

June 6, 1961

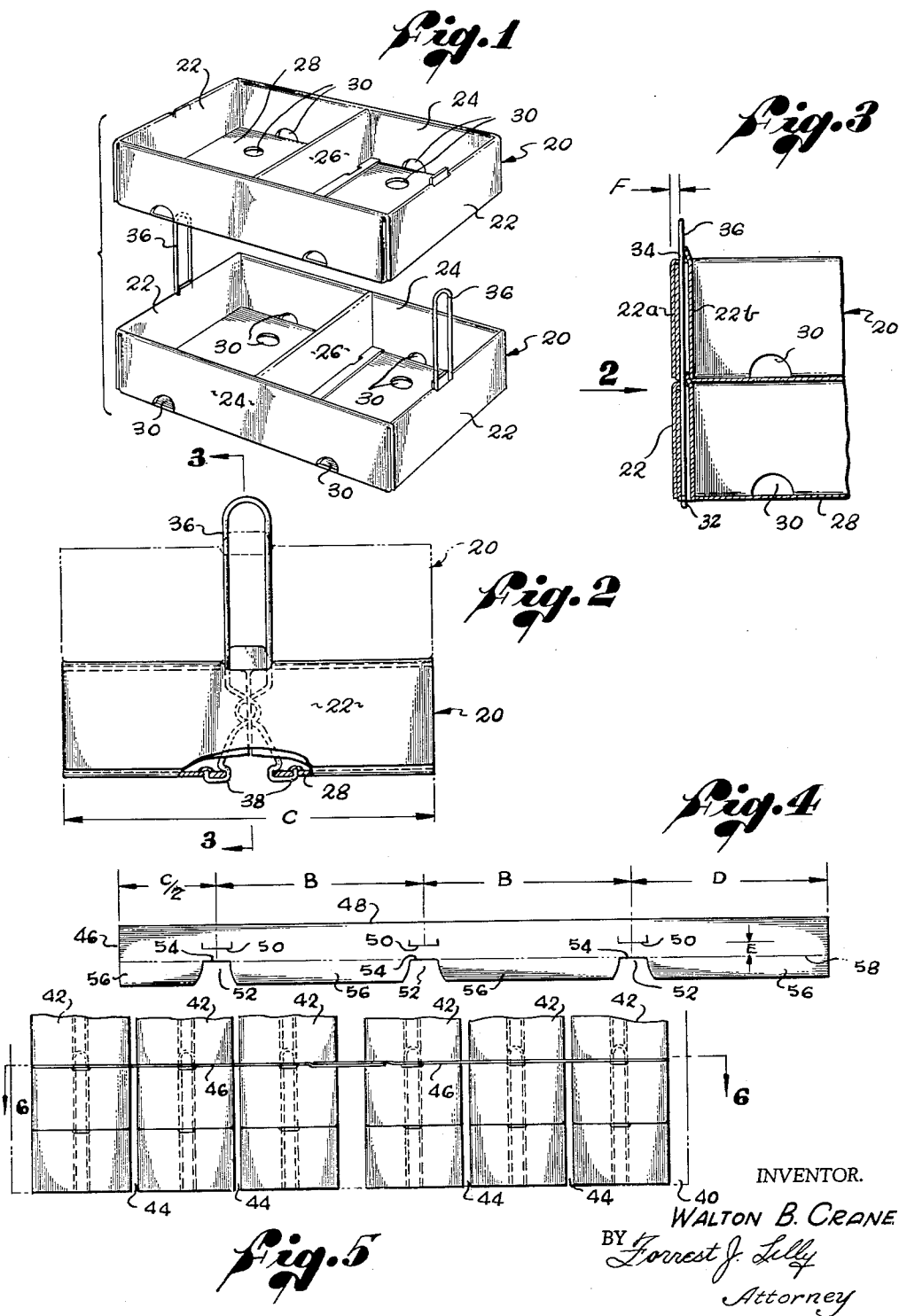
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SPACER FOR PRODUCE CONTAINERS

Filed Aug. 1, 1958

2 Sheets-Sheet 1



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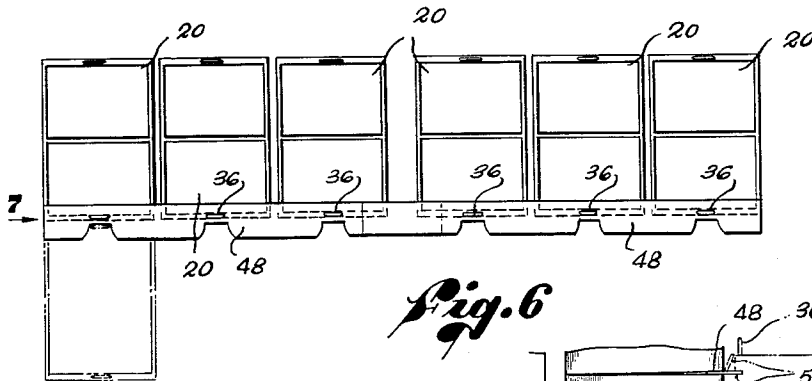


Fig. 6

Fig. 7

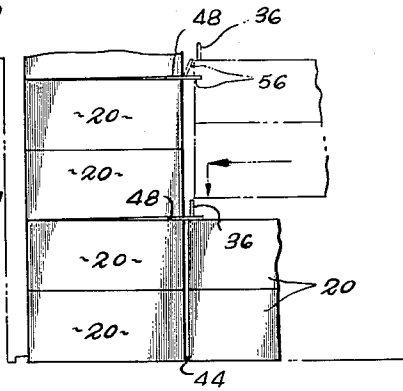


Fig. 8

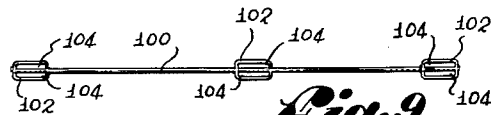
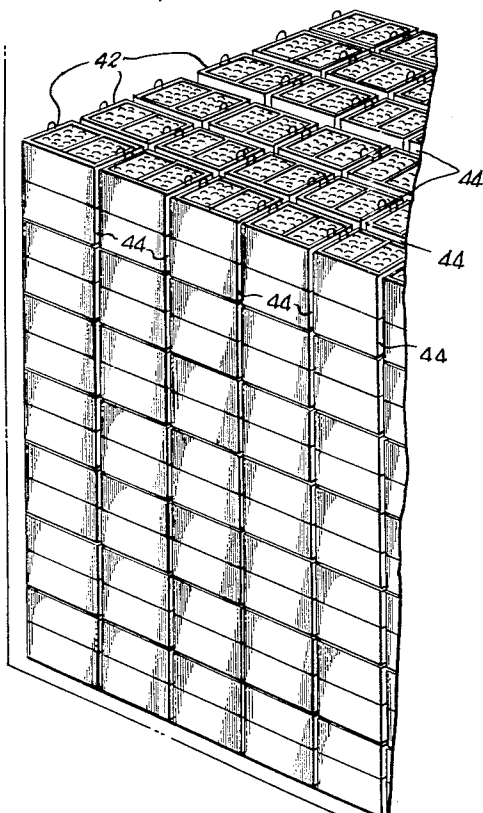


Fig. 9

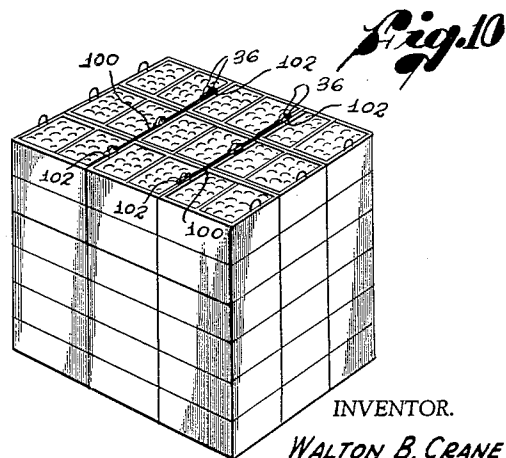


Fig. 10

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SPACER FOR PRODUCE CONTAINERS

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This invention relates to a spacer for interconnecting certain types of produce containers when they are stacked for storage or shipment.

Briefly stated, the produce container with which this invention is concerned consists of a rectangular cardboard structure having double panel end walls. In use, the containers, after being filled with produce, are handled in units, each consisting of a stacked pair of containers. During storage and shipment, several of these units are stacked one on top of the other in a series of vertical columns arranged side-by-side so as to form a container stack.

The pair of containers in each unit are joined by a set of wire couplers which serve to restrain the containers against relative shifting during handling. These couplers project above the upper container of the unit for engagement with an adjacent upper unit in a stacked column of container units. These couplers, therefore, restrain the containers in each unit against shifting and also restrain the several stacked units against shifting.

A broad object of the present invention is the provision of a spacer for interconnecting adjacent stacked columns of container units of the character described to prevent relative shifting thereof during storage and shipment.

Another object of the invention is the provision of a spacer of the character described which is designed to hold adjacent columns of stacked container units in spaced relation so as to maintain ventilation spaces between the columns.

Yet another object of the invention is the provision of a spacer of the character described which is designed to facilitate stacking of the container units.

A further object of the invention is the provision of a spacer of the character described which is extremely simple in construction, inexpensive to manufacture, and otherwise especially well suited to its intended function.

Other objects, advantages and features of the invention will become apparent as the description proceeds.

The invention may be best understood from the following description thereof taken in connection with the annexed drawings, wherein:

FIG. 1 is a view in perspective of a pair of produce containers of the type with which the present spacer is intended to be used, the containers being illustrated prior to assembly thereof to form a container unit;

FIG. 2 is an enlarged end view of the containers of FIG. 1 after assembly thereof to form a container unit;

FIG. 3 is a section taken along line 3—3 of FIG. 2;

FIG. 4 is a plan view of the present spacer;

FIG. 5 is a view illustrating a pair of the present spacers installed in stacks of container units;

FIG. 6 is a view looking in the direction of the arrows on line 6—6 of FIG. 5;

FIG. 7 is a section taken along line 7—7 of FIG. 6;

FIG. 8 illustrates a stack of produce containers which are spaced by the spacer of this invention;

FIG. 9 is a view of a modified form of the present spacer; and

FIG. 10 is a view in perspective illustrating the spacer of FIG. 9 assembled on produce containers.

Referring now to FIGS. 1 to 3 of these drawings, the container 20 with which the present spacer is intended to be used will be seen to comprise a generally rectangular

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structure which may be fabricated from cardboard, for example.

This container has a pair of end walls 22, a pair of side walls 24, a central partition 26, and a bottom wall 28.

These walls are provided with ventilation openings 30.

End walls 22 comprise inner and outer panels 22a and 22b. These double panels of the end walls are formed by folding the end walls on themselves, as shown. The bottom wall 28 and upper connecting portions of the end wall panels 22a and 22b have aligned openings 32 and 34 for receiving couplers 36. These couplers are known in the art and comprise a piece of wire which is bent to the configuration shown.

In use, couplers 36 are inserted through the end openings 32 and 34 of a container 20 and extend between the end wall panels 22a and 22b of the container, as illustrated most clearly in FIG. 3. The upper ends of the couplers extend a substantial distance above the upper edge of the container. The lower end of the couplers have recesses for receiving the bottom wall of a container and outwardly bent legs 38 which engage against the bottom side of the bottom wall, in the manner shown in FIG. 2.

As preliminarily mentioned, the containers 20, when filled with produce, are handled in stacked pairs or units.

Each of these units is formed by placing one container on top of another container mounting a pair of the couplers 36. In the assembled positions of the pair of containers, the upper extending ends of the couplers 36 in the lower container extend through the upper container end openings 32 and 34. The curved upper ends of the couplers project a short distance above the upper edge of the upper container. When stacking a series of the container units, an upper unit is placed on a lower unit in such a way that the upper extending ends of the couplers are inserted into the lower end openings 32 of the upper unit.

During storage and shipment, several of these units are stacked to form a series of vertical columns 42 as illustrated in FIG. 8. It is desirable, for reasons well understood in the art, that ventilation spaces 44 be provided between the several container columns. In order to prevent closing of these ventilation spaces, the several container columns must be interconnected to prevent relative shifting thereof, especially during shipment. Such interconnecting of the container columns is also desirable to prevent the latter from tipping or otherwise moving about.

FIG. 4 illustrates the present spacer 46 which is designed to interconnect the container columns for these purposes. Spacer 46 comprises a strip 48 of suitable material, such as cardboard. This strip has a first row of spaced, longitudinally aligned slots 50. One edge of the strip 48 is formed with a second row of longitudinally aligned slots or notches 52, each transversely aligned with one of the slots 50. The width of the bottoms 54 of the notches 52 is substantially equal to the length of the slots 50. This dimension of the slots 50 and notches 52 is made just slightly greater than the width of the upper ends of the couplers 36. The flaps 56 defined between notches 52 are made flexible by a perforated or scored line 58.

Slots 50 and notches 52 are equally spaced lengthwise of the strip 48 a distance B. This distance is greater than the width C of the containers 20 by an amount equal to the width of the ventilation space 44 which is to be maintained between the container columns 42. The center line of the left-hand slot and notch 52, as the spacer is viewed in FIG. 4, is spaced from the left-hand end of the strip a distance which is approximately equal to one-half of the container width C. Finally, the center line of the right-hand slot 50 and notch 52 is spaced from the right end of the spacer a distance D. As presently will be

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seen, this lengthwise spacing of the slots and notches provides for retention of the ventilation spaces 44 between the container columns 42.

In order to insure adequate ventilation of all the containers in a stack, it is necessary that a ventilation space 44 be maintained between adjacent columns of containers in a transverse direction of the spacers 46. To this end, the spacing E between each of the slots 50 and the bottom edge 54 of its aligned notch 52 is made approximately equal to twice the spacing F in FIG. 3 between each of the couplers 32 and the outer surface of the adjacent container end wall 22, plus the width of the ventilation space 44.

In use of the present spacer, when stacking a group of containers on a truck bed, for example, a first transverse row of container units are placed along the forward edge of the truck bed in the manner illustrated in solid lines of FIG. 6. This bottom row of container units is then interconnected by spacers 46 as follows.

The projecting upper end of a coupler 36 on the left-hand container unit is inserted through the left-hand slot 50 in a spacer 46. The projecting upper ends of the couplers 36 on the other container units in the row are then inserted through the remaining slots 50 in the spacer.

Assuming that each spacer is formed with three notches and three slots and the first row contains six units, as illustrated, the three left-hand units in the row will be interconnected by one spacer. The left-hand end of this spacer terminates substantially flush with the left-hand side wall of the extreme left container unit. The dimension D of the spacer is made such that the right end of the latter will overlap the top or fourth container unit from the left in the manner shown, but terminate short of the coupler 36 on the latter unit.

A second spacer is now placed over the upstanding ends of the couplers on the three right-hand container units. In this case, however, the spacer is turned end-for-end with respect to the spacer on the three left container units. The left end of the right spacer overlaps the third container unit from the left, as shown.

Additional container units are now stacked on top of this bottom row of container units, in the manner shown in FIGS. 5 and 8. The several container columns thus formed may be interconnected at one or more positions therealong, depending upon their height, by additional spacers. It will be observed in FIG. 5 that when the container units are stacked in this fashion, the upper units rest on the overlapping ends of the spacers so as to effectively prevent relative shifting of the three left-hand and three right-hand groups of containers which are joined by the spacers. It will also be observed that the overlapping of the spacer ends permits limited adjustment of the overall length of the row of container units in accordance with the width of the truck bed or other platform on which the container units are stacked.

A second row of container units is now placed in the truck bed in front of the first row, as indicated in phantom lines in FIG. 6. The lower row of units are simply slid into place in such a way that the couplers engage in the notches 52 in the spacers of the first row. Engagement of the couplers with the bottom edges 54 of the notches automatically spaces the first and second rows because of the aforementioned relationship between the spacer dimension E and container dimension F.

Rows of upper container units are now placed on this second lower row of units, in the manner illustrated in FIG. 7. The flexibility afforded to the spacer flaps 56 by the scored lines 58 accommodates upward hinging of the flaps, as illustrated in phantom lines of FIG. 7, to permit placing of the upper container units over the couplers on the lower units.

It will be observed that the upper containers in the second row rest on the flaps 56 of the spacers in the first

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row. The container units in the first and second rows as well as succeeding rows are thereby frictionally interlocked against relative shifting.

The above stacking procedure is continued until the desired number of container units have been stacked. FIGURE 8 illustrates a portion of a completed container stack. The fore and aft and lateral ventilation spacings 44 which are maintained between adjacent container columns 42 by the present spacers may be readily observed. Each container column is thus spaced on all four sides from adjacent container columns so as to assure adequate ventilation of the produce in the containers. The several container columns are frictionally and positively interconnected against relative shifting so that closing of the ventilation spaces 44 as well as tipping of the columns is effectively prevented.

FIG. 9 illustrates a modified form of the present spacer which is especially designed for use on smaller container stacks such as are transported on a fork lift truck. This modified spacer comprises a rod 100. Welded to this rod, at equally spaced positions therealong, are three rectangular frames 102. These frames may be formed, for example, by bending a rod into the rectangular shape illustrated.

Rod 100 is joined to and bisects the shorter sides of the rectangular frames 102. Accordingly, the rod 100 and frames 102 define pairs of rectangular openings 104 spaced along the rod.

In use of the modified spacer, the upstanding ends of the container couplers 36 are inserted through the rectangular spacer openings 104 in the manner illustrated in FIG. 10. The several columns of containers are thereby interconnected against relative shifting or tipping during transit on a fork lift truck, for example.

It will be apparent, therefore, that there has been described and illustrated a spacer which is fully capable of attaining the objects and advantages preliminarily set forth. While certain preferred embodiments of the invention have been disclosed for illustrative purposes, numerous modifications in design and arrangement of parts of the invention will be readily apparent within the scope of the following claims.

I claim:

1. A spacer for containers of the character described, comprising a long narrow paperboard strip having a row of spaced, collinear slots extending lengthwise of the strip, one longitudinal edge of the strip having notches approximately aligned crosswise of the strip with said slots, respectively, said slots and notches having approximately the same length, and said strip being scored to form a fold line approximately aligned with the inner longitudinal edges of said notches, the edge portions of the strip between said notches forming flexible flaps which are hingeable about said fold line.
2. A spacer according to claim 1 in which the end edges of each notch diverge toward said one edge of the strip.
3. A spacer according to claim 1 in which said slots and notches are approximately equally spaced along the strip, the spacing between one end of the strip and the center of the adjacent slot and notch being approximately one half the center spacing between adjacent slots and notches, and the spacing between the other end of the strip and the center of the adjacent slot and notch being greater than one half said center spacing.
4. In combination, two parallel rows of rectangular produce containers, each including two opposite end walls and two opposite side walls, a wire coupler carried on each container end wall, each coupler being located midway between the container side walls and having an end projecting above the upper edge of the respective end wall, said containers being arranged with said end walls parallel to the rows of containers and with the containers in one row aligned with and located closely adjacent to the containers in the other row, and a spacer comprising a rigid elongate member extending lengthwise of said rows

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across the upper edges of the opposing end walls of the containers in the two rows, said spacer having two rows of collinear slots extending lengthwise of the member and receiving said projecting ends of the couplers, respectively, the center distance between adjacent slots being greater than one container width whereby the containers in each row are spaced.

5. The combination according to claim 4 wherein said spacer member comprises a long, narrow paperboard strip, and one row of said slots comprises notches in one longitudinal edge of the strip.

6. The combination according to claim 4 wherein said spacer member comprises a long, narrow paperboard strip and one row of said slots comprises notches in one

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longitudinal edge of the strip, said strip being scored to form a fold line approximately aligned with the inner longitudinal edges of said notches whereby the portions of the strip between the notches are hingeable about said fold line to facilitate positioning the ends of the containers in one row under the strip.

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