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E. MORAND

2,472,674

DUPLEX BOX OR CARTON

Filed Oct. 31, 1947

3 Sheets-Sheet 1

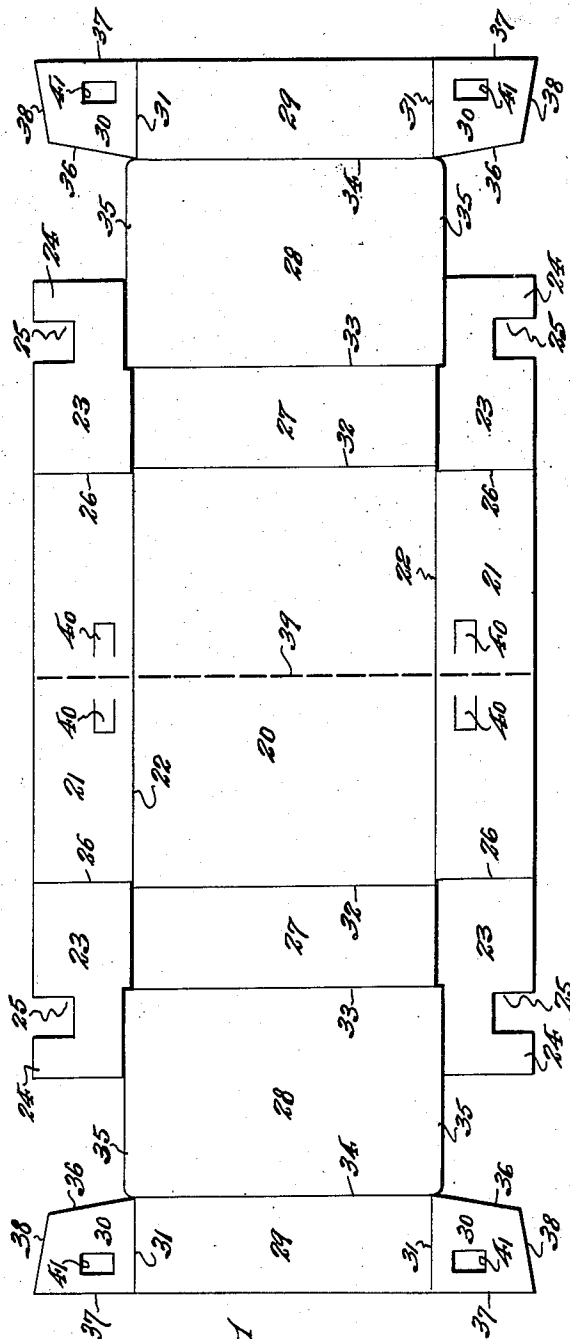


Fig. 1

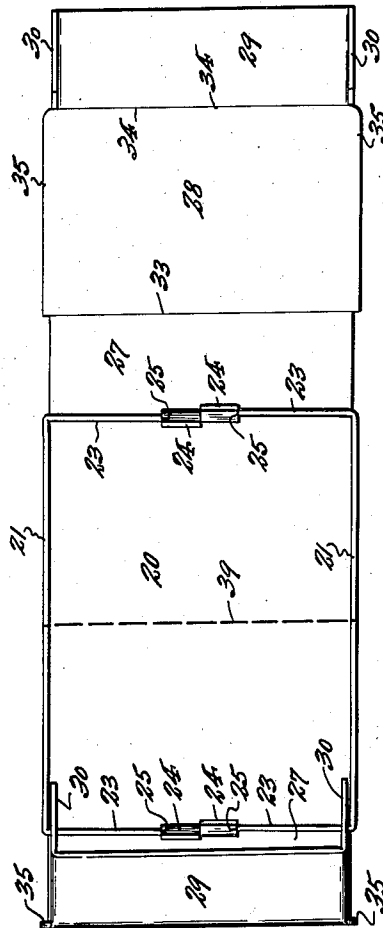


Fig. 2

INVENTOR.

Emil Morand,
BY *George S. Richards*
Attorney

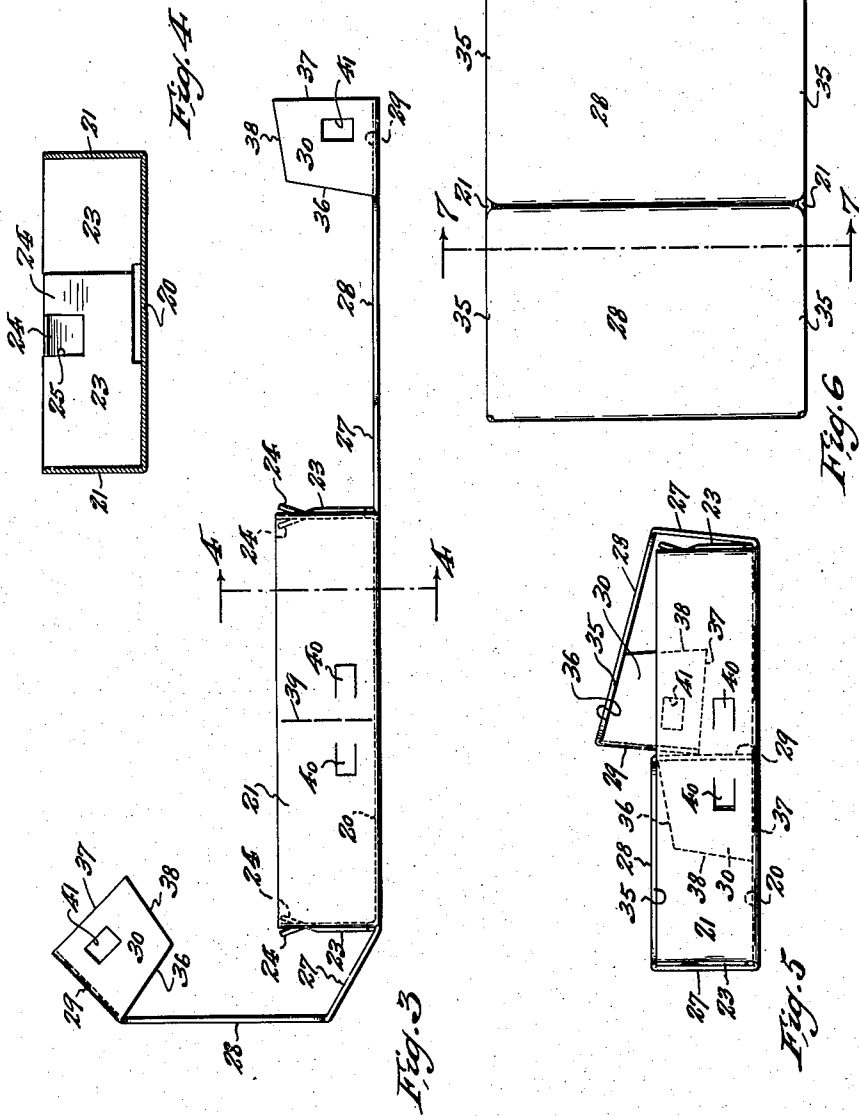
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INVENTOR.
Emit Morand,
BY George Richards,
Attorney.

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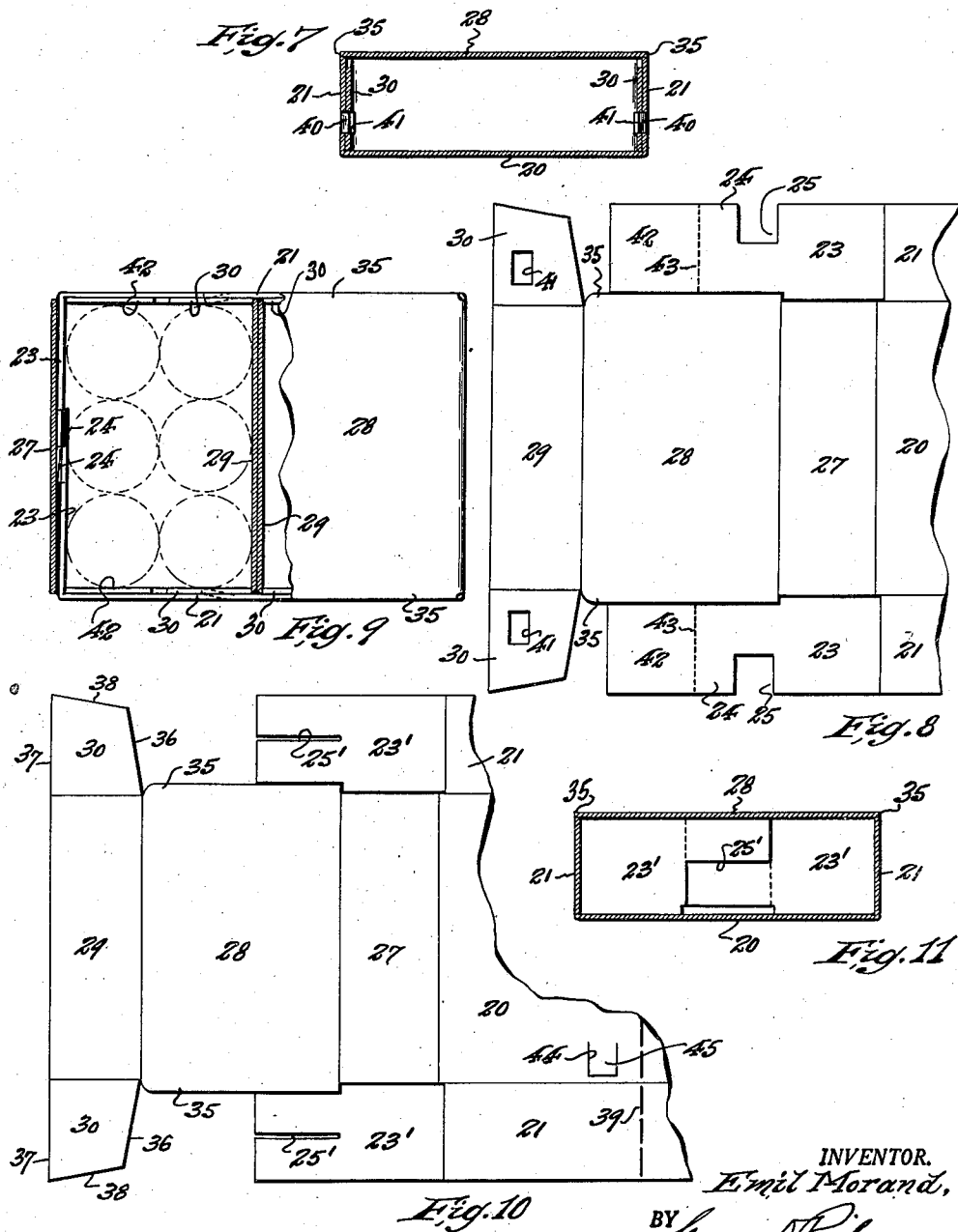
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3 Sheets-Sheet 3



INVENTOR.
E. Morand,
BY *Guys Richards*
Attorney

UNITED STATES PATENT OFFICE

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DUPLEX BOX OR CARTON

Emil Morand, Jersey City, N. J.

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6 Claims. (Cl. 229—36)

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This invention relates to an improved construction of duplex box or carton.

The invention has for an object to provide a novel construction of duplex box or carton adapted to be formed from a single or unitary blank of foldable paper stock, whereby to provide two initially joined completely closed independent but separable box or carton members.

The invention has for another object to provide a novel construction of duplex box or carton the initially joined box or carton members of which may be easily broken apart and separated one from the other, but, when thus separated, to each provide a closed box or carton which forms a complete, strong, rigid and durable individual container or enclosure for merchandise or other selected content.

Another object of the invention is to provide a duplex box or carton adapted to be formed from a single blank of paper stock, especially corrugated paperboard, wherein the form and arrangement of relatively foldable parts of the blank is such that, when folded into box or carton formation, two complete but separable box or carton members will be provided, with the folded parts of each said box or carton so related and cooperative as to provide substantially dust proof individual containers.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

Illustrative embodiments of this invention are shown in the accompanying drawings, in which:

Fig. 1 is a plan view of one form of a cut and scored blank from which the novel duplex box or carton of this invention can be formed.

Fig. 2 is a plan view of the blank of Fig. 1 with its side panels erected perpendicular to the bottom panel and with end wall forming members intumed and joined prior to infolding articulated outer end and top cover and inner end wall sections; and Fig. 3 is a side elevational view of the blank as partially folded in Fig. 2.

Fig. 4 is a transverse vertical section, taken on line 4—4 in Fig. 3.

Fig. 5 is a side elevational view, with the outer end and top cover and inner end wall sections infolded to complete the duplex box or carton.

Fig. 6 is a top plan view of the completed duplex box or carton; and Fig. 7 is a transverse vertical sectional view thereof, taken on line 7—7 in Fig. 6.

Fig. 8 is a fragmentary plan view of a modified form of cut and scored blank from which to

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form the duplex box or carton of this invention; and Fig. 9 is a plan view of the duplex box or carton formed from the blank of Fig. 8, with parts broken away and shown in section.

Fig. 10 is a fragmentary plan view of another modified form of cut and scored blank from which to form the duplex box or carton of this invention; and Fig. 11 is a transverse vertical sectional view of a duplex box or carton formed from the blank of Fig. 10.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

The novel duplex box or carton of this invention is produced from a blank of suitable paper stock, such e. g. as corrugated paperboard, cardboard, paste-board or the like. The blank, in one form thereof as shown in Fig. 1, is cut and scored to provide a bottom panel 20 and side panels 21 respectively extending along the respective longitudinal margins of said bottom panel and foldably joined thereto by scores 22. Extending from each end of each side panel 21 is an interlocking end wall section 23, each being provided at an outer longitudinal marginal portion with an interlock tab 24 and adjoining interlock notch 25. Each interlocking end wall section is foldably joined to the contiguous side panel 21 by a transverse score 26. Extending outwardly from each end of the bottom panel 20, in longitudinal sequence, are an exterior end panel 27, a cover or top panel 28 and an interior end panel 29, the latter having side flaps 30 extending from its side margins which are foldably joined thereto by scores 31. Each exterior end panel 27 is foldably joined to the contiguous end of the bottom panel 20 by a transverse score 32, and, in like manner, each cover or top panel 28 is foldably joined to the contiguous exterior end panel 27 by a transverse score 33, while each interior end panel 29 is foldably joined to the contiguous cover or top panel by a transverse score 34. The widths of the cover or top panels 28 exceed the width of the exterior and interior end panels 27 and 29 between which they extend, thus providing said cover or top panels with free outwardly projecting longitudinal marginal portions 35, the purposes of which will later herein be disclosed. Each side flap 30 with which the interior end panels 29 are provided, are shaped to possess oblique inner side margins 36 which incline toward the opposite straight outer side margins 37, the purposes of which will also later herein be disclosed. If desired, the free end of each side flap 30 may be provided with an oblique margin

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38 convergent upon said oblique inner side margin 35. The blank is provided with a transverse line of weakening perforations 39 extending across the bottom panel 20 intermediate its ends, and, if the box or carton to be formed is of a high side wall type, the said line of weakening perforations is also extended across the side panels 21; if, however, the box or carton to be formed is of a low side wall type, then the extension of said line of weakening perforations across the side panels 21 may be omitted.

In setting up the duplex box or carton from the above described blank, the side panels 21 are turned upwardly about the scores 22 to stand perpendicular to the bottom panel 20, whereupon the interlocking end wall sections 23 at corresponding ends of the erected side panels 21 are intumed about the scores 26 so as to extend one toward the other across the contiguous end of the bottom panel 20 and perpendicular thereto. The free meeting end portions of cooperative end wall sections, as thus disposed and erected, are so dimensioned as to lap one another, and their lapped end portions are mutually interlocked against longitudinal separation or relative displacement by bending and forcing the interlock tab 24 of each one through the interlock notch 25 of the other, as shown in Figs. 2, 3 and 4.

The duplex box or carton, as thus far formed, provides an upwardly open box body ready to receive a desired content preparatory to closing the same (see Figs. 2 and 3). To close the duplex box or carton one set of foldably related parts at one end of said box body comprising an exterior end panel 27, a cover or top panel 28 and an interior end panel 29 are manipulated. Preparatory to such manipulation, the side flaps 30 are in-turned about the score lines 31 for disposition at right angles to the plane of said interior end panel 29. This having been done, the exterior end panel 27 is erected to externally overlie the adjacent interlocked end wall sections 23, whereupon the cover or top panel 28 and interior end panel 29 are relatively turned about the respective scores 33 and 34, and then swung over said box body so as to enter the interior end panel 29 within the box body interior and disposed therein to extend across the mid-portion thereof, perpendicular to the bottom panel 20, with the side flaps 30 disposed to overlie the inner faces of the erect side panels 21. One end of the box body having been thus closed, the exterior end panel 27, cover or top panel 28 and interior end panel 29 with its side flaps 30, which extend in longitudinal sequence from the opposite end of the bottom panel 20, are severally manipulated in similar manner, whereby to close the remaining open end portion of said box body. It will be noted that closing manipulation of these latter parts, and especially the tucking in of the interior end panel and its intumed side flaps, is facilitated by reason of the provision of the oblique margins 35 possessed by said side flaps, by reason of which said interior end panel is permitted to be in-swung beyond a plane perpendicular to the cover or top panel from which it extends, thus allowing said interior end panel to easily enter and move downwardly and inwardly along the face of the previously inserted opposite interior end panel with a minimum of resistance, and without risk of buckling, bending or otherwise deforming or breaking the several parts (see Fig. 5). When however the insertion of the last entered interior end panel 29 is complete, the

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straight outer margins 37 of the side flaps will be stopped in abutment upon the bottom panel 20, thus squaring said interior end panel with its associated cover or top panel 28, when the latter comes to rest in horizontal extension over the open top of the box body.

When the cover or top sections 28 are disposed in box body closing position, the projecting longitudinal marginal portions 35, will overhang and abut the top edges of the side panels 21, thus effectively closing the open top of the box body against sifting in of dust or dirt (see Fig. 7).

From the above it will be obvious that this invention provides a novel unitary duplex box or carton comprising two completely closed individual box or carton members having common bottom and side portions; at least the bottom portion, and generally the side portions also, being provided with a weakening line of perforations 39 disposed to extend between the two said box or carton members, whereby, when desired, the said box or carton members may be separated one from the other by merely breaking apart said bottom and side portions along said weakening line of perforations.

If it is desired to secure the cover or top panels and associated parts of the box or carton members against accidental displacement from their box or carton member closing positions, suitable means for such purpose may be provided. One means for the purpose is shown in connection with the blank of Fig. 1, wherein the side panels 21 are provided, in portions thereof to which the side flaps 30 of interior end panels 29 are contiguous when the duplex box or carton is set up and closed, with struck out rectangular locking tongues 40. Said side flaps 30 are each provided with rectangular lock tongue receiving openings 41, which are so located as to be brought into registration with the lock tongues 40 when the side flaps occupy operative inserted positions within the box interior. To lock the members of the duplex box against accidental opening, said locking tongues 40 are pushed inwardly through a contiguous opening 41, whereby to intersect the flaps 30, and thus hold the same against outward withdrawal from the box interior.

Referring to Fig. 8, I have shown therein a blank similar to that of Fig. 1, but modified to include detachable packing pieces 42 which extend from the ends of the interlocking end wall sections 23, being divided from the latter by weakening perforate lines 43, so that prior to setting up the duplex box or carton from the blank, said packing pieces 42 may be detached. After the box body is formed and the desired content deposited therein, said packing pieces 42 may be inserted to overlie the inner faces of the side panels between the ends of the side flaps 30 and the interlocked end wall sections 23, thus equalizing the width of the box interior at these points with the width between the side flaps 30, so that the inserted or packed articles are held snugly and free from undue relative shifting movement or play (see Fig. 9).

Referring to Fig. 10, I have shown therein another form of blank which is substantially the same as that of Fig. 1 with the exception that it includes modified forms of interlocking end wall sections 23'. Said end wall sections 23' are provided with longitudinal interlock slots 25' which extend therinto from their free ends. When the side panels 21 are erected and the interlocking end wall sections 23' at corresponding ends of

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said side panels are in-swung into meeting relation, the free end portions of said sections 23' are joined or coupled by interengaging the interlock slots 25 thereof whereby the section end portions are disposed in mutual straddling relation (see Fig. 11).

In the blank of Fig. 10, the bottom panel 20 is provided with suitably disposed openings 44 closed by yieldable tongues 45. When the duplex box or carton is set up or formed from the blank and the side flaps 30 of the interior end panels 29 are disposed to overlie inner surfaces of the side panels 21, said side flaps 30 and contiguous portions of the side panels may be secured by fastening staples applied thereto by a suitable stapling tool, the inner jaw of which may pass a yieldable tongue 45 and be entered through an opening 44 so as to operatively engage with said flap and side panel parts during the stapling operation. This method of fastening the members of the duplex box or carton in closed condition is alternative to the previously described fastening provided by the locking tongues 40 and cooperative openings 41.

Having now described my novel construction of duplex box or carton, I claim:

1. A duplex box formed from a blank of paper stock, said box comprising flat bottom and erect side panels, each side panel having end wall sections extending longitudinally from each end thereof and in-folded to stand across the ends of said bottom panel between said side panels, the meeting end portions of opposed end wall sections having cooperative means for interengaging the same in coupled together relation, a relatively foldable, longitudinally sequential arrangement of connected exterior end panel, top panel and interior end panel extending from each end of said bottom panel, each interior end panel having foldable side flaps laterally extending therefrom, each said arrangement being adapted to be in-folded so that the exterior end panels respectively stand in external overlying relation to adjacent joined end wall sections and so that the top panels close the box top with the interior end panels inserted within and so as to stand in face to face relation across the box interior midway its ends and with their side flaps extending right angularly inwardly therefrom to internally overlie the side panels, and a line of weakening perforations extending across the box medially of the inserted interior end panels, whereby to permit division of the box, by rupturing the same along said line of perforations, into two completely closed separate box members.

2. A duplex box formed from a blank of paper stock, said box comprising flat bottom and erect side panels, each side panel having end wall sections extending longitudinally from each end thereof and in-folded to stand across the ends of said bottom panel between said side panels, the meeting end portions of opposed end wall sections having cooperative means for interengaging the same in coupled together relation, a relatively foldable, longitudinally sequential arrangement of connected exterior end panel, top panel and in-

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terior end panel extending from each end of said bottom panel, each interior end panel having foldable side flaps laterally extending therefrom, each said arrangement being adapted to be in-folded so that the exterior end panels respectively stand in external overlying relation to adjacent joined end wall sections and so that the top panels close the box top with the interior end panels inserted within and so as to stand in face to face relation across the box interior midway its ends and with their side flaps extending right angularly inwardly therefrom to internally overlie the side panels, means for fastening said side flaps and contiguous parts of said side panels together against displacement of said top and end panels from box closing disposition, and a line of weakening perforations extending across the box medially of the inserted interior end panels, whereby to permit division of the box, by rupturing the same along said line of perforations, into two completely closed separate box members.

3. A duplex box as defined in claim 1, wherein the top panels are provided with extended free longitudinal marginal edge portions adapted to abuttingly lap the top edges of the side panels when closed down over the latter.

4. A duplex box as defined in claim 2, wherein the top panels are provided with extended free longitudinal marginal edge portions adapted to abuttingly lap the top edges of the side panels when closed down over the latter.

5. A duplex box as defined in claim 1, wherein the side flaps of the interior end panels are provided with oblique inner side edges convergent to straight outer side edges thereof, whereby to permit said interior end panels to be disposed in acute angular relation to the top panels and thereby facilitate insertion of said interior end panels into the box interior.

6. A duplex box as defined in claim 2, wherein the side flaps of the interior end panels are provided with oblique inner side edges convergent to straight outer side edges thereof, whereby to permit said interior end panels to be disposed in acute angular relation to the top panels and thereby facilitate insertion of said interior end panels into the box interior.

EMIL MORAND.

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