Oct. 8, 1929. G. R. GRIGG 1,730,816

SHIPPING CASE

Filed Nov. 14, 1927 3 Sheets-Sheet 1

Fig. 1.

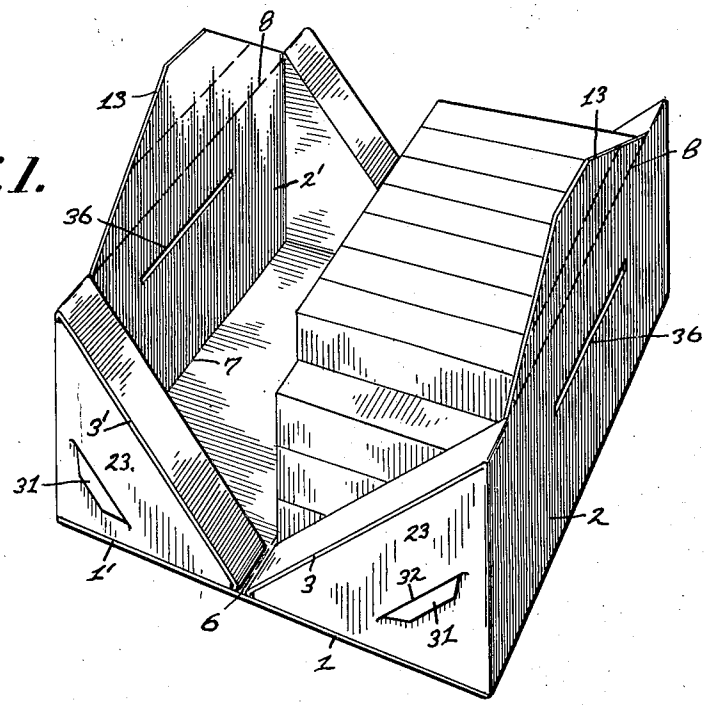
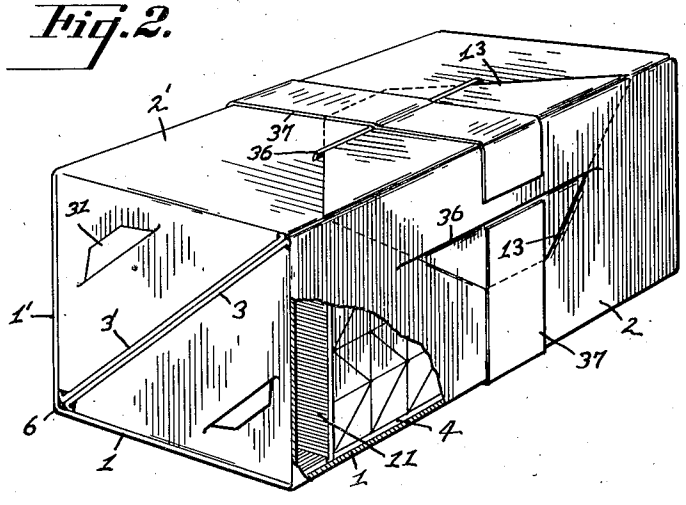


Fig. 2.



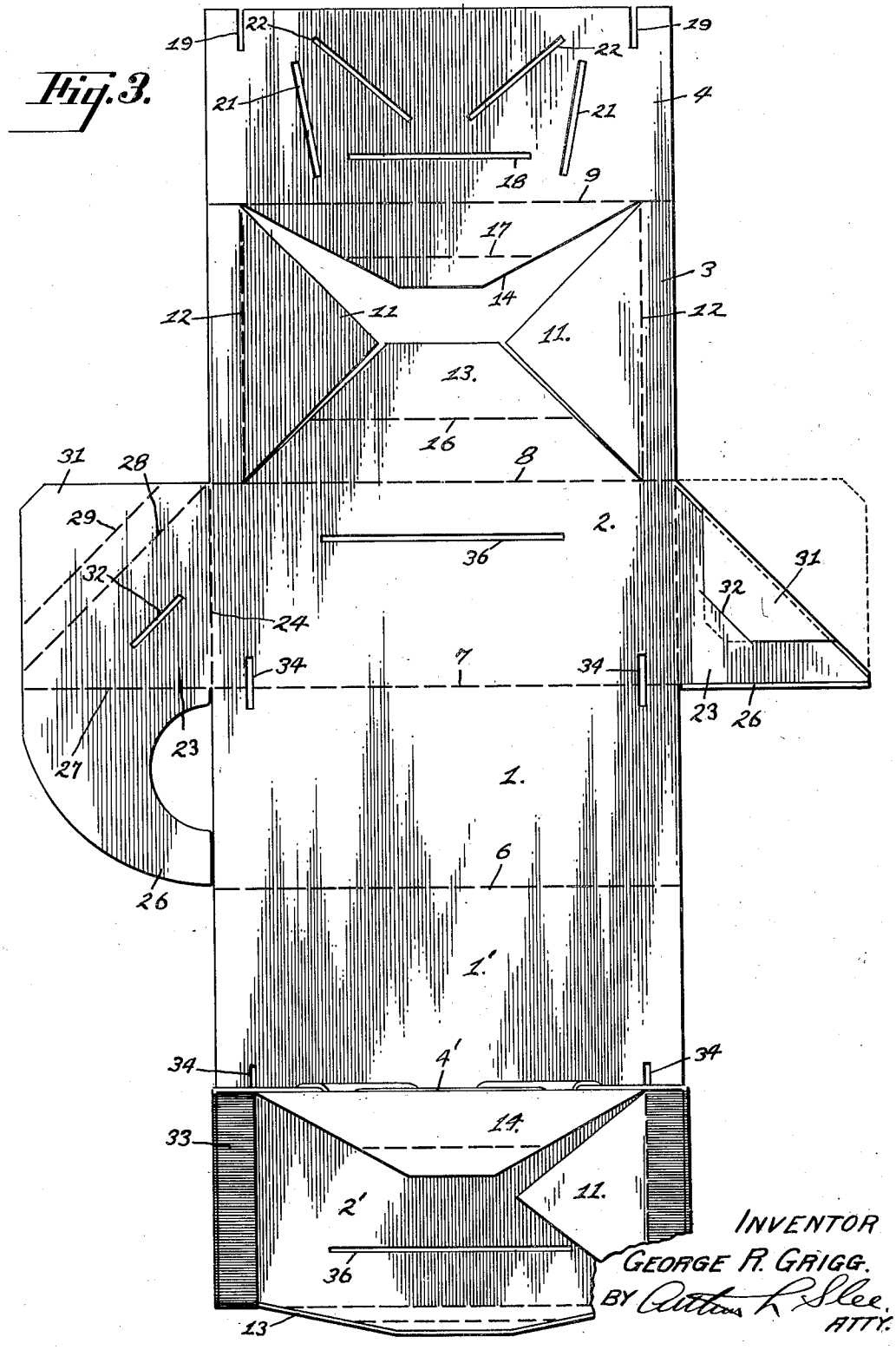
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SHIPPING CASE

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Fig. 3.



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SHIPPING CASE

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Fig. 4.

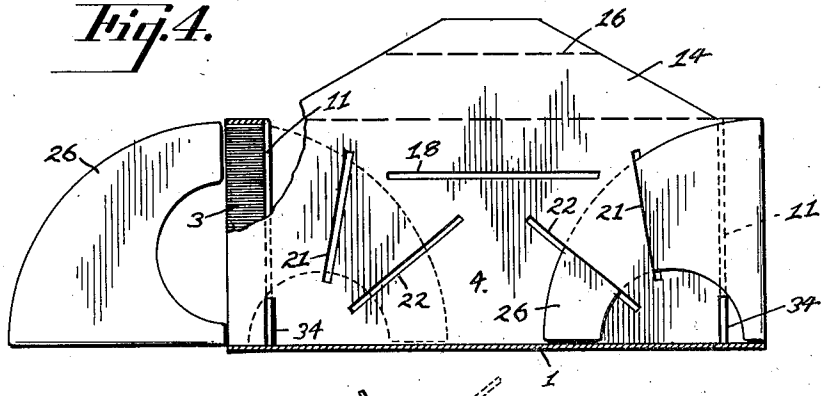


Fig. 5.

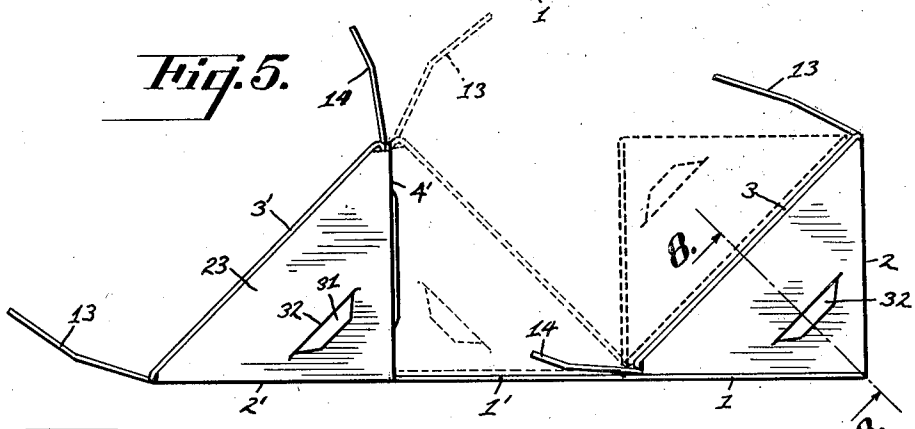


Fig. 6.

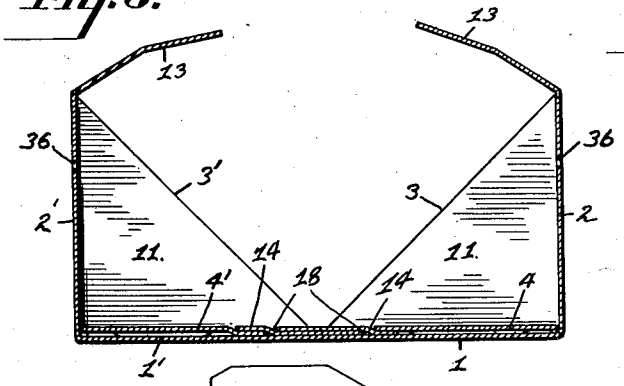


Fig. 7.

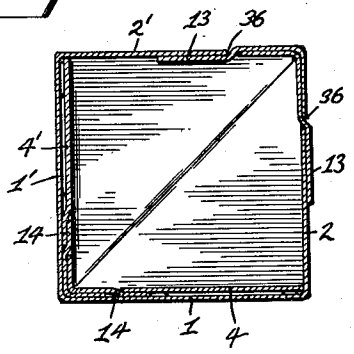
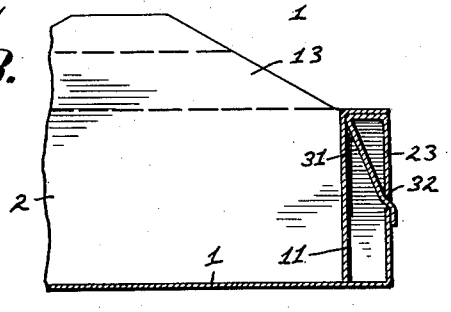


Fig. 8.



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Patented Oct. 8, 1929 1,730,816

UNITED STATES PATENT OFFICE

GEORGE R. GRIGG, OF SAN JOSE, CALIFORNIA

SHIPPING CASE

Application filed November 14, 1927. Serial No. 233,205.

My invention relates to improvements in shipping cases formed from card board or the like wherein a single blank is scored to form a plurality of panels foldable to form two similar right triangular hollow prismoidal sections movable to a closed position with their hypotenusal faces in proximate juxtaposition.

The primary object of the present invention is to provide an improved shipping case.

Another object is to provide an improved shipping case which may be conveniently packed and unpacked, and which may be used repeatedly.

A further object is to provide an improved case which is extremely rigid and which is particularly adapted for the packing and shipping of fragile objects.

Another object is to provide an improved shipping case formed from a pair of matching triangular prismoidal sections arranged to be moved and self-secured in juxtaposed relation.

A still further object is to provide an improved one piece structure of simple and economical construction.

I accomplish these and other objects by means of the improved device disclosed in the drawings forming a part of the present application wherein like characters of reference are used to designate similar parts throughout the specification and drawings and in which—

Fig. 1 is a perspective view of my improved shipping case in open position showing the manner in which goods are packed therein;

Fig. 2 is a perspective view of the case in closed position, a portion of the outer wall being broken away;

Fig. 3 is a view of the blank from which the case is formed, portions of the blank being shown in the initial folded positions;

Fig. 4 is a broken transverse sectional view showing the manner in which the end pieces are moved and secured to close the ends of the sections;

Fig. 5 is an end elevation showing the manner in which the sections are folded and moved to juxtaposed position, successive positions of the left hand section being shown in light and heavy dotted lines;

Fig. 6 is a transverse mid-sectional view of the case in open position;

Fig. 7 is a transverse mid-sectional view of the case in closed position; and

Fig. 8 is a broken sectional detail taken upon the line 8—8 of Fig. 5 in the direction indicated.

Referring to the drawings, my improved shipping case consists of a single blank stamped from cardboard or other suitable material and scored to form a plurality of panels 1, 2, 3, 4, and 1′, 2′, 3′, and 4′ said panels being numbered consecutively in opposite directions from a scored center line of fold 6, and being arranged to be folded along the scored lines 7, 8, 9, defining said panels.

The panels 3 and 3′, hereinafter referred to as the hypotenusal panels, have the center portions struck out to form triangular tabs 11 extending inwardly from the ends and foldable along a scored line 12 extending the full width of each panel in slightly spaced parallel relation to said ends. Tabs 13 and 14 are also formed from said struck out center portions, said tabs being foldable along the scored lines 8 and 9 and having scored lines of fold 16 and 17 formed thereon, respectively.

The end panels 4 have slits 18 formed therein in spaced parallel relation to the scored lines 9, and notches 19 formed in the extreme outer edges in substantial alinement with the scored lines 12. Angularly disposed pairs of slits 21 and 22 are formed in the body of each panel 4.

Extensions 23 are formed upon the ends of the panels 2 and arranged to be folded along scored lines 24 at the ends of said panels, said extensions being provided with arcuate tabs 26 extending toward the transverse center line of the blank and arranged to be folded upon a scored line 27 extending across each extension as a continuation of the scored line 7. Parallel diagonal scored lines 28 and 29 are formed upon each extension to form a corner 31 arranged to be folded inwardly and moved into engagement with a slit 32 formed in the extension 23.

The lines 28 and 29 are spaced a distance equal to the space between the ends of the panels 3 and the scored lines 12, so that when the corner 31 is folded inwardly from the flat position indicated in dotted lines to the folded position as shown in full lines at the right of Fig. 2 of the drawings, a triangular end piece is formed having a flat hypotenusal edge 33 adapted to match with the end portion of the panel 12 when said end piece is turned upwardly as indicated in the partially folded portion of the blank at the bottom of said Fig. 2.

The blank, cut and scored in the manner shown and described, is folded to form the shipping case in the following manner. The end panels 4 and 4′ are first bent upwardly along the scored lines 9 and the hypotenusal panels 12 folded upwardly along the lines 8 until the edge of the previously folded panels 4 and 4′ are moved against the scored lines 7. In this relation the panels 2 and 4 correspond to the legs of a right triangle, the hypotenuse of which is defined by the panel 3, thereby forming a prismoidal case section at each end of the blank. The triangular tabs 11 are then bent inwardly along the lines 12 to extend across the ends of the prismoidal sections, said tabs, being shaped to conform to the triangular form of said sections. The points of the tabs 11 engage the notches 19 and slits 34 formed in corresponding position across the juncture of the panels 1 and 2, said notches and slits being adapted to hold the tabs 11 in spaced parallel relation to the ends of the prismoidal sections. The tabs 13 and 14 are bent outwardly along the lines 8 and 9. The end pieces formed by the extensions 24, are then moved to close the ends of the sections, said extensions having the corners 31 first folded inwardly into engagement with the slits 22 and then folded upwardly to close the ends of the sections. The tabs 26 are bent inwardly along the lines 27, and as the end pieces are turned upwardly into end closing position, the points of the tabs are introduced through the pairs of slits 21 and 22, as shown in Fig. 4, thereby effectually securing the end pieces in end closing position.

From the position above described, the prismoidal sections are turned inwardly along the lines 7 to the open case position shown in Figs. 1 and 6. In thus moving the sections, one of the sections is first turned inwardly as shown in Fig. 5, the outer surface of the panel 4 being moved into matching contact with the panel 1. The tab 14 extends over the adjacent panel 1′, while the tab 13 extends upwardly from the top edge of the prismoidal section as shown at the right in said Fig. 5 of the drawings. The other prismoidal section is then turned inwardly along its line of fold 7 from the position shown in full lines to the position indicated in light dotted lines. As the latter section is thus moved, the tab 14 is introduced upwardly through the slit 18 in the panel 4′, and as said section is further moved, the tab 14 carried thereby is introduced downwardly through the slit 18 in the panel 4 of the first moved section, said tabs being thus caused to interlock across the bottom of the case and thereby hold the lower edges of the prismoidal sections together in what is termed the open case position as best shown in Fig. 6 of the drawings. In this relation it will be seen that my improved case consists of two prismoidal sections having opposite open hypotenusal faces, resulting from the displacement of the tabs 11, 13, and 14, from the hypotenusal panels 3, and joined along their adjacent edges.

From the open case positions above described, the sections are moved to closed relation by turning one of the sections upwardly along the center line of fold 6, to the closed position shown in heavy dotted lines in Fig. 5 and in full lines in Figs. 2 and 7. The overlapping tabs 14 have their scored lines of fold 9 matching with the line 6 so that said tabs reinforce the panels 1 and cooperate with the fold between said panels 1 to permit a hinge like movement between said sections. As the sections are moved to closed relation, the tab 13 of one section is moved outwardly through a slit 36 formed in the panel 2 of the opposite section, and the tab 13 of said opposite section is moved to engage and extend inwardly through the corresponding slit 36 in the first section as shown in Figs. 2 and 7. In this manner, the tabs 13 secure the two prismoidal sections together at their free edges with their hypotenusal faces in proximate juxtaposition, thereby forming a case of rectangular cross section having a rectangular packing space therein. To seal the case in closed relation for shipping, an adhesive strip 37 is extended over the tabs 13 and the adjacent surfaces of the panels 2, said strip preferably being extended entirely around the case as shown in Fig. 2.

In packing or unpacking the case, the sections are moved to open position, thereby permitting goods to be readily stacked or removed from one section, each section being entirely open across the top and one side. The goods are stacked in one section to occupy the full rectangular space, as shown in Fig. 1, the opposite section serving to fully cover the goods when said section is moved to closed position.

My improved packing case is extremely rigid, as the triangular end pieces, cooperating with the tabs 11 form a double walled end which is reinforced by the corner portions 31 as best shown in Fig. 8 of the drawings, thereby giving strength and rigidity and effectually maintaining the shape of each section. The double thickness of material ex-

tending substantially entirely around the case gives both strength and rigidity and effectually protects the case and its contents from injury in ordinary service. The case may be used repeatedly as it can be opened and unpacked without injury to the case.

My improved shipping case, while adapted for use in a great number of ways, particularly for the shipment of fragile articles, is especially useful for the packing and shipping of eggs and the like previously packed in small cartons such as disclosed in my copending application, Serial Number 223,909, filed October 4, 1927. By use of my improved carton and shipping case, eggs may be packed and safely shipped by the producer directly to the market, thereby avoiding the repacking commonly resorted to, and insuring the identity of the product sold.

While I have illustrated and described only the preferred embodiment of my invention the device is, of course, subject to modification in numerous ways without departing from the spirit of my invention. I therefore do not wish to restrict myself to the specific details of construction, but desire to avail myself of all modifications which may fall within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold upon one edge of their hypotenusal faces and movable to a closed relation with said hypotenusal faces in proximate juxtaposition; and tabs formed integrally with each section upon the unhinged edges of the hypotenusal faces and arranged to engage each opposite section to secure the sections in closed relation.

2. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold upon one edge of their hypotenusal faces and movable to a closed relation with said hypotenusal faces in proximate juxtaposition; and tabs struck from the hypotenusal panels of each section and arranged to be extended outwardly from the free edges of said panels to engage slits formed in a wall panel of each opposite section to secure the sections in closed relation.

3. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank and folded to close the ends of the sections; and triangular tabs struck from the hypotenusal panels of the sections and turned inwardly to extend across the ends of the sections.

4. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank and folded to close the ends of the sections; and trinagular tabs struck from the hypotenusal panls of the sections and turned inwardly to extend across the ends of the sections in spaced relation to the folded extensions to form hollow double end walls.

5. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, an outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections

6. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, the outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections; and triangular tabs struck from the hypotenusal panels of each section and turned inwardly into spaced relation to the end piece.

7. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, the outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner

hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections; and triangular tabs struck from the hypotenusal panels of each section and turned inwardly into spaced relation to the end pieces; and tabs struck from the hypotenusal panels of each section and arranged to engage slits formed in wall panels of each opposite section to secure the sections in closed relation.

8. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular primoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, an outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections; and means for securing the end pieces in end closing position.

9. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, an outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections; and tabs formed upon the sides of the extensions and arranged to engage slits formed in wall panels of the sections to secure said end pieces in end closing position.

10. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, an outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end piece being turned inwardly to close the ends of the sections; tabs formed upon the sides of the extensions and arranged to engage slits formed in wall panels of the sections to secure said end pieces in end closing position; and tabs struck from the hypotenusal panels of each section and arranged to engage slits formed in the wall panels of each opposite section to secure the sections in closed relation.

11. A shipping case comprising a blank scored to form a plurality of panels folded to form two triangular prismoidal sections hingedly connected along a line of fold and movable to a closed relation with their hypotenusal faces in proximate juxtaposition; extensions formed upon the sides of the blank, each extension having parallel scored lines of fold formed thereon and a slit parallel to the lines of fold, an outer corner of the extension being folded inwardly into engagement with the slit to form a triangular end piece and a brace inclined from the inner hypotenusal edge of the end piece to the slit to brace and reinforce said end, said end pieces being turned inwardly to close the ends of the sections; tabs formed upon the sides of the extensions and arranged to engage slits formed in wall panels of the sections to secure said end pieces in end closing position; and a pair of tabs struck from the hypotenusal panels of each section and folded outwardly from the longitudinal edges thereof, each tab being extended into engagement with a slit formed in a wall section of each opposite section to secure the sections in closed relation.

12. A shipping case comprising a blank scored to form a plurality of panels folded to form two similar triangular prismoidal sections each having wall panels and a hypotenusal panel, said sections being hingedly movable relative to each other along a line of fold whereby said sections may be moved to a closed relation with their hypotenusal faces in proximate juxtaposition; triangular tabs struck from the hypotenusal panels of the sections and turned inwardly upon lines of fold adjacent the ends of the panels to extend across the ends of the sections; and tabs struck from the hypotenusal panels of the sections and turned outwardly along the line of fold defining the longitudinal edges of said panels, said tabs being arranged to engage slits formed in wall panels of the opposite sections.

13. A shipping case comprising a blank scored to form a plurality of panels folded to form two similar triangular prismoidal sections each having wall panels and a hypotenusal panel, said sections being hingedly movable relative to each other along a line of fold, whereby said sections may be moved to a closed relation with their hypotenusal faces in proximate juxtaposition; triangular tabs struck from the hypotenusal panels of the sections and turned inwardly upon lines of

fold adjacent the ends of the panels to extend across the ends of the sections; tabs struck from the hypotenusal panels of the sections and turned outwardly along the line of fold defining the longitudinal edges of said panels, said tabs being arranged to engage slits formed in wall panels of the opposite sections; and end pieces formed from extensions upon the sides of the blank and folded inwardly to close the ends of the sections.

In witness whereof, I hereunto set my signature.

GEORGE R. GRIGG.