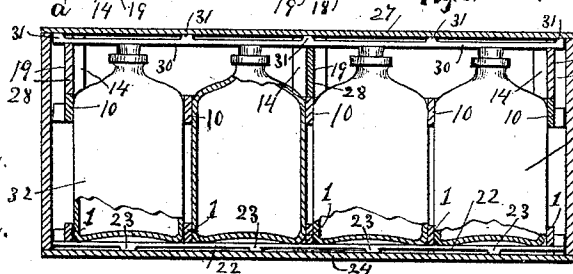
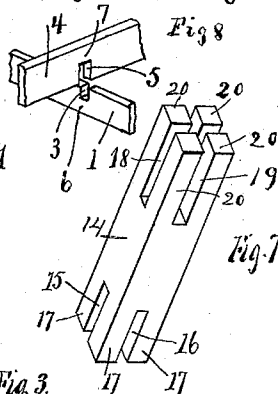
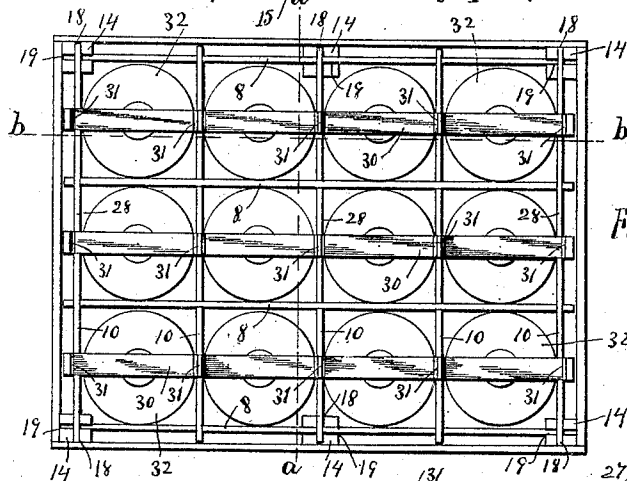
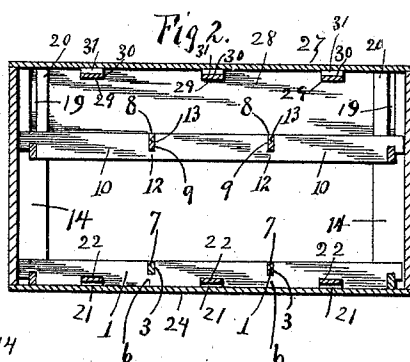
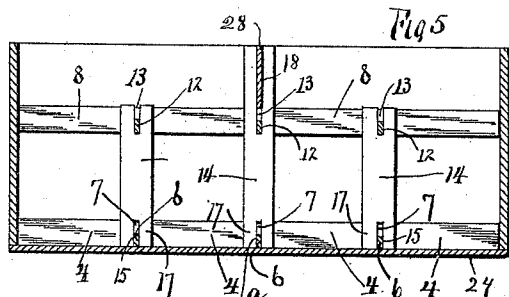
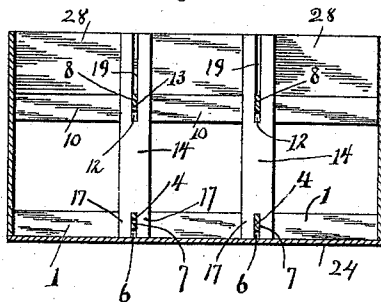
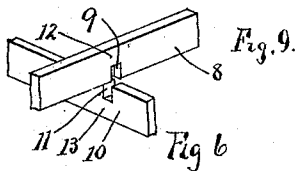
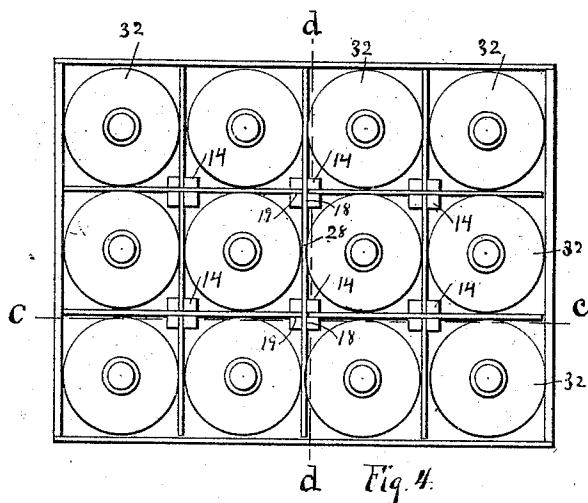


(No Model.)

E. J. VANCE & J. M. LEAVER.
PACKING BOX FOR BOTTLES.

No. 495,534.

Patented Apr. 18, 1893.



Attest
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UNITED STATES PATENT OFFICE.

EMERY J. VANCE AND JAMES MARSHALL LEAVER, OF BAY CITY, MICHIGAN.

PACKING-BOX FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 495,534, dated April 18, 1893.

Application filed November 30, 1892. Serial No. 453,591. (No model.)

To all whom it may concern:

Be it known that we, EMERY J. VANCE, a citizen of the United States, and JAMES MARSHALL LEAVER, a citizen of England, both residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Packing-Boxes for Bottles, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to improvements in packing boxes for bottles, cans and packages of a similar character, and the invention consists in a packing box containing a loose crate provided with division strips forming one or more compartments, and consisting essentially of two tiers of strips, each tier composed of longitudinal and transverse strips arranged to interlock at their crossings to form the compartments and a series of supporting standards provided at their ends with longitudinal slots arranged transversely with each other for inclosing and supporting the strips at their outer crossings and with their upper ends projecting above the upper tier of strips, and transverse bridge pieces passed into the upper portion of said slotted ends for retaining the parts in position in the box and for reinforcing the top and bottom of the box.

The invention also consists in the combination, operation and construction of the parts as we shall hereinafter fully explain in detail and also point out and define in the claims.

The objects of our invention are to provide a cheap and effective means for packing, shipping and carrying bottles or similar packages in a manner that each package will be supported independently of the other and be provided with a lateral and vertical cushion or spring support for relieving the packages from the effect of any sudden jar or concussion received from transporting or moving the box.

Another object of the invention is to provide a packing box with a crate for supporting and carrying glass or other breakable packages in separate compartments which provides a lateral and a vertical cushion for each package, and at the same time forms a brace or support for the sides and cover of the box whereby the strength and efficiency of the box

is increased and lighter material can be used in its construction and its cost reduced.

Another object is to provide a compartment crate for a packing box, which can be shipped in pieces or "knocked down" and put together and placed and retained in position in the box without nailing or liability of the parts becoming displaced by jarring or overturning, &c.

Our invention is illustrated in the accompanying drawings in which the figures of reference used in the following description will be found designating the same parts throughout the several views:—

Figure 1, is a plan view of a packing box with the cover removed, and containing a crate embodying our improvements. Fig. 2 is a transverse section of the same taken at *a—*a**. Fig. 3 is a longitudinal section of Fig. 1, taken at *b—*b**. Fig. 4, is a plan view of a box with the cover removed and containing our improved crate in a modified form. Fig. 5, is a longitudinal vertical section of the same taken at *c—*c**. Fig. 6, is a transverse section of the same taken at *d—*d**. Fig. 7, is a view in perspective of one of the supporting posts detached. Figs. 8, and 9, are detached sections of the crossings of the lower and upper tiers of strips respectively.

A lower tier of strips 1, is arranged to stand on edge at a suitable distance from each other to provide the required room between the strips to receive the bottle, and these strips are provided on their upper edges with transverse slots 3, in series at a distance from each other corresponding to the distance between the strips, and 4, are longitudinal strips provided on their lower edges with the transverse slots 5, which are fitted to pass over the portions 6, below the slots 3, the slots 3, pass over and contain the portions 7, above the slots 5, so that the two series of strips when so arranged form a series of compartments corresponding in size to the transverse dimension of the bottles or jars to be packed. The outer strips of each series are situated so as to cross the other series at a short distance from the ends of the strips so that the end portions of all the strips will project beyond the outer sides of the strips which cross the same. An upper duplicate tier of strips is

arranged above the lower tier in a position to stand just below the neck portion of the bottle, and this tier consists of the upper longitudinal series of strips 8, above the series 4, and provided on their lower edges with the slots 9, and a transverse series of strips 10, above the series 1, and provided with the slots 11, on their upper edges which pass over and contain the portions 12, above the slots 9, while the slots 9, pass over the portions 13, below the slots 11, so as to form an interlocking joint which retains the parts in position in relation to each other.

14, are corner posts or supports of a length equal to the vertical dimension of the bottles to be packed, and these posts are provided in their lower ends with slots 15, and 16, arranged transversely with each other and forming four extended portions 17, on the corner portions of the ends, these slots being of a depth equal to the width of the lower tier of strips, and are passed over the crossings of the corner portions of the lower tier of strips, and also over the outside crossings of the middle transverse strips, and upon this upper end the posts are provided with slots 18, and 19, arranged transversely with each other, to receive the crossings of the upper tier of strips corresponding to those engaged by the posts on the lower tier, and these upper slots are cut to a depth to allow the upper tier of strips to rest in a position below the necks and so as to come in contact with the enlarged body portion of the bottles, and so that the portions 20, which rest in the corners of the crossings will project above the strips to the inner side of the box cover. The lower edges of the lower transverse strips 1, are provided, midway between the strips 4, with notches or recesses 21, and 22, are spring strips extending across the transverse strips 1, and resting in the notches 21, and these spring strips are provided on their under side with projections 23, which are preferably located centrally between the strips 1, and rest upon the bottom 24, of the packing box in which the crate is placed 25, being the sides of the box 26, the ends and 27, the cover, the parts being secured together in the ordinary way. The upper tier of strips have their crossings passed into the slots 18 and 19, and as before explained the posts 14, are of a length to extend entirely to the under side of the cover 27, so that the corner portions 20, thereof extend for some distance above the upper tier of strips, and the longitudinal strips 8, are arranged to pass over the transverse strips, and 28, are bridge pieces extending across the crate and passed into the slots 18, between the upwardly projecting corner portions 20, and these bridge pieces are of a width sufficient to allow the box cover to rest upon their upper edges for supporting the cover against liability of contact with the packages contained in the compartments. The upper edges of these bridge pieces are provided with notches 29, for receiving the spring strips 30,—which are ar-

ranged on their upper side with projections 31, which rest against the under side of the box cover, and are located preferably directly over the transverse strips, so that the cork or upper end of a bottle 32, or other package contained in the apartment will rest against the under side of the strips centrally between the projections, whereby a springing action will be had on the portion between the projections to relieve the effect upon the bottle in case of a heavy jar in moving, or weight upon the packing box.

It will be noticed that when the parts are in position the bottle or package is entirely surrounded by thin strips so supported that each bottle is separately sustained and a springing action is provided on all sides, so that the box containing the bottles may be roughly handled and the bottles will be carried without liability of breakage or without liability of being crushed by a load or heavy weight piled thereon. And while the bridge pieces 28, serve to support the spring strips in position, they at the same time operate to retain the crate in its place within the box and also hold the upper tier of strips in their proper position in relation to the bottles in case the box is inverted, while at the same time they form a support for the box cover which sustains the middle portion thereof against breaking or bending from a heavy weight placed thereon, so that extremely light and thin material can be utilized for forming the cover. And it will also be seen that while the several strips and their supports are of light material, the arrangement of the same within the box is such that they serve to support and reinforce the sides and bottom of the box in such a manner that, very thin and light material can be used for constructing the box and the box will still be provided with the required strength and rigidity, whereby the cost of construction, handling and shipping the same is greatly reduced. And it will be noticed that the crate is formed complete and held in the box without nailing or other permanent fastening, so that the material can be cut to size and properly prepared, and shipped to the user in "knock down" bundles at a cheap rate of freight and can then be erected and assembled by the user, and if desired after use, the parts can again be separated and reshipped for use again.

In the shipment of metal cans or glass bottles of extra strength the strips of the upper and lower tier are omitted as shown in Figs. 4, 5, and 6, and with this construction each crossing of the strips is supported by one of the posts 14, the two center posts extending above the upper tier of strips to the under side of the cover, while the remainder of the posts reach only to the upper edges of the upper tier of strips, and the transverse bridge piece 28, is then placed in position across the center of the box and passed into the slots 18, of the upwardly projecting posts for retaining the crate in position and for sustaining

the cover and bottom as before explained, so that timber of thin dimension can be used, the central long posts and bridge pieces effectually supporting the cover, while the lower transverse strips support the bottom against a heavy vertical compression or load upon the box, and the upper transverse strips support the sides of the box against crushing in.

A great reduction of the amount of material is obtained with our improvement, and at the same time a box of superior merit is produced, the lower and upper tiers of strips being held in their proper positions by the slotted posts so they come in contact with the upper and lower portions only of the bottles, allows a reduced quantity of material to be used while the strength and availability of the package is greatly enhanced by being adapted to extended use, on account of the light weight of the parts and the ease with which the parts can be placed and retained in position without nailing or other permanent fastening.

Having explained our improvement, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the box and a compartment crate within the box, and composed of the upper and lower tiers of transverse and longitudinal strips placed edgewise in the box and provided with interlocking devices at their crossings, the supporting posts having their end portions provided with slots crossing each other at a right angle and passed over the portions of said strips adjacent to said crossings and with their upper ends projecting above said upper tier of strips, and the removable bridge piece passed into the portion of said slots above the strips and with its upper edge against the box cover, substantially as set forth.

2. The combination of the box, the lower series of transverse strips having on their lower edges the notches 21, the lower series of longitudinal strips crossing said transverse strips and provided at their crossings with interlocking slots, the upper tier of transverse and horizontal strips provided with transverse slots for interlocking their crossings, the vertical supporting posts in the corners of the box and provided on their ends

with longitudinal slots crossing each other at a right angle for inclosing the corner crossings of each tier of strips, and with their upper ends projecting above said upper tier of strips, with the removable bridge pieces 28, resting in the slots in said upwardly projecting ends of the posts, and provided on their upper edges with the notches 29, the spring strips 30, resting in said notches 29, and provided on their upper sides with the projections 31, for contact with the cover, and the spring strips 22, resting in said notches 21, and provided on their lower sides with projections 23, for contact with the bottom of the box, substantially as and for the purpose set forth.

3. The combination of the box, and a compartment crate within the box composed of the series of lower transverse strips 1, placed edgewise upon the bottom of the box and provided on their lower edges with a series of notches 21, the series of longitudinal strips 4, placed edgewise across the transverse strips, both series having interlocking slots at their crossings, the upper tier of transverse and longitudinal strips having interlocking slots at their crossings, the supporting posts provided at their ends with slots crossing each other at a right angle and passed over the said crossing of the strips at the corners of the crate, and with their upper ends projecting above said upper tier of strips, the bridge pieces 28, passed in the slots in said upwardly projecting ends, and provided with a series of notches 29, with the spring strips 30, resting in said notches and provided with a series of projections 31, on their outer sides for resting against the cover and the spring strips 22, resting in said notches 21, and provided with a series of projections 23, for resting on the bottom of the box, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

EMERY J. VANCE.
JAMES MARSHALL LEAVER.

Witnesses:

JAS. E. THOMAS,
W. S. BROWNSON.