229. PAPER RECEPTACLES, CROSS REFERENCE Examiner

52-B

334

June 20, 1944. J. K. LIMBERT 2,351,825

SHIPPING CASE

Filed Jan. 22, 1943 2 Sheets-Sheet 1

FIG. 1.

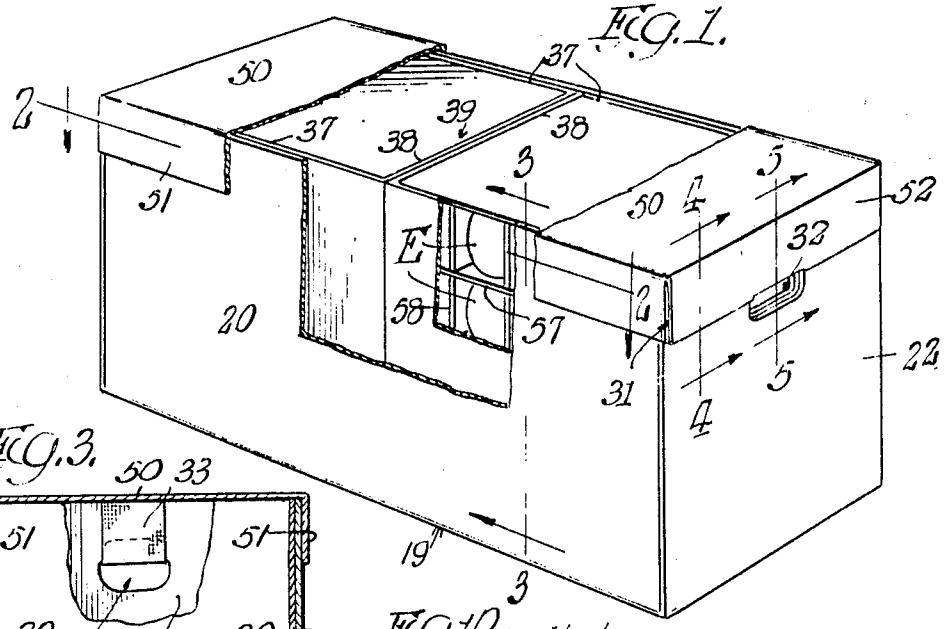


FIG. 3.

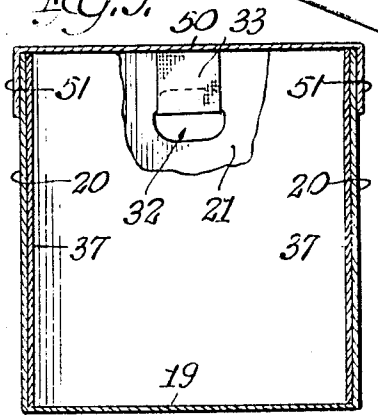
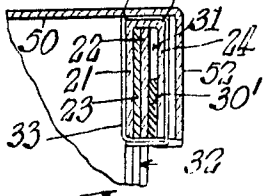


FIG. 10. — Mod.



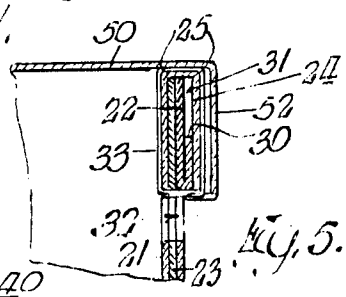
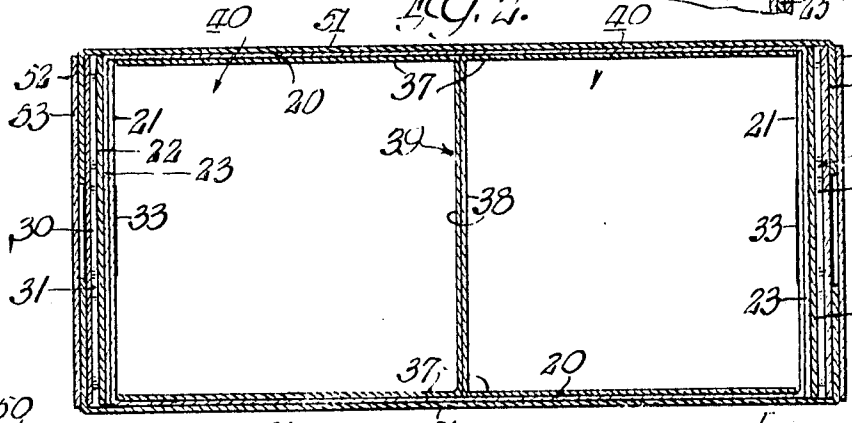


FIG. 5.

FIG. 2.



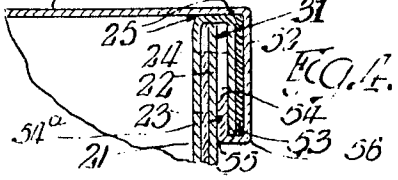


FIG. 4.

Inventor:
John K. Limbert
by Arthur M. Nelson Atty.

52

June 20, 1944. J. K. LIMBERT 2,351,825

SHIPPING CASE

Filed Jan. 22, 1943 2 Sheets-Sheet 2

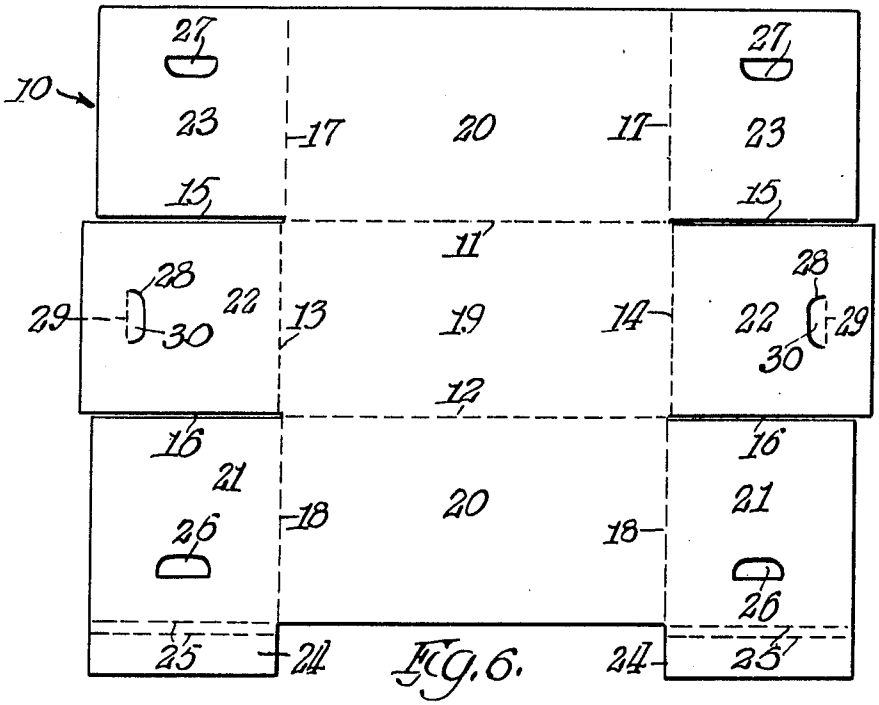


Fig. 6.

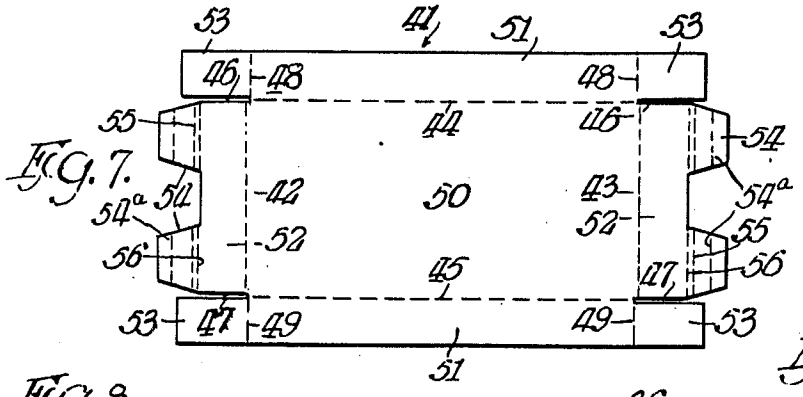


Fig. 7.

Fig. 8.

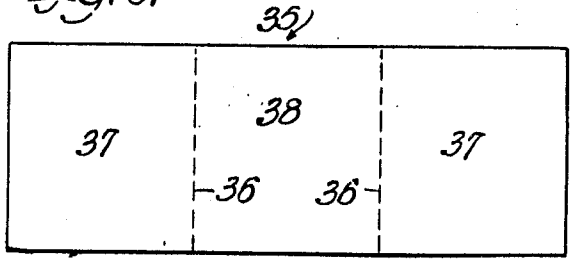
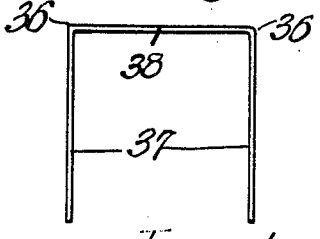


Fig. 9.



Inventor
John K. Limbert
By Arthur M. Nelson Atty.

Patented June 20, 1944 2,351,825

UNITED STATES PATENT OFFICE

2,351,825

SHIPPING CASE

John K. Limbert, Waterloo, Iowa, assignor to Central Fibre Products Company Inc., Chicago, Ill., a corporation of Delaware

Application January 22, 1943, Serial No. 473,205

9 Claims. (Cl. 229—45)

The present invention relates to improvements in cases or crates made of fibre, corrugated board and the like for use in shipping relatively small fragile articles. One principal use of the improved case is for the shipment of eggs. Therefore, the invention will be described in connection with such use, which, however, is to be considered only by way of illustration and not by way of limitation.

I am ware that egg cases of fibre, corrugated board and the like to take the place of the standard wooden case, have heretofore been devised but the same have not proven entirely satisfactory for one or more reasons.

One of the objects of the present invention is to provide an egg case which can be made of fibre or corrugated board, which may be used for all practical purposes for which the standard wooden egg case is used, and which at the same time overcomes the disadvantages found in fibre or corrugated board egg cases heretofore devised.

Another object of the present invention is to provide a shipping case similar in size and shape to the standard wooden egg case, and wherein the various parts thereof so interengage and brace each other that the case will not bow or bulge at the ends under the action of the weight of the eggs packed therein.

A further object of the invention is to provide a case of this kind that includes a cover so supported upon the body of the case that it remains smooth and even in its top surface and cannot "spring" at the ends to project in a manner to catch on a neighbor case when sliding one case upon another as when stacking such cases in tiers.

Again, it is an object of the invention to provide, in a shipping case of this kind, a novel cover for the body of the case and which cover and associated parts of the body are so constructed that they interengage in a firmer locking but detachable connection.

Also, it is a further object of the invention to provide a shipping case of this kind having a smoother and more even interior vertical wall surfaces from top to bottom so that when packing eggs therein by the use of conventional flats and fillers, the insertion of such flats and fillers is greatly facilitated.

Furthermore, it is an object of the invention to provide a shipping case of this kind wherein the cover, when in place upon the body, is supported about its margin by all of the uprigrht walls of the case and is transversely supported midway of its ends so that when the cases are filled and stacked, the weight of the upper cases is not imparted to the contents of the cases below, but is transmitted directly from and through the structure of one case to that of the other.

It is also an object of the invention to provide, in a case of this kind, a construction wherein the parts forming the ends of the case remain flat and parallel without a tendency to bow outwardly when parts of its associated cover are tucked into place between portions of said ends whereby the cover is detachably locked to the body.

Still a further object of the invention is to provide a construction for a shipping case of this kind wherein the end walls are formed to provide bumper like cleats which act to absorb end shocks and which cleats at the same time permit truck handling as with egg trucks often employed in handling wooden egg cases.

Also, it is a further object of the invention to provide a case of this kind having substantially the same dimensional characteristics as the standard and conventional wooden egg case so that the use of the improved cases does not change handling procedure, car loading or storage space requirements.

The above mentioned objects of the invention, as well as others, together with the several advantages thereof will more fully appear as the specification proceeds.

In the drawings:

Fig. 1 is a perspective view of an egg case embodying the preferred form of the invention, packed with eggs in the usual manner, with parts illustrated as broken away better to show the structure involved.

Fig. 2 is a horizontal sectional view through the egg case shown in Fig. 1 as taken on the line 2—2 thereof, the eggs, fillers and flats being omitted for the sake of clarity.

Fig. 3 is a transverse vertical sectional view through the egg case as taken on the line 3—3 of Fig. 1, the eggs, fillers and flats being omitted.

Figs. 4 and 5 respectively are detail vertical sectional views through upper portions of one end of the case (contents omitted) on a somewhat enlarged scale, as taken on the lines 4—4 and 5—5 respectively of Fig. 1.

Fig. 6 is a plan view of the blank from which the body of the improved egg case is made.

Fig. 7 is a plan view of the blank from which the cover for the body is made.

Fig. 8 is a plan view of one of a pair of blanks which when folded and disposed in the body forms

a transverse partition therein dividing the body into two compartments of equal size and which also serves other purposes.

Fig. 9 is a view illustrating the manner of folding the blank of Fig. 8 into substantially a U shape before placing the same in the body.

Fig. 10 is a detail view similar to Fig. 5 but showing a modified construction.

Referring now in detail to that embodiment of the invention illustrated in the drawings and especially to Fig. 6 thereof, the body of the case is formed from a cut and scored blank of sheet material, indicated as a whole by the reference numeral 10. This blank is substantially rectangular in form and may be any of a number of sheet materials or stocks such as fibre or corrugated board or the like. One preferred material is a double faced corrugated board having what is known in the trade as a C flute. Said blank is scored along the lines 11 and 12, which represent the sides of the bottom of the body when the blank is folded to form the same. Said blank is also scored along the lines 13 and 14 which represent the ends of the bottom of the body when the blank is folded to form the same. Also, said blank is slit as at 15—15 and 16—16 and is further provided with scored lines 17—17 and 18—18. It will be noted that the lines 13 and 14 are offset longitudinally with respect to the lines 17—17 and 18—18. The offset is substantially equal to the thickness of the stock comprising the two flaps 21—23 so that the lines 13 and 14 will be substantially coincident with the outer faces of the members 23—23 when the sheet is folded to form the case body.

The blank so scored and slit provides the bottom 19 and the sides 20—20 of the body as well as inner, outer and intermediate end wall parts 21—22 and 23 respectively. The terms "inner," "outer," and "intermediate" as here used, denote the relative positions said parts occupy when the blank 10 has been set up or folded to provide the body of the case. The inner end wall parts 21 are connected to one of the sides 20 by the scored lines 18, the outer end wall parts 22 are connected to the ends of the bottom 19 by the scored lines 13 and 14 and the intermediate end wall parts 23 are connected to the other of the sides 20 by the scored lines 17. Each inner end wall part 21 is provided along one side with an extension 24 in which is a pair of score lines 25—25.

In the parts 21 and 23 of the blank are cut out openings 26 and 27 respectively. The parts 22 of the blank are cut and scored as at 28 and 29 respectively to provide a tab 30 that may be folded back about the score line 29 so as to lie flat against the outer face of said part 22. As will appear later, when the blank is set up into body form and the tabs 30 are folded back as above mentioned, the openings left therein will register with the openings 26 and 27 in the associated end wall parts of the body for a purpose later to appear.

In setting up the blank of Fig. 6 to form the body, the sides 20—20 are swung upwardly about the score lines 11 and 12 to stand perpendicular to the bottom. The inner end wall parts 21—21 are then folded inwardly about the score lines 18 to coincide with the score lines 13 and 14, after which the intermediate end wall parts 23—23 are then swung inwardly about the score lines 17—17 to engage and lie flat against the outer surfaces of the end wall parts 21—21. Thereafter the outer end wall parts are swung upwardly about the score lines 13 and 14 to engage and lie flatwise against the outer face of the intermediate end wall parts 23—23. Before so swinging the end wall parts 22—22 into place, the tab 30 in each one of them is swung upwardly about the score lines 29 to lie against the outer face of said outer end wall part 22. Thereafter, the extension 24 of each inner end wall part 21 is folded about the pair of scored lines 25—25 therein and turned downwardly to overlap and lie against the tab 30 of the associated end wall part 22, as best appears in Figs. 4 and 5. From these figures it is apparent that a space 31 is provided between the upper portion of the outer end wall part 22 and the flap extension 24 and which space has a depth equal to the thickness of the associated tab 30.

When the parts have been folded and arranged as described, the openings left by turning back the tab 30 will register with the openings 26 and 27 in the end wall parts 23 and 22 respectively and form a hand hold 32 (see Figs. 1 and 5). In order to hold the body in its set up condition, I provide the following: 33 (see Fig. 5) indicates a strip of gummed fabric back paper stock which has a width approximating that of the hand hold opening 32. After moistening the gummed side of this strip, it is inserted through the hand hold opening 32 and the ends thereof are passed upwardly around the inner and outer surfaces of the case parts above said opening until the ends overlap. The overlapped ends are then pressed into adhering contact therewith. This secures the three wall parts 21—22 and 23 of each end of the case tightly together and at the same time secures the flap extension 24 in place as best appears in Figs. 4 and 5.

The parts thus far described form the open top body of the case with only one large compartment or space. When the body is to form the body of an egg case, it is divided into the customary two compartments by the use of the following arrangement. Referring now to Fig. 8, 35 represents an elongated rectangular strip-like blank or piece of sheet material preferably of the same kind as used for the body blank shown in Fig. 1. This blank is scored transversely along lines 36—36 thus forming two end panels 37—37 and an intermediate panel 38. When the blank 35 is folded along the lines 36—36 into the U-shape shown in Fig. 9, the end panels 37—37 are disposed at a right angle to the intermediate panel 38. The blank 35 is of such a width transversely that the panels 37 and 38 have a height that approximates that of the sides and ends of the body and the panels 37—37 are of a length approximating half the length of the inside of the sides of the body. In assembling a pair of such blanks into the body I fold each blank into the U shape of Fig. 9 and place them in the body with the panels 38—38 thereof arranged back to back and with the end edges of the panels 37—37 engaged in the corners of the body as formed by the side and end walls thereof. This provides a central transverse partition 39 in the body and divides the same into two approximately square compartments 40—40 as shown in Fig. 2. With such an arrangement, each compartment is smooth and uninterrupted by any shoulder ledges or the like in the four sides thereof. Furthermore, when the folded blanks or members 35 have been inserted into the case body as described, their top edges are flush with the top edges of the side walls 20—20 (see Fig. 3) and the panels 37—37 thereof provide a double thickness

CROSS REFERENCE Examiner

52

of stock for each side wall so that they are strong and rigid.

The top or cover for the body of the case is formed from the blank 41, shown in Fig. 7, which is preferably made of the same stock or sheet material as that used for the body blank 10 and the blanks 35—35. The blank 41, which is of rectangular shape, is scored along the transverse lines 42 and 43 and the longitudinal lines 44 and 45. Said blank is slitted longitudinally at its ends as at 46 and 47 and these slits form continuations of the score lines 44 and 45. Said blank is also scored at 48 and 49 which are offset inwardly of the score lines 42 and 43 a distance equal to the thickness of the stock. The score lines and the slits mentioned divide the blank into a central top portion 50, with side and end flaps 51 and 52 respectively and each side flap 51 has end extensions 53—53 which are foldable or bendable along the score lines 48 and 49. Each end flap 52, which is of the same width as the side flaps, is provided with a pair of laterally spaced extensions 54—54 and each extension is formed with three score lines 54a, 55 and 56 respectively. The score lines 55 and 56 are spaced apart about the thickness of two pieces of stock (see Fig. 4). The score line 54a is provided so that the part 54 may be more readily inserted with a sort of rolling action into the space 31 at the time the cover is placed on the case body.

The arrangement shown in Fig. 10 shows a construction in which the part 30' is a separate piece glued or otherwise secured to one of the adjacent parts instead of being integral with sheet blank as in the preferred form. The other parts of the structure may be the same and bear like reference characters.

When the case is to be used for shipping eggs, each compartment 40—40 will be packed with eggs E (see Fig. 1) and there will be fifteen dozen eggs in each compartment. Said eggs are arranged in five tiers, separated by flats 57 with each tier containing a filler 58 arranged to provide thirty-six cells, each to receive an egg. No attemot has been made to show the exact configuration of the flats and fillers as they are of well-known construction. They have, therefore, been shown in general outline without illustrating surface configuration.

After the compartments 40—40 have been packed with eggs as before mentioned, the top or cover is applied thereto in the following manner. The blank 41 shown in Fig. 7 is applied to the open top of the body with the score lines 42—43 and 44—45 in substantial register with the ends and sides of the body. The flaps 51 are then folded downwardly toward the top margin of the sides of the body, the extensions 53—53 of both flaps are then folded about the score lines 48—49 inwardly to overlap upon the outer faces of the end portions of the extension parts 24—24 of end wall parts 21—21 of the body, as best appears in Figs. 2 and 4. Thereafter the flaps 52—52 are folded downwardly to overlap the folded in flap extensions 53—53 at the respective ends of the body. In so folding down the flaps 52—52, their extensions 54—54 are folded inwardly about the pairs of scored lines 55 and 56 and the ends of said extensions are entered or tucked up from below into the ends of the spaces 31 before mentioned. Said end margins of said extensions are thus confined in said spaces between the outer face of the body end wall parts 22—22 and the folded over extensions 24 on the end wall parts 21—21. In the folding or tucking in of the extension parts 54—54 as before mentioned, they are folded or tucked under two thicknesses of stock as formed by the extensions 53 and 24. The use of the pairs of scored lines 55 and 56 prevents the said flap extensions from "springing" outwardly, as would occur if only a single score line were employed therein.

In will be observed, from Fig. 4, that the flap extensions 54 have a hooked engagement with the extensions 53 and 24 so this engagement securely but detachably locks the top or cover to the body.

It is to be noted that by the use of the laterally spaced flap extensions 54 on each flap 52, said extensions, when tucked into the spaces 31—31, are disposed one on each side of the turned or folded up flap 30 on the associated end wall part 22. Thus, said extensions have a good snug fit in said spaces 31—31 and do not tend to "spring" outwardly. It is also pointed out that at each end of the packed and closed case, there are four thicknesses of stock on a line with the top of the hand hold opening 32, which four thicknesses form a good thick cleat at the upper portion of each end of the packed case. This material forms a shock absorbing bumper and cleat therefor. Such a cleat is convenient for engagement by the outstanding "pick up" arms of a standard egg truck, which are frequently used in the egg packing industry in connection with wooden egg crates or cases. Hence the case may be "trucked" by the same practice as obtains with respect to handling wooden egg cases.

To open a case packed as before described, the operator grasps the ends of the cleat structure mentioned and springs the same outwardly from below so that the flap extensions 54—54 are released and spring out of the ends of the spaces 31. When this occurs the cover may be lifted upwardly as a unit from the body to uncover the open top thereof.

A shipping case constructed in accordance with this invention has, or may have, overall dimensions which are substantially those of a standard wooden egg case. It is therefore capable of receiving standard fillers and flats. It may be packed, handled, stacked and shipped as such an egg case and therefore the usual customs and procedures followed in handling wooden egg cases are followed with the improved case so that any one handling the case has nothing new to learn.

The construction described provides a good grip at the hand hold openings 32 and which grip is sufficiently thick at this point to prevent cutting or injury to the hands and breakage of the case under the action of the load which a filled egg case contains.

Whe eggs are shipped by freight, the cases are arranged lengthwise of the car. In the ordinary movement of freight cars, they are subjected to a jarring or jolting as when stopping and starting the car and this jarring or jolting tends to shift the cases of the pack lengthwise of the car. The shocks of such jarring and jolting are to a great extent absorbed and cushioned by the cleat structure mentioned.

The improved case requires no metallic parts such as nails or staples in its make up. It may be shipped in a flat knocked-down condition and may be set up without the aid of tools, forms, or machines and this may be done by an inexperienced operator.

While in describing the invention I have referred in detail to the form, arrangement and construction of the parts involved, the same is to

be considered only in the illustrative sense and not by way of limitation. Of course modification may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim as my invention:

1. A shipping case embodying therein an open top rectangular body of sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers which are a part of a single piece of material and which include an outer layer, spacing means positioned upon the outer surface of the upper portion of said outer layer, a layer inwardly of the outer layer including a part folded over to cover said upper portion of said outer layer and said spacing means, said folded over part of said layer inwardly of the outer layer, at each side extending laterally beyond said spacing means to form a downwardly opening space at each side of said spacing means to receive parts of the cover for the case, and means for securing said layers and said folded over part together in operative relation.

2. A shipping case embodying therein an open top rectangular body of sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers including an outer layer, spacing means upon the outer surface of the upper portion of said outer layer, a layer inwardly of the outer layer including a part folded over across the top edge of the outer layer and then down over said upper portion of said outer layer in contact with said spacing means so as to divide the space between said upper portion of said outer layer and said folded over part of said inner layer into a plurality of recesses, and means for securing said layers and said folded over part together in operative relation.

3. A shipping case embodying therein an open top rectangular body of sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers including an outer layer, an intermediate layer and an inner layer, the upper portion of said layers having registering hand hold openings therein, spacing means positioned on the outer surface of the outer layer above said hand hold opening therein, said inner layer including a part folded across the top edge of the outer layer and then down upon said upper portion of said outer layer and so engaged upon said spacing means as to leave space between said upper portion of said outer layer and said folded over part of said inner layer, beyond the border of said spacing means, and means for securing said layers and said folded over part together in operative relation.

4. A shipping case embodying therein an open top rectangular body of sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers including an outer layer, the upper portion of said layers having registering hand hold openings therein, the outer layer having a part cut therefrom and turned back and upward upon the upper portion of said outer layer to form spacing means, said inner layer including a part folded across the top edge of the outer and then down upon the upper portion of said outer layer and so engaged with said turned back and upward part of said outer layer as to leave space between said upper portion of said outer layer and said folded over part of said inner layer, and means for securing said layers and folded over part together in operative relation.

5. A shipping case embodying therein an open top rectangular body made from sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers including an outer layer, spacing means carried upon the outer surface of the upper portion of said outer layer, a layer inwardly of the outer layer including a part folded over to cover said upper portion of said outer layer and so engaged with said spacing means as to leave a downwardly opening space between said upper portion of said outer layer and said folded over part of said other layer, a cover for said open top of said body and including side walls and end walls, said end walls each including an outer portion having bottom end parts adapted to be folded upwardly and inwardly for insertion into said downwardly opening space and whereby said cover has a detachable hooked engagement with said body.

6. A shipping case embodying therein an open top rectangular body made from sheet material formed to provide a bottom and pairs of upright end and side walls for the body, the upright walls of one of said pairs being composed of a plurality of layers including an outer layer, spacing means carried upon the outer surface of the upper portion of said outer layer, a layer inwardly of the outer layer including a part folded over to cover said upper portion of said outer layer and so engaged with said spacing means as to leave a downwardly opening space between said upper portion of said outer layer and said folded over part, a cover for said open top of said body and including side walls and end walls, said end walls each including an outer layer that has bottom end parts adapted to be folded upwardly and inwardly for insertion into said downwardly opening spaces and whereby said cover has a detachable hooked engagement between said body and said cover, said side walls of the cover also including extensions adapted to be folded inwardly upon the associated end of the body and to be disposed between the end wall of the cover and said folded over part of said other layer of said body.

7. A shipping case embodying therein a rectangular open top body made from sheet material formed to provide a bottom, side walls and end walls, each end wall having a hand hold opening therein and including a part extending outwardly and then down over said upper portion of the outer faces of the end walls, spacing means disposed between said folded over part and the outer face of the end wall above the hand hold opening therein and forming downwardly opening spaces between said folded over part and said outer face at each side of said spacing means, a cover for said open top of said body and including side walls and end walls, said end walls each including laterally spaced bottom end flaps adapted to be folded upwardly and inwardly for insertion into said spaces from the bottom thereof and whereby said cover has a detachable hooked engagement with said body.

8. A shipping case embodying therein a rec-

tangular open top body made of sheet material formed to provide a bottom, side walls and end walls, each end wall having a hand hold opening therein and including a part extending outwardly and then down over said upper portion of the outer face of the end wall, spacing means disposed between said folded over part and said outer face above said hand hold opening and forming downwardly opening spaces between said folded over part and said end wall, one at each side of said means, a cover for said open top of said body and including side walls and end walls, said end walls each including laterally spaced bottom end flaps adapted to be folded upwardly and inwardly for insertion into said spaces from the bottom thereof and whereby said cover has a detachable hooked engagement with said body, said side walls of said cover including extensions adapted to be folded inwardly upon the associated end of the body and to be disposed between the end wall of the cover and said folded over part of the end wall.

9. A shipping case embodying therein an open top rectangular body of sheet material formed to provide a bottom and pairs of upright end and side walls, the upper portion of each end wall having a part cut therefrom to form a hand hold opening, said cut part being positioned upon the upper portion of the outer face of the end wall and forming spacing means, said end walls each having a part extending outwardly and downwardly, the inner face of the downwardly extending portion of said part resting against the outer face of said spacing means whereby space is provided between the inner face of said downwardly extending portion and the outer face of the end wall and means securing said parts and means in operative relation.

JOHN K. LIMBERT.