March 31, 1936. M. SIRNEC 2,035,992

CRATE

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FIG. 1.

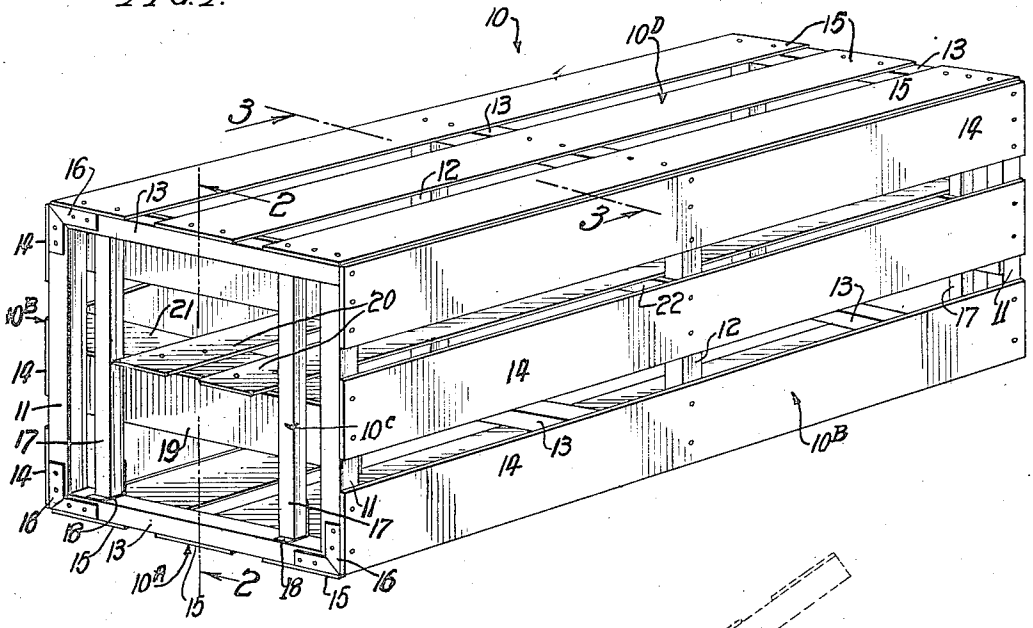


FIG. 2.

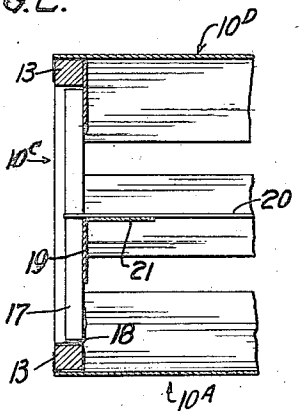


FIG. 3.

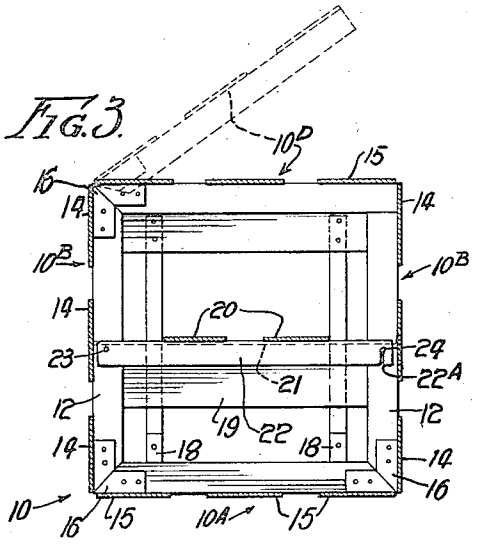
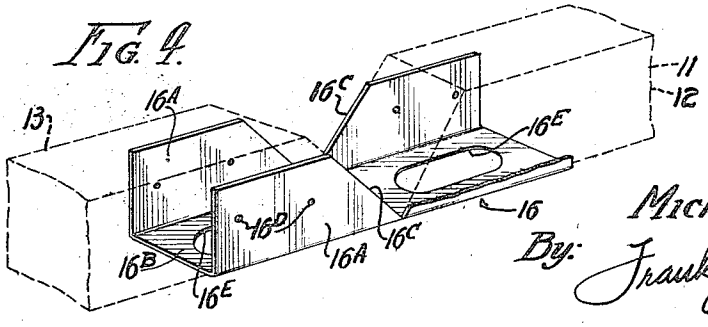


FIG. 4.

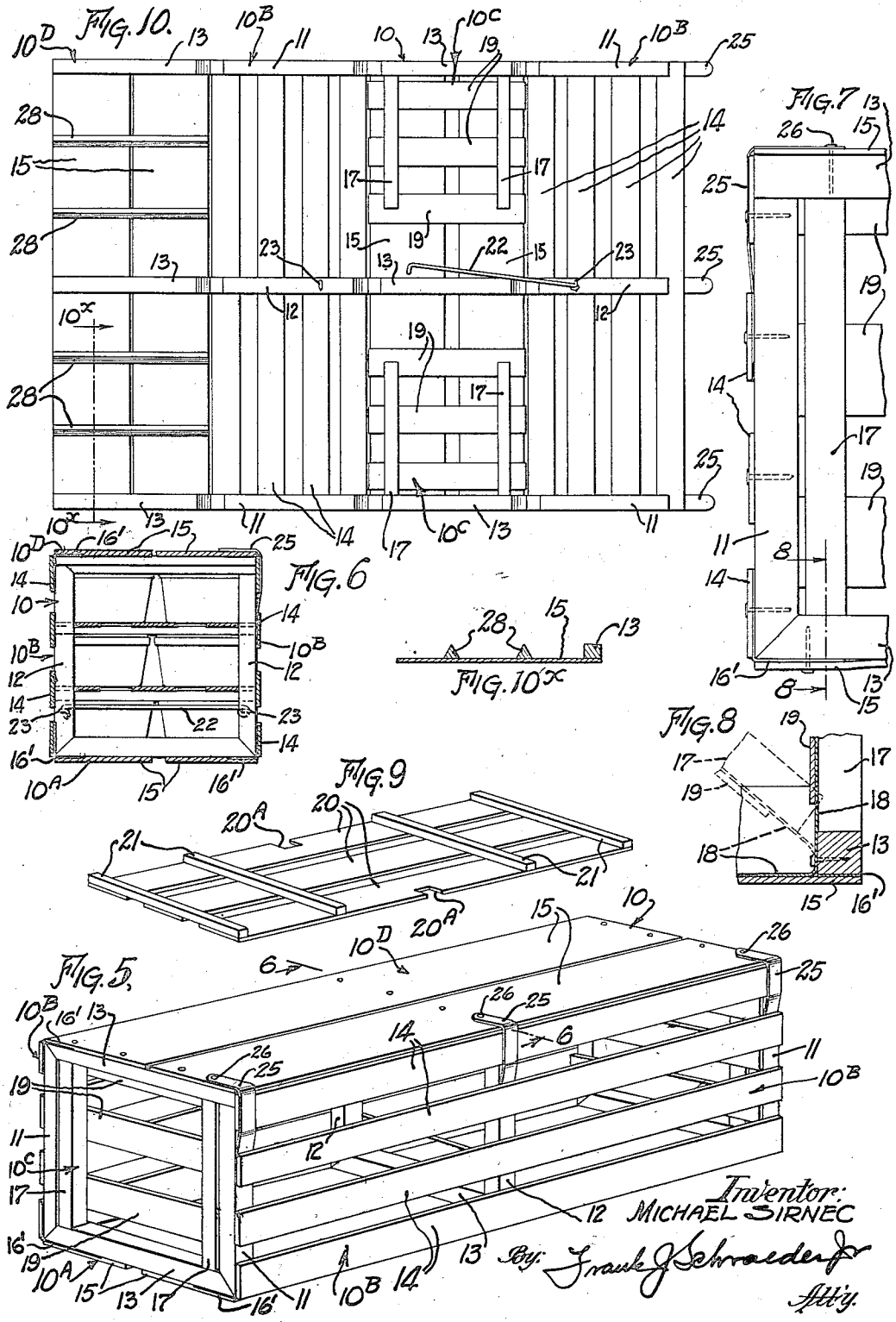


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FIG. 14

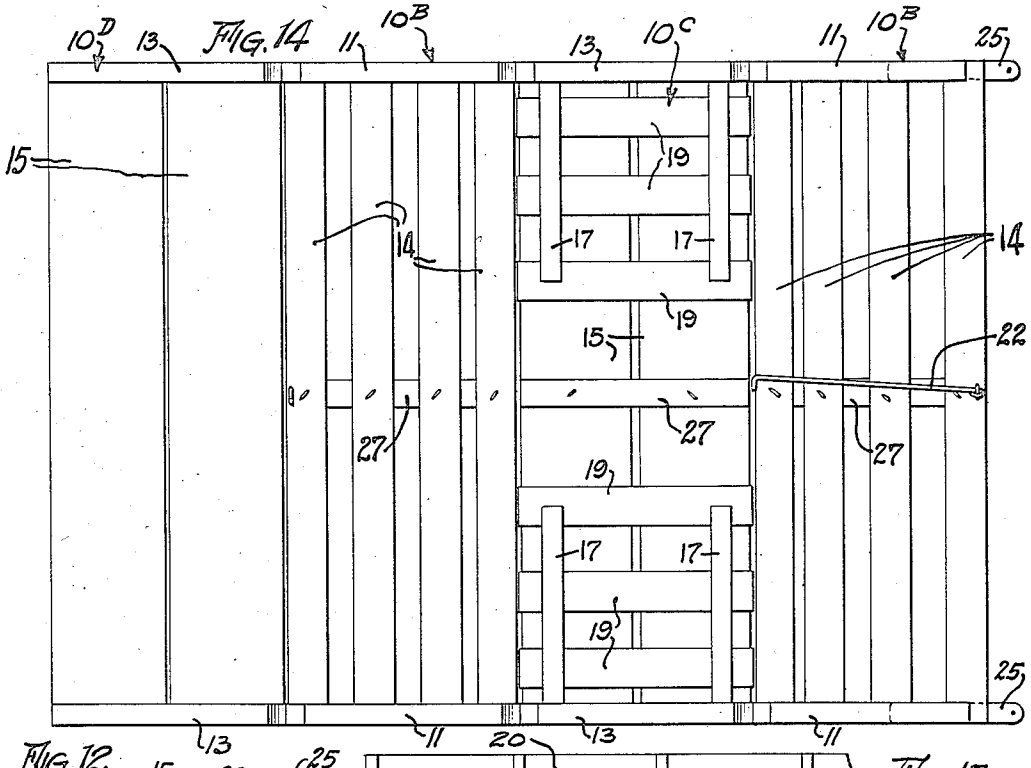
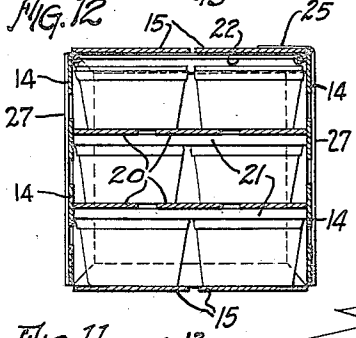


FIG. 12



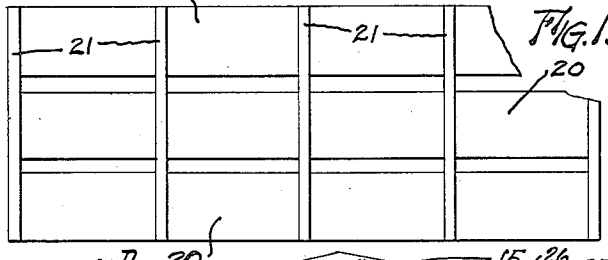
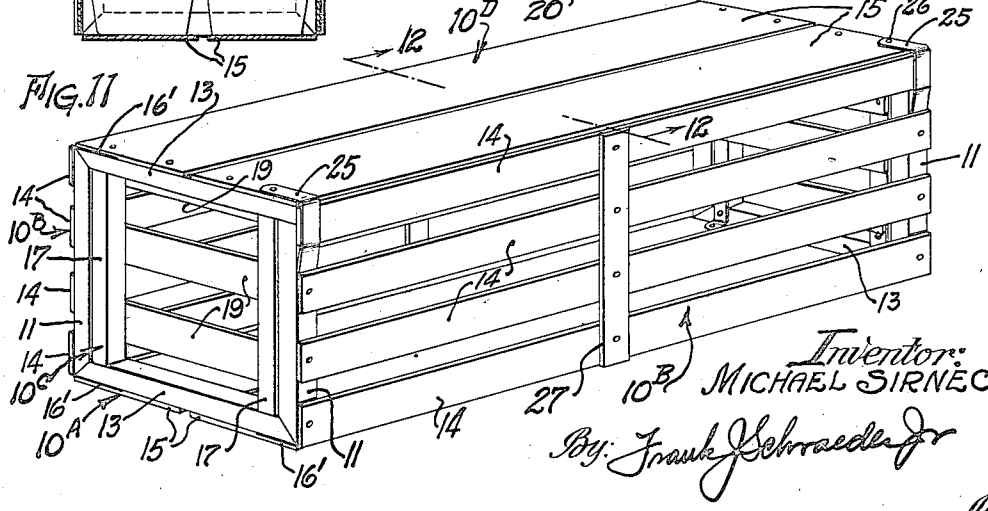


FIG. 13

FIG. 11



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UNITED STATES PATENT OFFICE

2,035,992

CRATE

Michael Sirnec, Cicero, Ill.

Application March 17, 1934, Serial No. 716,209

10 Claims. (Cl. 217—12)

This invention relates generally to crates and has particular reference to a new and improved crate for shipping fruits, vegetables and the like.

One of the objects of my invention is to provide a wooden crate embodying a construction which is characterized by simplicity and rigidity of the parts thereof, thus providing a crate which can be shipped from its manufacturer to the user in stacks or quantity lots wherein each crate is in flat form occupying a single plane, and the construction being such that the user can readily fold the sides and top thereof into assembled crate formation ready to receive the goods, which can, as for instance if berries are shipped, be placed in small baskets or boxes within the crate.

Another object of my invention is provide a crate which is rigid in construction to withstand the handling in its shipment but which construction provides a maximum amount of ventilation between its parts and members. The sides, bottom, top and heads or ends of the crate, for instance, being composed of the fewest parts possible and such parts being held in spaced relation to each other to afford such ventilation which is an important and desirable provision, especially in the shipment of fruits, berries, and vegetables and the like.

Still another object of my invention is found in the provision of simple metallic connections or hinge-like joints between the sides, bottom top and end members to permit same to be quickly unfolded into complete crate formation and also to so re-enforce the corners and intermediate members that the crate construction is thereby substantially strengthened or re-enforced against destructive handling in shipment. A further and important advantage of such metallic hinge-like joints affords its manufacture and shipment in flat formation at comparatively low cost and the shipper of the goods need only nail or staple one edge of the crate at three locations to be ready for shipment to the consumer or seller of the goods.

A further object of the invention resides in the novel construction of the metallic hinge-like re-enforcing members which are stamped from comparatively thin metal and provided with V-shaped recesses into two opposite sides to permit the bending of same across the intermediate side into angular formation for corner reenforcement. The intermediate side of such members being preferably slotted on each side of the bending line thereof to afford the passage of nails or staples therethrough in securing the longitudinally extending slats to the structural frame members.

Another object of the invention will be found in the construction and arrangement of a partition for the crate extending laterally between the top and bottom of the crate and forming a lower and upper compartment therein; the construction of such lateral partition including a plurality of longitudinal members and a plurality of cross members. The cross members being arranged or placed to abut entirely along one edge thereof with the ends of the crate in such manner that the partition acts not only as a strut or spacing member between the two ends of the crate but also is not slidable out of place longitudinally within the crate so that it cannot be removed except by lifting upwardly through the open top of the crate when the cover of the crate is in open position.

Another object of the invention is found in the introduction of a cross member for supporting the partition intermediate its ends and which cross member is pivotally mounted at one end to one side of the crate and at its other end provided with a hook for connection to the opposite side of the crate.

With above and other objects in view, my invention consists in the novel combination, construction and arrangement of the parts and members shown in preferred embodiment in the attached drawings, described in the following specifications and particularly pointed out in the appended claims.

Referring to the drawings:—

Fig. 1 is a perspective view of a crate embodying my invention;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1; showing the end of the crate.

Fig. 3 is a cross-section taken on line 3—3 of Fig. 1.

Fig. 4 is a perspective view of one of the metallic reenforcing members with one side broken away to show one of the slots in the intermediate side.

Fig. 5 is a perspective view of a modified form of my crate invention;

Fig. 6 is a vertical section taken on line 6—6 of Fig. 5;

Fig. 7 is an enlarged view of a part or corner of the end of the crate;

Fig. 8 is a cross-section taken on line 8—8 of Fig. 7;

Fig. 9 is a perspective view of one of the partitions, and

Fig. 10 is a view of the crate laid flat for ship-

ment to the user, and Fig. 10^x is a cross-section on line 10^x—10^x of Fig. 10;

Fig. 11 is a view in perspective of a modified form of my invention;

Fig. 12 is a cross-section taken on line 12—12 of Fig. 11;

Fig. 13 is a plan view of the underside of a partition, and

Fig. 14 is a view of the crate shown in Fig. 11, laid flat ready for shipment to the user.

Referring to the illustrations, the crate, generally indicated by numeral 10, consists of a bottom 10^A, sides 10^B, ends 10^C and a top or cover 10^D.

The structural frame of the crate consists of corner posts 11, intermediate posts 12, and cross members 13.

The sides 10^B of the crate are each provided with a plurality of spaced longitudinal slats 14 nailed to the posts 11 and 12.

The bottom 10^A and top or cover 10^D are each provided with a plurality of spaced longitudinal slats 15 nailed to the cross members 13.

It will be observed from the illustrations in the drawings, that the sides 10^B have a hinge-like connection to the bottom 10^A through the metal reenforcing members 16, likewise that the top or cover 10^D has along one of its sides a hinge-like connection with one of the sides 10^B through the metal reenforcing members 16.

The reenforcing members 16 as shown in Figs. 1 to 4, inclusive, are made of comparatively thin sheet metal formed substantially channel-shape in cross section and are about 2¼ inches long. The sides 16^A have 90° V-shaped cuts 16^C midway their length to permit the members 16 to be bent along a line at the bottom of the V cuts on the back 16^B to form a hinge-like connection. Nail holes 16^D are punched in the sides 16^A for securing the members 16 to the posts 11 and 12 to the cross members 13. The back 16^B is also provided with a pair of elongated slots 16^E to permit the passage of the nails or staples which secure the slats 14 and 15 to the posts 11 and 12 and cross members 13. As shown in Figs. 5 to 14, inclusive, the reenforcing members 16^1 consist of comparatively thin sheet metal straps.

It will be noted that the posts 11 and 12, and the cross members 13, at their juncture within the hinge-like members 16, are cut at their ends on an angle of 45° to afford a mitered hinge-like connection.

The heads or ends 10^C consist of a pair of spaced posts 17 which are hingedly connected at one end with the cross member 13 by means of thin metal straps 18.

As shown in Figs. 1, 2, and 3, the posts 17 have nailed thereto on their inner side a pair of cross-slats 19, but in the modified forms of my invention, as shown in Figs. 5 to 14, I employ a plurality of such spaced cross-slats 19.

In the shipment of the collapsed crate from the manufacturer to the user, these ends 10^C lie flat on the bottom 10^A, as shown in Figs. 10 and 14.

As shown in Figs. 1 to 4, the removable longitudinally extending partition consists of a plurality of spaced longitudinal slats 20 having a pair of cross-slats 21 nailed to the slats 20 near their ends. These cross-slats 21 abut along one side with the cross slat 19 and thus prevent lateral movement or shifting of the partition.

As shown in Figs. 5 to 14, the removable longitudinally extending partitions consist of a plurality of spaced slats 20 having a plurality of spaced cross members 21 nailed to the slats 20. These cross members 21 abut along one side with the cross slats 14 and 19 and thus prevent lateral movement or shifting of the partitions. Also the outer slats 20 are cut out, as at 20^A, to fit around the center posts 12 to thus provide additional means to prevent longitudinal shifting of the partitions.

As shown in Figs. 1 to 4, the partition is supported at its ends on the cross slats 19 and at its center on the pivoted cross member 22 and the cross member 22 is pivoted about a nail 23 on one of the posts 12 and has a hooked connection with a nail 24 on the opposite post 12 through a slot 22^A.

As shown in the modifications in Figs. 5 to 14 inclusive, the lateral upper crate partitions are supported on the top edge of the baskets or containers within the crate and the lower partitions are supported in the center upon the pivoted member 22 which is hooked into screw-eyes 23 mounted on posts 12. The members 22 also form a tie member between the two sides of the crate.

Referring now particularly to the forms of my invention as shown in Figs. 5 to 10, the flexible metallic strips 25 are provided for holding the cover in place after the crate is filled. These strips 25 are mounted with one end under one of the side slats 14 and at such places are nailed to the posts 11 and 12 and extend on the outside of the upper side slat 14 and are adapted to be bent over the cover of the crate and secured thereto by a nail 26.

It may be noted that the posts 17 which are a part of the ends of the crate are positioned close to or substantially adjacent to the corner posts 11 with their ends in abutment with the cross members 13. Thus these posts 17 form reenforcing struts for the crate ends.

In the modification of my invention shown in Figs. 11 to 14 inclusive, the parts and members which are similar to those in the crate illustrated by Figs. 1 to 10 inclusive, have been indicated by similar numerals, hence is necessary only to point out the differences.

The crate shown in Figs. 11 to 14 inclusive is of a lighter construction because the center inside post members 12 and their cooperating cross members 13 are in this crate omitted and in their place lighter but wider slat-like members 27 are provided. The members 27 are nailed across the outside of the center of the side slat members 14 and on the inner side of the bottom members 15.

The crate side retaining hook member 22 in the modified crate shown in Figs. 11 to 14 is positioned at the top of the crate sides so as to lie directly under the cover 10^D to form a central support therefor.

The covers 10^D of the crates may be provided with reinforcing cross members 28 of a comparatively small cross section nailed in spaced relation to each other across and on the underside of the longitudinal slat members 15, as shown in Fig. 10.

I prefer to have such cross-members 28 of triangular cross-section, as shown in Figs. 10 and 10^x, to permit such triangular members to be projected in between the sides of the rows of the small fruit baskets to thus retain such small baskets in spaced positions and non-slidable laterally in the crate when the cover is in closed position.

It is believed that the above description together with the illustrations clearly discloses my invention in its preferred embodiments. Changes and modifications in the various parts and mem-

bers and their relative arrangement may be made without departing from the scope of my invention as set out in the following claims.

Attention is called to the free side of the cover 10D wherein the cross members 13 are, at such free side, cut square to rest squarely on top of the posts 11 and 12, and the end posts 17, through which ends of the cross members 13 nails may be driven into the tops of posts 11, 12 and 17 to securely close the crate for shipment to the customer.

I claim:—

1. A crate of the class described, and in combination, a plurality of built-up sides, said sides comprising a plurality of posts forming cross-members and a plurality of spaced slat-members connected to said post cross-members and extending longitudinally of said sides; a pair of ends for said crate comprising a pair of end posts and a cross-member connected to said end posts and intermediate their ends; said plurality of crate sides being connected together at their adjacent ends with metal connections mounted on the ends of said post cross-members, said metal connections being of channel cross-section and adapted to bend across one face thereof to afford a hinge-like connection between said built-up sides; a longitudinal partition for said crate, said partition comprising a pair of spaced longitudinally-extending slats and a pair of cross-members connected to said longitudinal partition slats, one near each end of said partition slats, said partition cross-members being arranged to abut with the inner sides of the cross-members on the crate ends, said pair of longitudinal partition slats being arranged for support upon the upper edge of said cross-members on the crate ends; and a central support for said pair of longitudinal partition slats, said central support being pivotally connected to one of the sides of the crate and having a hooked connection with the opposite side of the crate.

2. A crate of the class described, and in combination, a plurality, of built-up sides, said sides comprising a plurality of posts forming cross-members and a plurality of spaced slat-members connected to said cross members and extending longitudinally of said sides; a pair of ends for said crate comprising a pair of end posts and a single cross-member connected to said end posts and intermediate their ends; said plurality of sides being connected together at their adjacent ends with metal connections mounted on the ends of said post cross-members; a longitudinal partition for said crate, said partition comprising a pair of spaced longitudinally-extending slats and a pair of cross-members connected to said longitudinal partition slats, one near each end of said partition slats, said partition cross-members being arranged to abut with the inner sides of the cross-members on the crate ends, said pair of longitudinal partition slats being arranged for support upon the upper edge of said cross members on the crate ends; and a central support for said pair of longitudinal slats, said central support being pivotally connected to one of the sides of the crate and having a detachable connection with the opposite side of the crate.

3. A crate of the class described, and in combination, a plurality of built-up crate sides, said crate sides comprising a plurality of posts forming cross-members and a plurality of spaced slat-members connected to said post cross-members and extending longitudinally of said crate sides; a pair of ends for said crate comprising a pair of end posts, a cross-member connected to said end posts and intermediate their ends; said plurality of crate sides being connected together with a plurality of flexible metal connectors; a longitudinal partition for said crate, said partition comprising a pair of spaced longitudinally-extending slats and a pair of cross-members connected to said longitudinal partition slats, one near each end of said partition slats, said partition cross-members being arranged to abut with the inner sides of the cross-members on the crate ends, said pair of longitudinal partition slats being arranged for support upon the upper edge of said cross-members on the crate ends; and a central support for said pair of longitudinal slats, said central support being connected to one of the sides of the crate and having a connection with the opposite side of the crate.

4. A crate of the class described, and in combination, a plurality of built-up crate sides, said crate sides comprising a plurality of posts forming cross-members and a plurality of slat-members connected to said post cross-members and extending longitudinally of said crate sides; a pair of crate ends for said crate comprising a pair of end posts and a plurality of cross-slats connected to said end posts; said plurality of crate sides being connected together with a plurality of flexible metal connectors; and a partition extending within and longitudinally of said crate and comprising a plurality of spaced longitudinally-extending slats and a pair of cross-members connected to said longitudinal partition slats; said partition cross-members being adapted to engage with the inner face of a cross-slat member of the crate ends, the posts of said crate ends being disposed to lie within the plane of the outer posts of the crate sides when the crate is assembled to receive the goods for shipment therein.

5. A crate as embodied in claim 4, and including a flexible metal connector for each of the posts of said crate-ends for connecting said crate-end posts to a post cross-member of one of the crate sides.

6. A crate as embodied in claim 4, and including a pivotally mounted cross-member adapted to extend between two of said crate sides, intermediate their ends, and to form a stiffener for opposite sides of the crate when it is assembled to receive the goods for shipment therein.

7. A crate as embodied in claim 4, and including a plurality of flexible metal strips connected to one of said crate sides and adapted to be bent over the crate side which forms the crate cover and secured thereto to thereby retain the crate cover in closed position.

8. A crate as embodied in claim 4, and including a plurality of flexible metal strips connected to one of said crate sides and adapted to be bent over the crate side which forms the crate cover and secured thereto to thereby retain the crate cover in closed position.

9. A crate as embodied in claim 4, and including the cover for said crate provided with a plurality of spaced cross-members of triangular cross-section secured to the longitudinally extending slat members.

10. A crate of the class described, and in combination, a plurality of built-up crate sides, said crate sides comprising a plurality of posts forming cross-members and a plurality of spaced slat-members connected to said post cross-members and extending longitudinally of said crate sides;

a pair of ends for said crate comprising a pair of end posts, a cross-member connected to said end posts and intermediate their ends; said plurality of crate sides being connected together with a plurality of flexible metal connectors; a longitudinal partition for said crate, said partition comprising a pair of spaced longitudinally-extending slats and a pair of cross-members connected to said longitudinal partition slats, one near each end of said partition slats, said partition cross-members being arranged to abut with the inner sides of the cross-members on the crate ends, said pair of longitudinal partition slats being arranged for support upon the upper edge of said cross-members on the crate ends; and a central support for said pair of longitudinal slats.

MICHAEL SIRNEC.