time, when needed, the inserts can be quickly set up without special tools or skills and can be quickly applied to boxes as needed.

While there has been shown and described what is now thought to be the preferred embodiment of the invention, it should be understood that the same is susceptible of other forms and expressions. Therefore, the invention is not considered as being limited to the precise structures shown and described hereinabove except as hereinafter claimed.

We claim:

1. The combination with a packing box having a floor, a top wall, and a plurality of side walls, said side walls being connected together to provide a plurality of corners, at least two of said corners being at least substantially opposed; of a packaging insert for said box, said insert comprising a strip of substantially rigid sheet material, said strip having a central bridge portion and opposite end portions directed downwardly to rest on said floor, said end portions each having two side flanges, said side flanges of each end portion being rearwardly directed toward each other at angles complementary to the contours of said opposed corners to provide supporting col-

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umns for said bridge portion, said columns being seated in said opposed corners and being maintained therein by said bridge portion, said bridge portion extending substantially horizontally between said columns but including parallel upper and lower surfaces canted at an angle to said top wall and floor, and said columns supporting said bridge portion between said floor and said top wall of said box.

2. The combination of claim 1, wherein said side flanges of said opposite ends of said bridge portion include integral extensions extending above said bridge portion, and said extensions having upper ends bearing on said top wall.

3. The combination with a packing box having a floor, a top wall, and a plurality of side walls, said side walls being connected together to provide a plurality of corners at least two of which are substantially opposed; of a packaging insert for said box, said insert comprising a strip of substantially rigid sheet material, said strip including a central bridge portion and opposite end portions, said end portions being downwardly directed into engagement with said floor so as to support said bridge portion between said floor and top wall, said bridge portion being canted at an angle to said top wall and floor, said bridge portion being disposed substantially midway between said top wall and floor, said end portions each having two side flanges which are rearwardly directed in intersecting directions to define with said end portions substantially triangular columns, said flanges being complementary to said opposed corners and seated and being maintained therein by said bridge portion, and means integral with each of said end portions and extending upwardly of said bridge portion into engagement with said top wall.

4. The combination with a packing box having a floor, a top wall, and a plurality of side walls, said side walls providing at least first and second pairs of opposed corners, and first and second service caps each having a visor, an upright front and a downwardly and rearwardly inclined crown; of a packaging insert for holding said caps in said box against movement relative thereto, said insert comprising a pair of opposed columns seated in said first pair of opposed corners, a substantially rigid and horizontally extending bridge member connecting said columns and maintaining them in their respective corners, said bridge member being canted at an angle corresponding to the incline of said crowns of said caps, said first cap being supported on said floor in an upright position with its visor in one of said second pair of opposed corners, said canted bridge member flatly engaging said crown of said first cap to prevent withdrawal of its visor from its corner, said second cap being reversed and upside down so that its crown is flatly supported on said bridge member with its visor in the other corner of said second pair of opposed corners, and said top wall bearing on said second cap.

5. The combination with a packing box having floor, a top wall, and a plurality of side walls, said side walls providing at least first and second pairs of opposed corners, and first and second service caps each having a visor, an upright front and a downwardly and rearwardly inclined crown; of a packaging insert, said insert comprising means providing two opposed columns seated in said first pair of opposed corners, means providing a substantially rigid bridge connecting said columns and maintaining the same in their respective corners, said first cap being upright on said floor with its visor in one of said second pair of opposed corners, said second cap being reversed and upside down and in engagement with said top wall with its visor in the other of said second pair of opposed corners, and said bridge being disposed between and in engagement with both crowns to cooperate with said floor and top wall to prevent movement of said caps relative to said box and to each other.

6. The combination of claim 5, wherein said bridge is

horizontal and extends transversely of said crowns of said caps.

7. The combination with a packing box having a floor, a top wall, and a plurality of side walls, said side walls providing at least first and second pairs of opposed corners, and first and second packed articles each being substantially triangular in profile and comprising a base, an upright front end and a diagonal top; of a packaging insert, said insert comprising means providing two opposed columns seated in said first pair of opposed corners, means providing a substantially rigid bridge connecting said columns and maintaining the same in their respective corners, said first article being upright on said floor and having said front end in one of said second pair of opposed corners, said second article being reversed and upside down with its base in engagement with said top wall and said front end in the other of said second pair of opposed corners, and said bridge being disposed between and in engagement with both of said diagonal tops whereby to cooperate with said floor and top wall to prevent movement of said articles relative to said box and each other.

8. The combination of claim 7, wherein said bridge is substantially horizontal and extends transversely of said diagonal tops of said articles.

9. The combination of claim 8, wherein said bridge comprises a flat member having upper and lower surfaces which are canted at angles which correspond to those of said diagonal tops whereby to engage the latter flatly and wedgingly maintain said front ends of said articles in their respective corners.

10. The combination with a packing box having a floor, a top wall, and a plurality of side walls providing at least first and second pairs of wall portions, and first and second packed articles each being substantially triangular in profile and comprising a base, an upright front end and a downwardly and rearwardly slanting top; of a packaging insert, said insert comprising means providing two opposed columns seated against said first pair of wall portions, means providing a substantially rigid bridge connecting said columns and maintaining the same against their respective wall portions, said first article being up-

right on said floor with said front end thereof against one of said second pair of wall portions, said second article being reversed and upside down with its base in engagement with said top wall and said front end thereof seated against the other of said second pair of wall portions, and said bridge being disposed between and in engagement with both of said slanting tops of said articles whereby to cooperate with said floor and top wall to prevent movement of said articles relative to each other and to said box.

11. The combination of claim 10, wherein said bridge comprises a flat member which has flat upper and lower surfaces which are inclined at angles corresponding to those of said slanting tops, and said bridge member extending horizontally transversely of said slanting tops with said inclined upper and lower surfaces flatly engaging said slanting tops whereby to provide wedge means for retaining said article against said relative movement.

12. A packaging insert for a box having a top wall and a floor, said insert comprising a substantially rigid bridge member, upright columns fixed to opposite ends of said bridge member and supporting the same substantially midway between said top wall and floor, said bridge member extending horizontally between said columns, said bridge member including parallel upper and lower article engaging surfaces, said surfaces being canted at an angle to said top wall and floor, whereby to define an upper compartment having an inclined partial floor and a lower compartment of equal size having an inclined partial ceiling.

13. A packaging insert according to claim 12 wherein said columns include integral extensions extending above said bridge portion into engagement with said top wall.

14. A packaging insert according to claim 13 wherein said columns are substantially triangular and wherein said insert is formed from a single blank of sheet material.

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