Feb. 17, 1953 W. P. FRANKENSTEIN 2,628,763

CARTON

Filed Jan. 3, 1947 4 Sheets-Sheet 1

FIG. 1

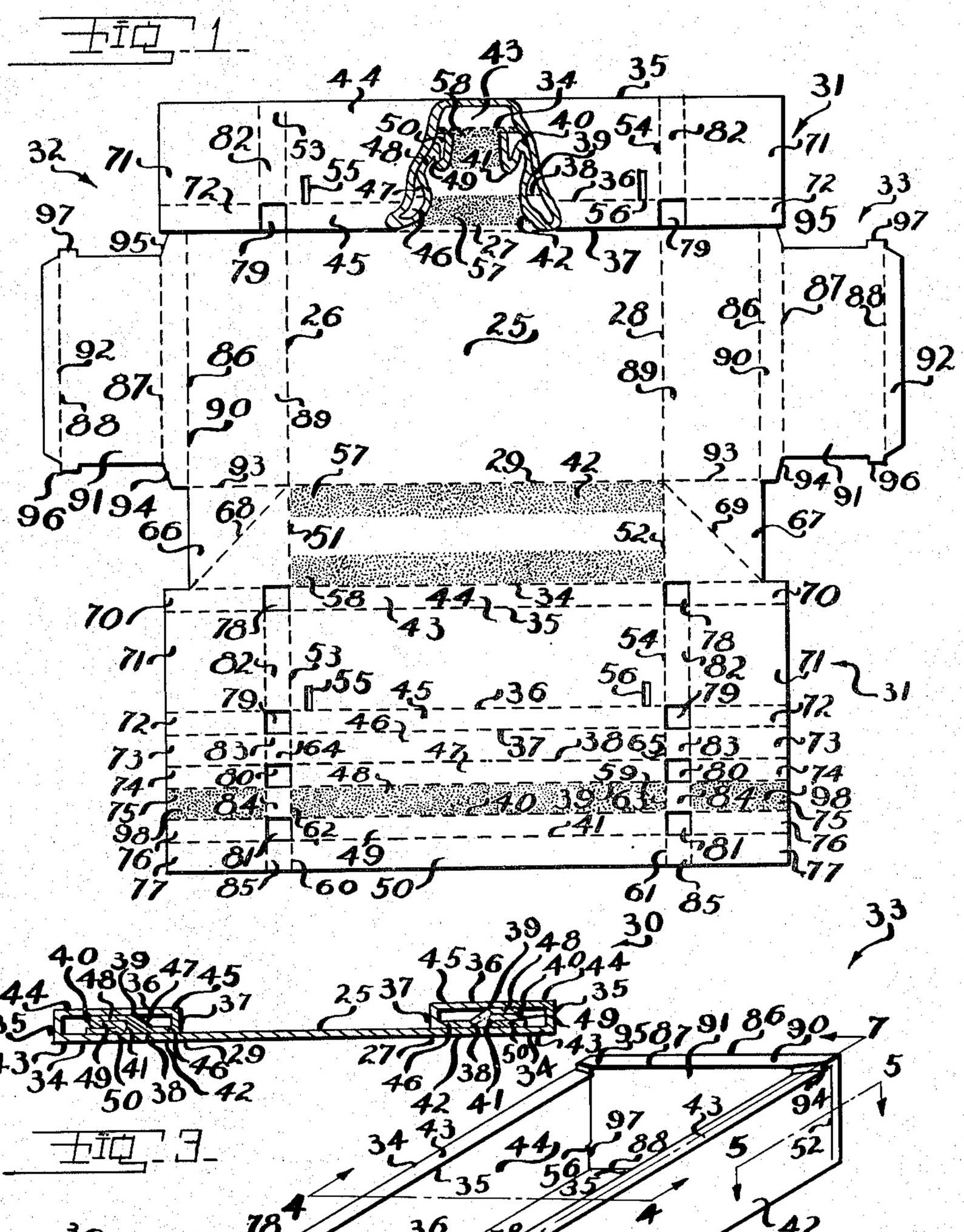

FIG. 3

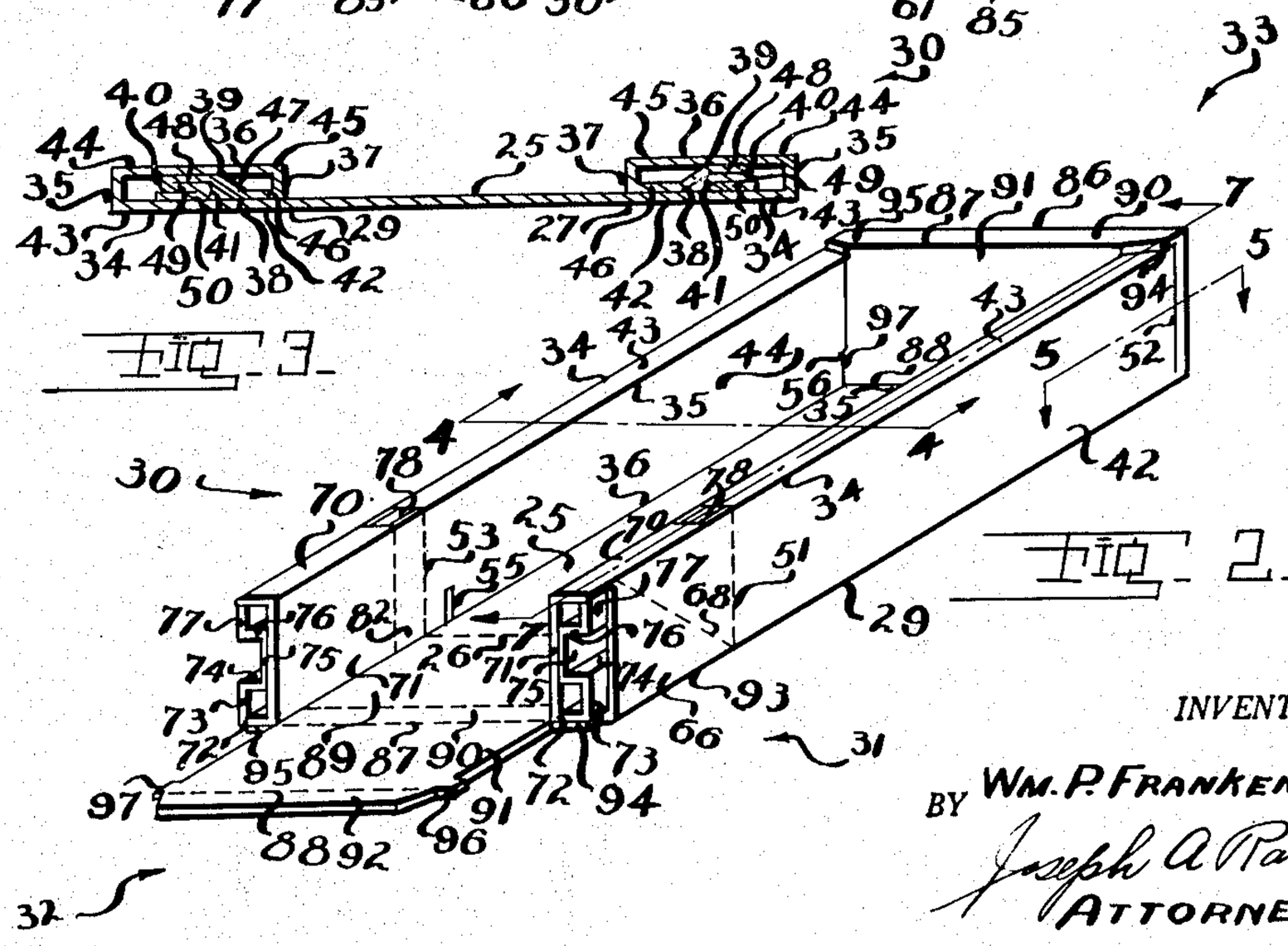

FIG. 2

INVENTOR.

BY WM. P. FRANKENSTEIN

Joseph A Pave

ATTORNEY

Feb. 17, 1953 W. P. FRANKENSTEIN 2,628,763

CARTON

Filed Jan. 3, 1947 4 Sheets-Sheet 2

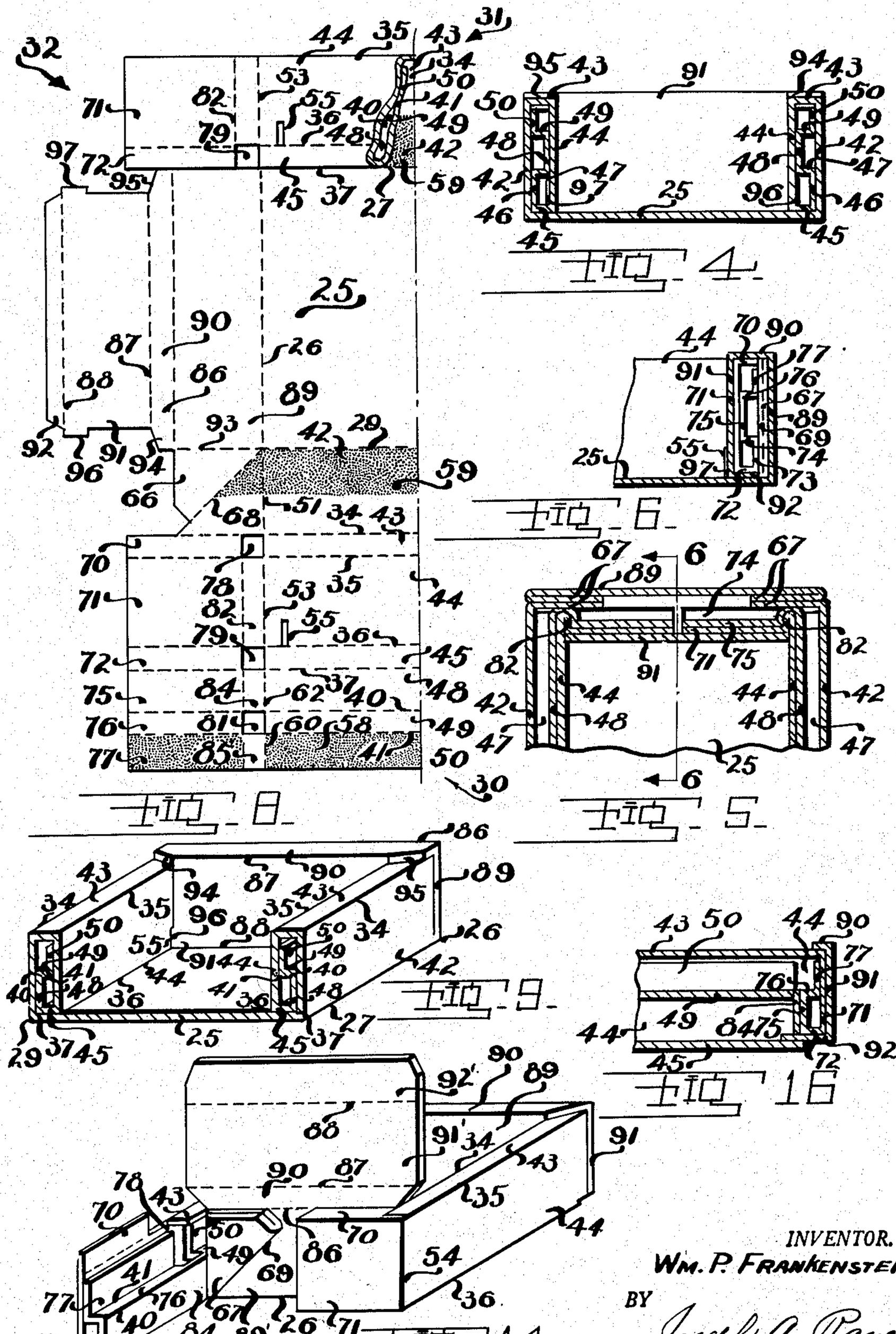

FIG. 8

FIG. 4

FIG. 6

FIG. 5

FIG. 9

FIG. 10

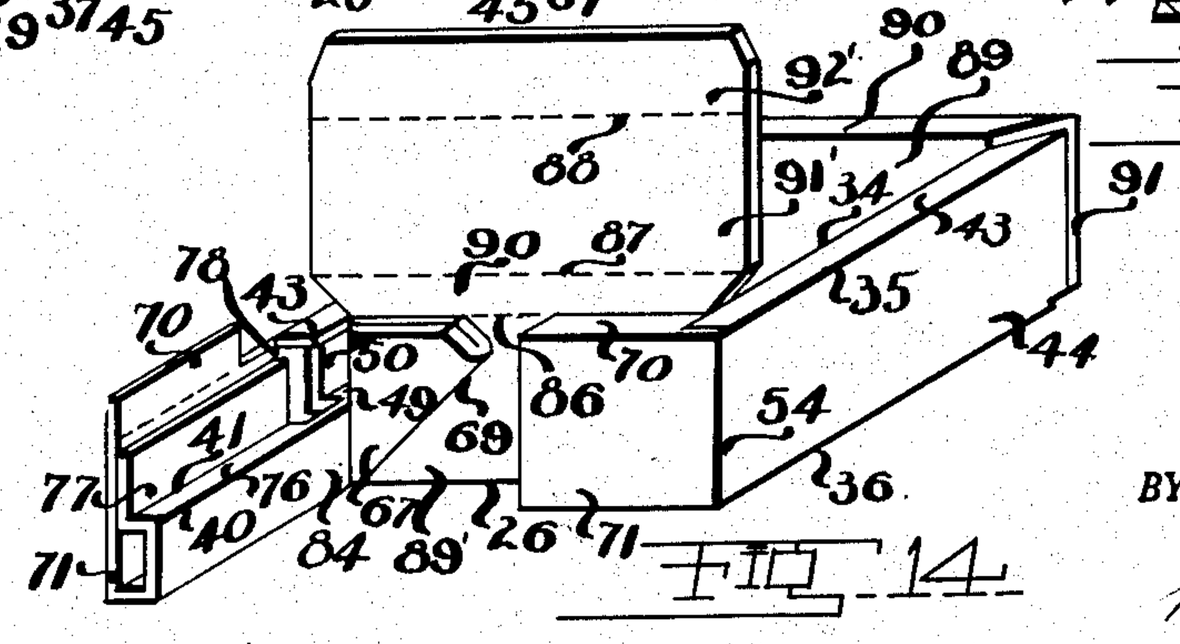

FIG. 14

INVENTOR.
WM. P. FRANKENSTEIN
BY
Joseph A. Pave
ATTORNEY

Feb. 17, 1953 W. P. FRANKENSTEIN 2,628,763

CARTON

Filed Jan. 3, 1947 4 Sheets-Sheet 3

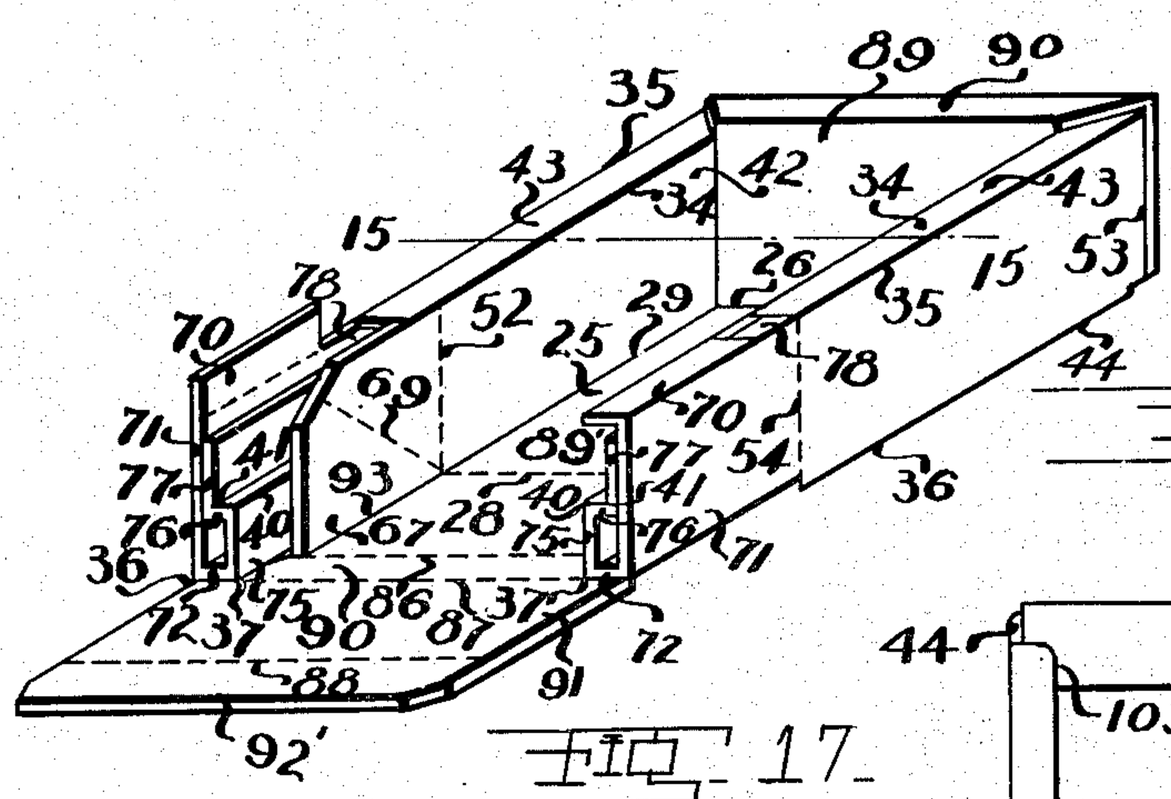

FIG. 13.

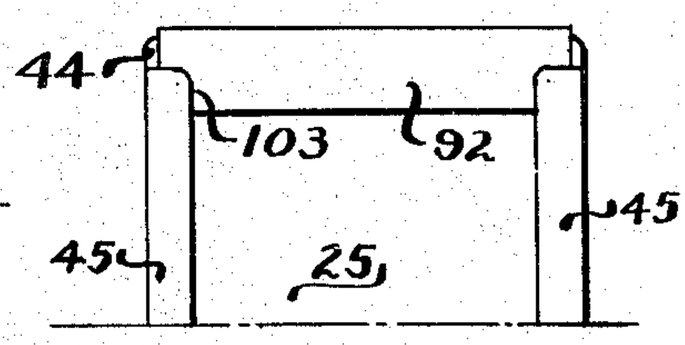

FIG. 17.

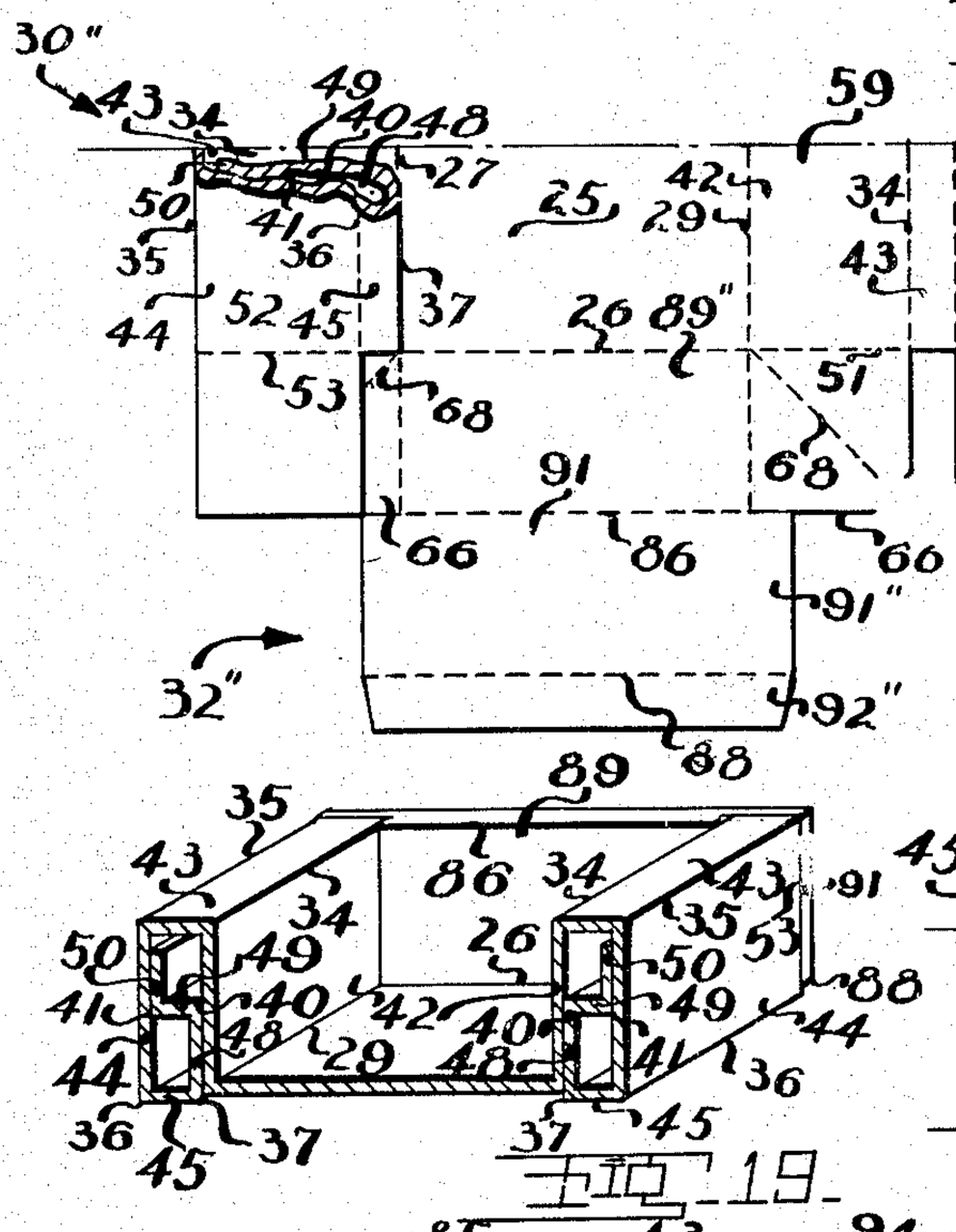

FIG. 18.

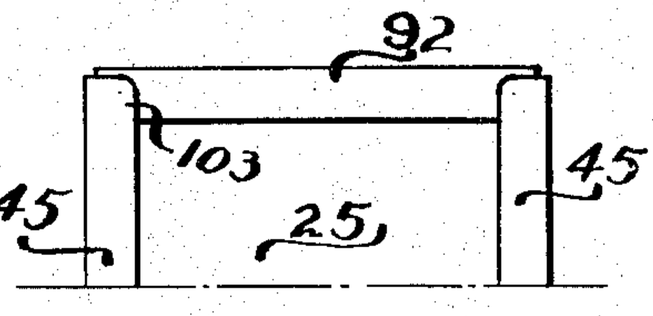

FIG. 20.

FIG. 19.

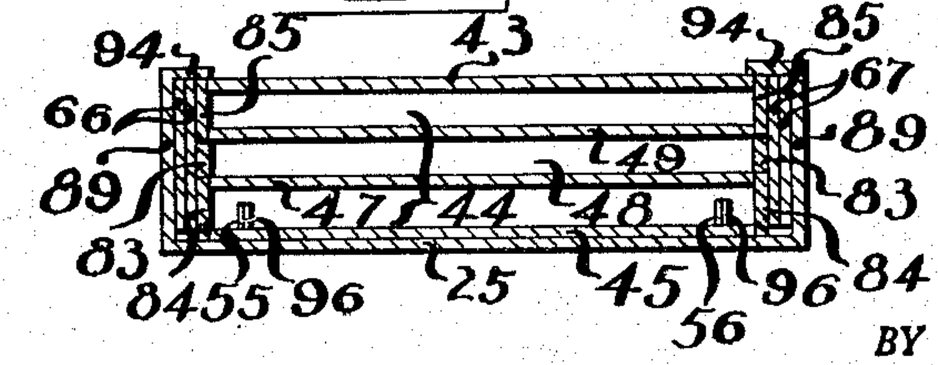

FIG. 7.

INVENTOR.
WM. P. FRANKENSTEIN
BY
Joseph A. Pave
ATTORNEY

Feb. 17, 1953 W. P. FRANKENSTEIN 2,628,763

CARTON

Filed Jan. 3, 1947 4 Sheets-Sheet 4

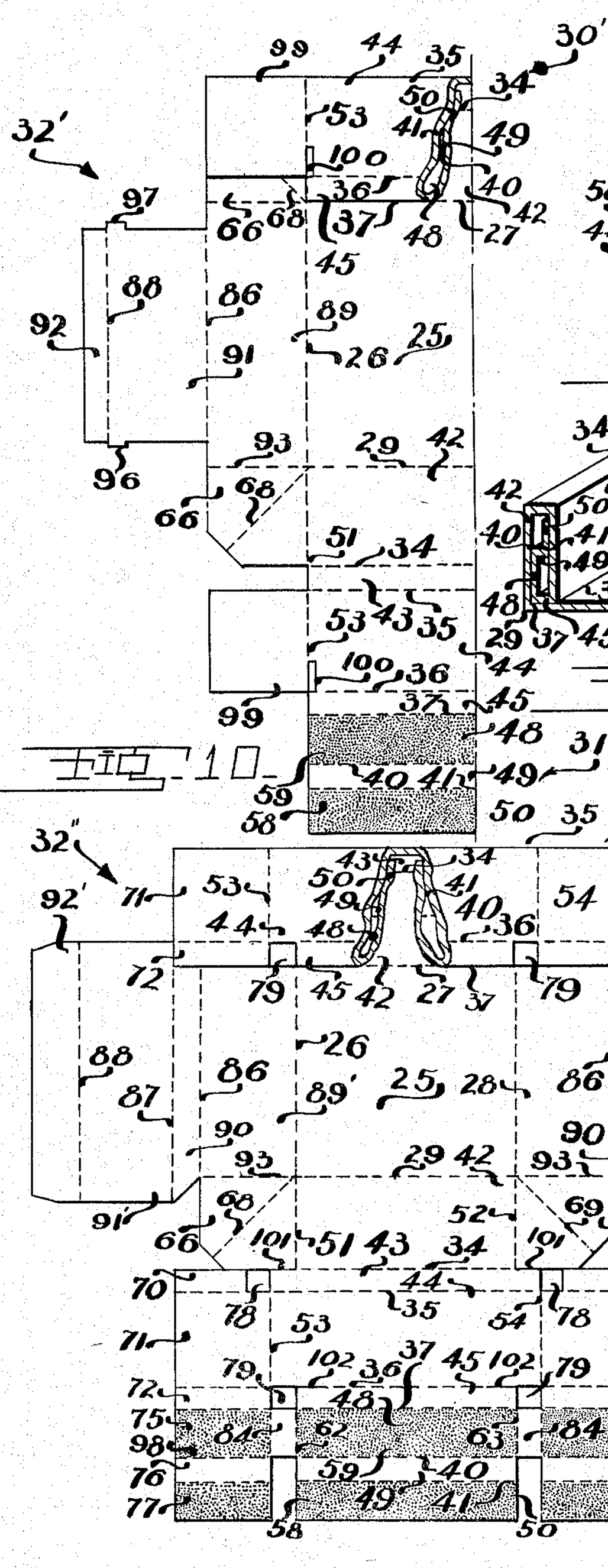

FIG. 10

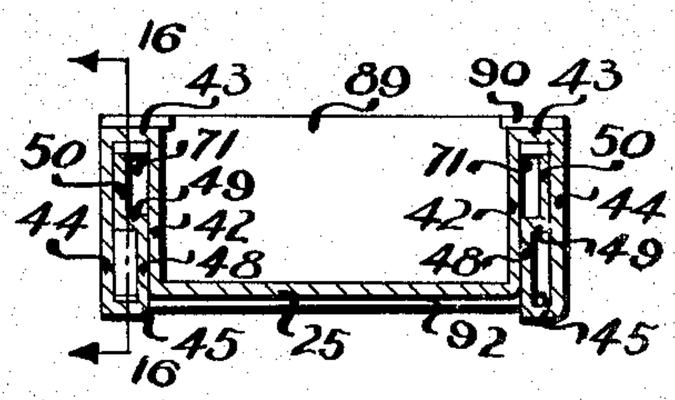

FIG. 15

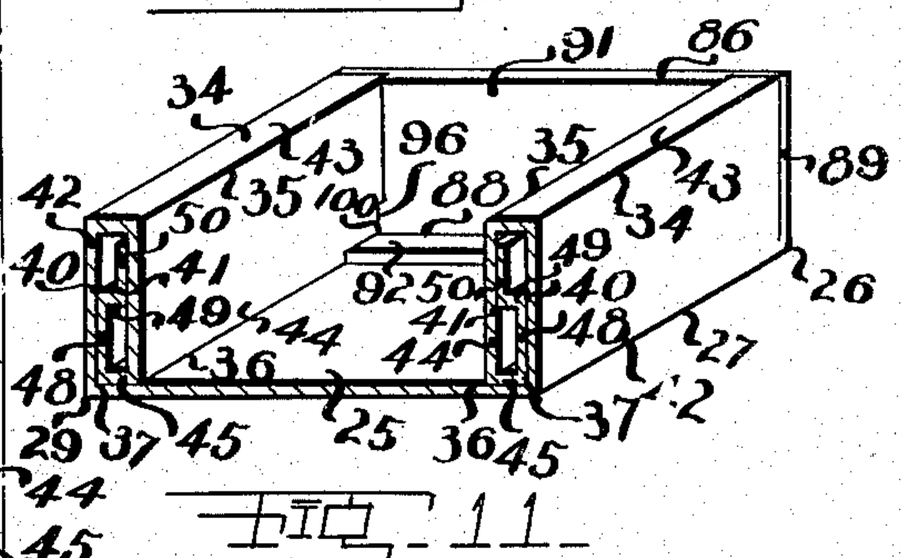

FIG. 11

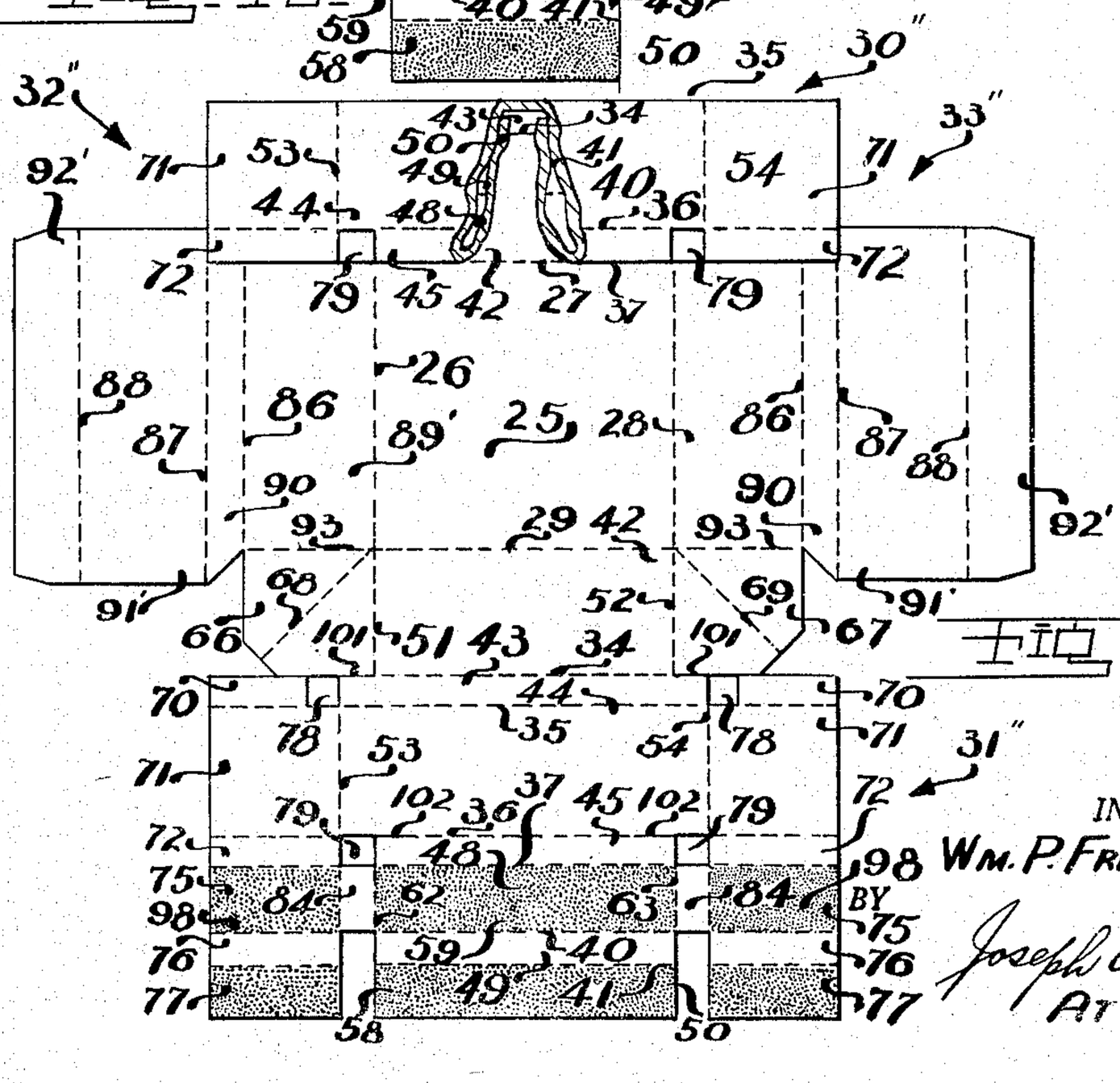

FIG. 12

INVENTOR.
WM. P. FRANKENSTEIN
BY
Joseph A Rave
ATTORNEY

Patented Feb. 17, 1953

2,628,763

UNITED STATES PATENT OFFICE

2,628,763

CARTON

William P. Frankenstein, Cincinnati, Ohio

Application January 3, 1947, Serial No. 720,125

14 Claims. (Cl. 229—31)

1

This invention relates to improvements in cartons or boxes and particularly to such boxes as are known as knock-down boxes.

This application pertains to improvements in hollow wall boxes such as disclosed in applicant's Patent Re. 21,158 as well as to improvements in the disclosure in pending application to Freel and Jones Serial No. 375,306, now Patent No. 2,447,243. Each of these prior constructions utilizes a hollow wall of spaced apart inner and outer wall members which when made in relatively large sizes exhibited weaknesses therein and which weaknesses the present invention overcomes.

It is therefore the principal object of the present invention to provide a box or carton of the hollow wall type in which the wall members thereof are reinforced or strengthened.

Another object of the present invention is the provision of a carton or box that will accomplish the foregoing object without sacrificing the advantages of a hollow wall knock-down box or carton in so far as ease of set up is concerned and which is inherent in the structure of the patent and application above identified.

A further object of the present invention is the provision of a box or carton of the hollow or spaced apart wall type in which there is provided one or more transverse ribs or braces thereby strengthening the said wall and specifically preventing inward bulging of either the inner or outer wall members.

A still further object of the present invention is the provision of a box or carton having one or more hollow or spaced apart walls and which wall is materially strengthened both transversely and vertically thereof.

A still further and important object of the present invention is the provision of a box or carton that will accomplish the objects set forth above and which is formed of a single blank and shipped to the user in a knocked-down condition requiring the user to merely raise the walls and lock them in raised positions.

A still further and specific object of the invention is the provision of a foldable hollow or spaced apart wall with which is used tucking assemblies that are transversely and/or vertically reinforced to thereby reinforce the foldable wall and prevent the bulging either inwardly or outwardly of the spaced apart members of said foldable wall.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in

2

conjunction with the accompanying drawings forming a part thereof and it is to be understood that any modifications may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is a plan view of a partially folded blank from which one form or modification of the improved carton of this invention may be erected.

Fig. 2 is a perspective view of a partially erected carton from the blank of Fig. 1.

Fig. 3 is a transverse sectional view through the blank of the carton as it leaves the forming machine for delivery to the user.

Fig. 4 is a transverse sectional view through the side walls of the carton of Fig. 2 as seen from line 4—4 on said Fig. 2.

Fig. 5 is a fragmentary horizontal sectional view through the side walls and adjacent end wall of the erected carton of Fig. 2 as seen from line 5—5 on said Fig. 2.

Fig. 6 is a fragmentary longitudinal sectional view through the carton and particularly one end thereof as seen from line 6—6 on Fig. 6.

Fig. 7 is vertical sectional view through an end wall of the erected carton of Fig. 2 taken on line 7—7 on said Fig. 2.

Fig. 8 is a plan view of a partially folded, slightly modified half blank for erecting a carton of the present invention.

Fig. 9 is a transverse sectional view through an erected carton formed from the blank of Fig. 8.

Fig. 10 is a plan view of a half partly folded, modified blank again embodying the improvements of this invention combined with a modified end wall.

Fig. 11 is a transverse sectional view of an erected carton formed from the blank of Fig. 10.

Fig. 12 is a plan view of a partly folded blank erected to a modified carton embodying the improvements of this invention.

Fig. 13 is a perspective view of a partially erected carton formed from the blank of Fig. 12.

Fig. 14 is a view similar to Fig. 13 showing the carton in an erected stage further along then that illustrated in Fig. 13.

Fig. 15 is a transverse sectional view through the erected carton of Figs. 13 and 14 as seen particularly from line 15—15 on said Fig. 13.

Fig. 16 is a fragmentary longitudinal sectional view through the end of one of the walls of

the carton of Fig. 15 as seen particularly from line 16—16 on said Fig. 15.

Fig. 17 is a bottom plan view of one end of the erected carton of Figs. 13 and 14.

Fig. 18 is a plan view of a partly folded half blank embodying the improvements of this invention and incorporating modifications over the blank of Fig. 12.

Fig. 19 is a transverse, perspective sectional view of a carton erected from the blank of Fig. 18.

Fig. 20 is a bottom plan view of one end of the erected carton of Fig. 19.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

As was noted above this invention pertains to improvements in knock-down boxes or cartons of the hollow wall type. Each of the modifications to be hereinafter described contain one or more hollow walls which is reinforced or strengthened both transversely and vertically thereof. As will later be apparent, with this basic thought, the foldable wall used therewith may be of contacting inner and outer wall members or spaced apart wall members with the latter strengthened or reinforced vertically and horizontally or without such reinforcement as desired.

Specifically and referring to Figs. 1 to 7, inclusive, use is made of a blank cut or died and scored as illustrated in Fig. 1 with the blank comprising a bottom panel **25** bounded by score or fold lines **26**, **27**, **28** and **29**. In the description hereinafter the score or fold lines **27** and **29** will be referred to as the sides while the remaining score and fold lines **26** and **28** will be referred to as the ends, but it is to be understood that this terminology is used merely for purposes of convenience since the terms are interchangeable, the longer edges of a box being usually designated as the sides while the shorter is designated as the ends.

The base **25** has hingedly connected therewith through the score or fold lines **27** and **29** similar extensions **30** and **31** which in the erected carton form the side walls thereof. The base **25** has hingedly connected with its ends through the score or fold lines **26** and **28** similar extensions **32** and **33** which, again, in the erected carton form the end walls thereof.

The side walls extensions **30** and **31** are substantially identical with one another wherefore it is deemed sufficient if but one of them, **31** for example, be described in detail to suffice for the both. Accordingly, extension **31** is subdivided by a plurality of score or fold lines **34**, **35**, **36**, **37**, **38**, **39**, **40** and **41** into panels **42**, **43**, **44**, **45**, **46**, **47**, **48**, **49** and **50**. It should be noted that the score or fold lines **34** to **41** inclusive are indicated by dash lines and this same system will be followed wherever score or fold lines are indicated while the solid lines will indicate cuts.

In the erected carton the panel **42** forms the side wall outer wall member and has its ends defined by score or fold lines **51** and **52**. The panel **43** in the erected carton forms the side wall top wall while the panel **44** forms the side wall inner wall member. The ends of the top wall panel **43** are defined by cut lines while the ends of the inner wall member **44** are defined by score or fold lines **53** and **54**. The inner wall member panel **44** near its outermost corners, when extended as in Fig. 1 or near its lower innermost corners, when in the erected position, is provided with slits or narrow elongated apertures **55** and **56** which are

utilized, as will later be made clear, to receive locking lugs from the carton end wall to hold the carton in erected positions. The remaining panels **45** to **50**, inclusive, form in the erected carton the side wall bottom panel, side wall transverse braces, and glue flaps or side wall vertical braces. In practice glue or adhesive may be applied to the under side of panels **46** and **50**, as seen in Fig. 1, and to the upper side of panel **48** again as seen in Fig. 1, but preferably the outer wall member or panel **42** is provided with spaced ribbons of adhesive as indicated at **57** and **58** and the adhesive **59** is applied to the upper surface of the panel **48**. By applying the adhesive as just described each of the said adhesive ribbons is applied with the blank in the position illustrated in Fig. 1. The side wall vertical braces or glue flap panels **50**, **48**, and **46** each, respectively, have their ends defined by score or fold lines **60** and **61** for the panel **50**, **62** and **63**, for the panel **48**, and **64** and **65** for the panel **46**. The side wall bottom wall member, and transverse brace panels **47** and **49** each have their ends cut and these cuts are in alignment with the score or fold lines for the various side wall panels as well as in line with the carton bottom or base end scores or fold lines **26** and **28**.

The side wall outer wall member **42** through its ends scores or fold lines **51** and **52** has integrally hingedly connected therewith corner pieces **66** and **67** each of which corner pieces is respectively divided by a diagonal score or fold line **68** and **69**. These corner pieces **66** and **67** form in the erected carton, a bellows corner.

Beyond the ends of the side wall panels transverse braces and glue flaps or panels are flaps or flanges subdivided by score or fold lines which are extensions of the score of fold lines **35** to **41**, inclusive, thereby providing in each flap or flange panels **70**, **71**, **72**, **73**, **74**, **75**, **76** and **77** which are, in effect, extensions of panels **43** to **50**, respectively. The flange or flap panels **70**, **72**, **74** and **76** are each spaced from its side wall extension panel by a rectangular opening while flap panels **71**, **73**, **75** and **77** are each separated from its corresponding side wall extension panel by panels **82**, **83**, **84** and **85** whose outermost sides are defined by score or fold lines in alignment with the outermost edge of the openings **78** to **81**, inclusive. It should be noted that the width, that is the dimension running in the direction lengthwise of the side wall, of the panels **82** to **85**, inclusive, and of the openings **78** to **81**, inclusive, is equal to the width of the end wall top wall member, as will later be made clear, and it should further be noted that the panels **82** to **85**, inclusive, form hinges whereby the flap panels, after erection, may be swung to lie transversely of the base **25** and act as braces for the end walls.

The end wall extensions **32** and **33** are substantially duplicates of one another and it is deemed sufficient if but one of them be described in detail for the both. Accordingly, extension **33** is provided with a plurality of score or fold lines **86**, **87** and **88** subdividing the extension into panels **89**, **90**, **91** and **92** between the score or fold line **28** and the end of the extension.

In the erected carton the panel **89** constitutes the end wall outer wall member and has its ends defined by score or fold lines **93** which are in alignment with the base score or fold lines **27**, and **29**. The said score or fold lines **93** integrally hinged connect to the panel **89** the adjacent corner pieces **66** and **67**. The panel **90**, in the erected carton forms the end wall top wall

member while the panel 91 forms the end wall inner wall member. It will be noted that the end wall outer wall member panel 89 is of a length equal to the width of the base 25 while the panel 91 is somewhat shorter, being equal to the distance between the side wall inner wall members when the carton is in an erected position. The connecting top wall panel 90 has the portion thereof adjacent the panel 89 of a length equal thereto while the portion thereof adjacent the panel 91 is of a length equal to said shorter panel wherefore the ends of the top wall panel 90, beyond the inner wall member panel 91, is contoured as at 94 and 95. Projecting from the sides of the panel 91, adjacent the outer ends thereof when extending as in Fig. 1, and the inner lower ends when erected as in Fig. 2, are locking lugs 96 and 97 which, as intimated, enter the side wall inner wall member slits 55 and 56 for locking the walls in erected position. In the erected carton the panel 92 acts as a spacer for spacing the lower end of the end wall inner and outer wall member panels 89 and 91 from one another.

After the blank has been cut and scored as above described the glue flap 50 along with the panel 77 at the ends thereof are upwardly turned into face contact with the bracing panel 49 whereupon these panels along with their end flanges panel 76 are then downwardly folded on the score or fold line 40 to bring the same into face contact with the underside of the glue flap 48. The superimposed panels 50, 49 and 48 along with panels 47 and 46 are now folded on the score or fold line 37 thereby bring glue panel 48 into engagement with the side wall inner wall member panel 44 for adhesively securing the said glue panel 48 to the side wall inner wall member 44. The superimposed panels are now folded on the score or fold line 35 thereby bringing the glue flap 50 and glue panel 46 into contact with the adhesive ribbons 57 and 58 for securing them to the inner face of side wall outer wall member panel. At this time each of the side wall extensions 30 and 31 are in the folded and secured position of the extension 30 illustrated at the top of Fig. 1. It is in this position that the knock-down carton of the present invention is shipped to the user. The folded and glued positions of the parts are as illustrated in cross section in Fig. 3.

The user upon desiring to place merchandise in the box or carton proceeds to set the same up to the position illustrated in Fig. 2. In order to erect the carton the user first raises the folded side wall extension 30 and 31 to be upstanding or normal to the bottom 25. The tucking flap assemblies are then actuated to lie transversely of the said bottom 25 whereupon the end wall extensions 32 and 33 are folded to their operative position to complete the carton and to lock all of the walls in their operative relation to one another. The setting up of the end walls is believed obvious, since, after the corner pieces 66 and 67 have been folded on their diagonal scores or fold lines 68 and 69, all that is required is that the various panels 89, 90, 91 and 92 are to be folded to be normal to one another at which time they will be in the positions illustrated in Fig. 6.

The raising of the side walls from their flat positions in Fig. 3 to their upstanding positions in Fig. 2 automatically arranged the top wall member 43 and bottom wall member 45 to be parallel to one another and to the bottom or

base 25. At the same time the transverse braces 47 and 49 where automatically swung to be parallel with the top and bottom wall members and the bottom or base 25 as seen clearly in Fig. 4. Since the glue panels 46 and 48 and glue flap 50 are permanently secured to the side walls inner and outer wall members the transverse braces are retained in their operative positions. It will be obvious that the said transverse braces will resist any bending or displacement of either the inner or outer side wall members in either a direction toward the interior of the box or a direction outwardly thereof and at the same time these transverse braces strengthen the composite walls against bulging or other displacement. Since the side transverse braces extend the full length of the said walls the same are braced from end to end as clearly illustrated in Fig. 7.

The tucking flap assemblies which includes the extension end flanges or flap panels 70 to 77 inclusive are folded relative to one another at the same time that the side wall panels are folded and the said extension flange or flap panel 75 is provided with adhesive 98 and is secured to the panel 71 at the time that the side wall glue panel 48 is secured to the side wall inner wall member 44. It is therefore evident that upon the setting up of the carton side walls from their flat folded positions of Fig. 3 to their erected positions in Fig. 2 automatically sets up the tucking flap assemblies to the positions illustrated at the lower end of Fig. 2. It will further be appreciated that the said tucking flap assemblies are provided with transverse braces which include the panels 76, 74, 72 and 70.

As seen in Fig. 6 the end wall inner and outer wall members 89 and 91 are transversely braced by the above identified composite tucking flap braces 76, 74, 72 and 70. These transverse braces resist movement, or displacement of the end wall inner and outer wall members individually and as a unit.

Each of the side and end walls is vertically reinforced by the glue flaps and panels 50, 48 and 46 as well as the extension flange or flap panels thereof which are, respectively, 77, 75, and 73.

By reference to Figs. 2, 4, 6, and 7 it will be noted that the side and end walls are provided with cells between the transverse braces and that with the blank of Fig. 1 there are three such cells. It may be desirable to increase or decrease the number of cells and thereby the number of transverse braces. Such a construction is illustrated in Figs. 8 and 9.

As illustrated in Fig. 8 the blank has eliminated therefrom the glue panel 46 and transverse brace 47 and has the glue panel 48 integrally connected with the side wall bottom panel through the score or fold line 37.

The processing of the modified blank of Fig. 8 is identical with that above described in connection with Fig. 1 and the setting up of the blank follows the same steps. The resulting box or carton has substantially the same extension appearance as results from the blank of Fig. 1, the only difference being that the side walls and end walls each have their respective inner and outer wall members braced by a single transverse brace instead of two such braces. The resulting side and end walls are again of cellular construction but have only two cells instead of three. It will be readily apparent that by adding panels instead of subtracting panels from the side wall exten-

sions 31 and 32 a greater number of transverse braces may be provided. It may be noted that the number of such transverse braces depends upon the height of the carton walls and the use to which it is to be put as well as the goods to be packed and shipped therein.

In each of the foregoing modifications the box or carton has been provided with four walls each of hollow or spaced apart construction. It is sometimes desirable that the box or carton merely have two walls of the hollow or spaced apart construction with the remaining walls of appreciably less thickness, such for example as a double thickness. There is illustrated in Figs. 10 and 11 a modified blank to accomplish this result. Accordingly the blank of Fig. 10 has eliminated from its side wall extensions 30' and 31' the end flanges with the exception that the side wall outer wall member has integrally hingedly connected therewith through the score or folded line 53 a tucking flap 99. A further modification consists in eliminating from the side wall inner wall member panel 44 the slits or elongated apertures 55 and 56 substituting therefor a notch 100 in the outermost corner of said side wall inner wall member 44.

The blank of Fig. 10 is further modified in the end wall extensions 32 and 33 which as illustrated in Fig. 10, in the end wall extension 32' consists essentially of eliminating the end wall top wall panel 90 retaining the end wall outer wall panel 89, end wall inner wall panel 91, and spacer panel 92 with said end wall inner and outer wall member panel 89 and 91 separated from one another by the score or fold line 88 and said inner wall member panel 91 and spacer panel 92 separated from one another by a score or fold line 88.

The side wall extensions 30' and 31' are illustrated as of the construction of modified blank of Fig. 8 but it is to be understood that they may be made as illustrated in Fig. 1 since the number of cells or transverse braces in the carton side walls may vary and still use the substantially thin or double material thickness end wall of Figs. 10 and 11.

The blank of Fig. 10 is folded, insofar as side wall extensions are concerned in substantially the same manner as the blanks of Figs. 1 and 8 and is shipped to the user in the folded knocked-down condition. The user in setting up the blank of Fig. 10, again, follows the same procedure as was followed in setting up the cartons in Figs. 2 and 9. The setting up of the carton of Fig. 11 requires the positioning of the tucking flaps 99 as the bellow corner pieces 66 and 67 transverse of the carton base or bottom 25 prior to the folding of the end wall panels onto one another. The flaps 92 are modified blank of Fig. 10, instead of being positioned between the inner and outer wall members 89 and 91, are arranged on the carton base or bottom to project into the carton and is a form of creeper as heretofore employed in boxes or cartons.

The boxes or cartons heretofore described presented the right or finished side of the paper or cardboard exteriorly of the side and end walls as well as interiorly thereof, but presents to the user the wrong side of the paper or cardboard on the base or bottom. In some instances, such for example when it is desired to print on the sides and inner face of the base or bottom, it is desirable and necessary that the same or right side of the paper or cardboard to be presented to the observer on the inner and outer surfaces of the side and end walls as well as on the upper surface of the base or bottom. The carton or boxes illustrated in Figs. 12 to 20 inclusive are designated for this purpose and to have the walls of reinforced or cellular construction.

One form of such carton is illustrated in Fig. 12 which, it will be observed, is quite similar to the blank of Fig. 8 since the resulting carton or box has but a single transverse brace. This blank, in so far as the side wall extensions are concerned, is modified over the blank of Fig. 8 to the extent that the panels or side walls outer wall members and top wall members 43 and 44 are made longer than the adjacent base or bottom bounding score or fold lines 27 and 29. The said panels 43 and 44 are increased in length the amount of the width of the panels 82 which constitute the spacing of the end wall inner and outer wall members and is occasioned by the fact that the end walls of Fig. 12 are folded from the inside out while the corresponding end walls of Fig. 8 are folded from the outside in.

The blank of Fig. 12 has the end wall extensions 32 and 33 modified over that in Fig. 8, one of which is illustrated in said Fig. 12 and indicated by the reference numeral 32'', to the extent that the panel 89' is of less length than the panel 91' since these panels respectively form the end wall inner and outer wall members instead of the end wall outer and inner wall members as do the panels in the said blank of Fig. 8. The panel 92' of the blank of Fig. 12 becomes the locking panel instead of a mere spacing panel as the corresponding panel 92 of Fig. 8 is employed.

The setting up of the blank of Fig. 12 is in effect reversed to that of the blank of Fig. 8 since the panel 50 or glue flap is secured to the inner surface of the inner wall member in such a manner that the bottom wall panel 45 is outwardly of the bounding score or fold lines 27 and 29 as illustrated clearly in Fig. 15. The glued up blank is shipped to the user with both side wall extensions in the position of the side wall extension 30 of Fig. 12.

The user upon desiring to set up the carton raised the said side walls to be normal to the base or bottom 25 whereupon the end wall extensions and tucking flap assemblies are in the positions of the near end of the particularly erected carton of Fig. 13. At this time the end walls are erected, in succession, by raising the end wall extension to be normal to the bottom 25 which disposes the end wall inner wall member or panel 89' in the position illustrated in Fig. 14 with the corner pieces 66 and 67 folded on themselves on their diagonal fold lines 69 and disposed transversely of the carton against the end wall inner wall member or panel 89'. This is illustrated in Fig. 14 in so far as one of the end wall corners is concerned. The tucking flap assemblies are now arranged to be transversely of the carton and to be placed in face contact with the folded corner pieces 66 and 67 again as illustrated in Fig. 14 in so far as one of said tucking flap assemblies is concerned. The end wall extension panels 90, 91' and 92' are now folded to be normal to one another which disposes the panel or flap 92' against the lower surface of the bottom or base 25.

In order to lock the walls in their erected positions the ends of the bottom wall panel 45 are left open for which purpose the score or fold line 37 at its extreme ends is changed to a cut or slit 102. This construction forms the ends of the side wall bottom wall into tabs or lugs beneath which the said panel or flap 92 has its corners inserted, as illustrated in Fig. 17, the said ends

of the side wall bottom wall members, which act as locking tabs, or lugs indicated by the reference numeral 103.

The foregoing description provided a carton or box in which each of the side walls as well as the end walls are of the spaced apart construction with a transverse brace between said walls and located intermediate the upper and lower ends thereof. In order to provide a carton with spaced apart or hollow side walls but merely double thickness end walls a blank such as illustrated in Fig. 18, may be employed. This blank is provided with end wall extensions, such as illustrated in Fig. 10, modified to the extent that the panel 89'' is less length than the panel 91'', since the panel 89'' in Fig. 18 forms the end wall inner wall member while the corresponding panel in Fig. 10 forms the end wall outer wall member with the panels 91 and 91'' again reversing their positions in the erected carton. The panel 92'' in Fig. 18, is utilized as a locking flap in the same manner as the flap 92' of Fig. 12 instead of utilizing this flap as a creeper such as described above in connection with Figs. 10 and 11.

The erected carton from the blank of Fig. 18 is as illustrated in Fig. 19 with the side walls bottom wall member beyond the edges of the carton base or bottom. The ends of the said side wall bottom wall members are provided with cuts or slits 102, as was the blank of Fig. 12 to receive therein the corners of the locking flap 92''. The set up and locking of the walls of the blank of Fig. 18 is as illustrated in Fig. 20 wherein the ends of the side walls bottom wall members are indicated as locking tabs or flaps 103 for the reception of the corners of panel 92''.

The blank of Fig. 18 is glued up in the same manner as the blank of Fig. 12 as above described and is so shipped to the user. The blank of Fig. 18 sets up, by the user, in the same manner as the glued up blank of Fig. 12.

From the foregoing it will now be appreciated that there has been provided a box or carton of the four sided open top type embodying two or more walls of the spaced apart or hollow construction with the said walls adequately braced transversely thereof and intermediate their heights. It will further be noted that the transverse brace may either be a single transverse, brace substantially midway of the height of the carton or this bracing may take the form of a plurality of transverse braces suitably spaced from one another vertically of their height.

Each of the modifications of this invention accomplishes the objects initially set forth and overcomes a weakness in the boxes or cartons of the general type herein described and illustrated and particularly when said boxes or cartons are made to have walls of a relatively great height.

What is claimed is:

1. A carton of the class described formed from a single blank comprising a bottom, extensions from two opposed sides of said bottom subdivided into panels to form side walls upstanding from opposite edges of said bottom, each side wall including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said inner and outer wall members, means for articulating the said inner, outer and top wall members of each side wall to one another and to the bottom, each extension including panels to form beyond its inner and outer wall members alternate glue flaps and transverse braces

with certain of said glue flaps connected to the interior surface of its inner wall member and certain of said glue flaps connected to the inner surface of its outer wall member with the transverse braces thereof extending between the said inner and outer wall members and parallel with the bottom at points intermediate the carton bottom and side wall top wall member, so that each side wall and its braces may be folded flat for erection by merely raising same from its flat position to have its inner and outer wall members normal to the bottom and the braces parallel with the bottom, and extensions from the remaining sides of the bottom forming end walls to upstand therefrom, means for locking the side and end walls in said upstanding positions, said end walls each including an inner and an outer wall member joined at their upper ends, and means carried by the side walls to be enfolded by the end walls inner and outer wall members.

2. A carton of the class described formed from a single blank comprising a bottom, extensions from two opposed sides of said bottom subdivided into panels to form side walls upstanding from opposite edges of said bottom, each side wall including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said inner and outer wall members, means for articulating the said inner, outer and top wall members of each side wall to one another and to the bottom, each extension including panels to form beyond its inner and outer wall members alternate glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its inner wall member and certain of said glue flaps connected to the inner surface of its outer wall member with the transverse braces thereof extending between the said inner and outer wall members and parallel with the bottom at points intermediate the carton bottom and side wall top wall member, so that each side wall and its braces may be folded flat for erection by merely raising same from its flat position to have its inner and outer wall members normal to the bottom and the braces parallel with the bottom, and extensions from the remaining sides of the bottom forming end walls to upstand therefrom, each of said end walls including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said end wall inner and outer wall members, means carried by the side walls to be enfolded by the end walls inner and outer wall members for transversely bracing said end walls inner and outer wall members at points intermediate the height thereof, and means for locking the side and end walls in upstanding positions.

3. A carton of the class described formed from a single blank comprising a bottom, extensions from two opposed sides of said bottom subdivided into panels to form side walls upstanding from opposite edges of said bottom, each side wall including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said inner and outer wall members, means for articulating the said inner, outer and top wall members of each side wall to one another and to the bottom, each extension including panels to form beyond its inner and outer wall members alternate glue flaps and transverse braces with certain of said glue flaps connected to the

interior surface of its inner wall member and certain of said glue flaps connected to the inner surface of its outer wall member with the transverse braces thereof extending between the said inner and outer wall members and parallel with the bottom at points intermediate the carton bottom and side wall top wall member, so that each side wall and its braces may be folded flat for erection by merely raising same from its flat position to have its inner and outer wall members normal to the bottom and the braces parellel with the bottom, and extensions from the remaining sides of the bottom forming end walls to upstand therefrom, each of said end walls including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said end wall inner and outer wall members, tucking flaps from the adjacent ends of the side walls disposed transversely of the bottom and enfolded by the end walls inner and outer wall members, said tucking flaps including portions adapted to be disposed parallel with the carton bottom for bracing the end walls inner and outer wall members intermediate the height thereof, and means for locking the side and end walls in upstanding positions.

4. A carton of the class described formed from a single blank comprising a bottom, extensions from two opposed sides of said bottom subdivided into panels to form side walls upstanding from opposite edges of said bottom, each side wall including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said inner and outer wall members, means for articulating the said inner, outer and top wall members of each side wall to one another and to the bottom, each extension including panels to form beyond its inner and outer wall members alternate glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its inner wall member and certain of said glue flaps connected to the inner surface of its outer wall member with the transverse braces thereof extending between the said inner and outer wall members and parallel with the bottom at points intermediate the carton bottom and side wall top wall member, so that each side wall and its braces may be folded flat for erection by merely raising same from its flat position to have its inner and outer wall members normal to the bottom and the braces parallel with the bottom, and extensions from the remaining sides of the bottom forming end walls to upstand therefrom, each of said end walls including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member joining the upper ends of said end wall inner and outer wall members, tucking flaps assemblies from the ends of the side walls comprising articulated vertical and horizontal members adapted to be enfolded by the end walls inner and outer wall members for vertically and horizontally bracing the same, and means for locking the side and end walls in upstanding positions.

5. A carton of the class described formed of a single blank of card or paper board comprising a carton bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall

members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members and a bottom wall member carried by the other of said inner and outer wall members, said extensions including panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, and means for locking the side and end walls in upstanding operative positions.

6. A carton of the class described formed of a single blank of card or paper board comprising a carton bottom, extensions from two opposed sides of said carton bottom subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members and a bottom wall member carried by the other of said inner and outer wall members, said extensions including panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, means for locking the side and end walls in upstanding operative positions, said end walls each formed of an extension from the ends of the bottom panel and comprising panels to form end wall inner and outer wall members, and tucking flaps at the ends of the side walls to be enfolded by the end walls inner and outer wall members.

7. A carton of the class described formed of a single blank of card or paper board comprising a carton bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members, a bottom wall member carried by the other of said inner and outer wall members, and panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining

edges of the bottom, means for locking the side and end walls in upstanding operative positions, said end walls being formed from extensions at the remaining opposite edges of the bottom panel subdivided to provide end walls inner and outer wall members spaced from one another an appreciable distance with a top wall member connecting the upper ends thereof, and means from and integral with the ends of the side walls to be embraced by the end walls inner and outer wall members and to transversely reinforce said end walls inner and outer wall members.

8. A carton of the class described formed of a single blank of card or paper board comprising a carton bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members, a bottom wall member carried by the other of said inner and outer wall members, and panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, means for locking the side and end walls in upstanding operative positions, each of said end walls formed from an extension from an opposite end of the bottom with each extension subdivided into panels for providing each end wall with an inner and an outer wall member spaced from one another an appreciable distance joined by a top wall member, said side wall extensions having flanges beyond the ends of the inner and outer wall members thereof subdivided into panels articulated to one another to form tucking flap assemblies at each end of each side wall, said tucking flap assemblies each including vertical and transverse members adapted to be enfolded by the end walls inner, top and outer wall members for vertically and transversely bracing said end walls inner, top and outer wall members.

9. A carton of the class described formed from a single blank comprising a carton bottom, extensions from two opposed sides of the carton bottom subdivided by score or fold lines to form side walls each of an inner and an outer wall member spaced from one another an appreciable distance with a top wall member between them and with one of said inner and outer wall members hingedly connected to the carton bottom, at least one of said extensions beyond its inner and outer wall members having panels disposed within the inner and outer wall members of its side wall and secured thereto to dispose one of said panels parallel with the carton bottom and spaced therefrom to form in said side wall, at least, one transverse brace extending between opposed inner faces of said side wall inner and outer wall members, said side walls inner and outer wall members and transverse brace securing and forming panels, respectively, through their score lines being articulated to one another whereby they may be folded to a flat position for shipping purposes and to an upstanding position for carton erection, end walls from the remaining sides of the bottom, and means for locking the side walls and end walls in upstanding operative relation to one another.

10. A carton of the class described formed from a single blank comprising a carton bottom, extensions from two opposed sides of the carton bottom subdivided by score or fold lines to form side walls each of an inner and an outer wall member spaced from one another an appreciable distance with a top wall member between them and with one of said inner and outer wall members hingedly connected to the carton bottom, at least one of said extensions beyond its inner and outer wall members having panels disposed within the inner and outer wall members of its side wall and secured thereto to dispose one of said panels parallel with the carton bottom and spaced therefrom to form in said side wall, at least, one transverse brace extending between opposed inner faces of said side wall inner and outer wall members, said side walls inner and outer wall members and transverse brace securing and forming panels, respectively, through their score lines being articulated to one another whereby they may be folded to a flat position for shipping purposes and to an upstanding position for carton erection, end walls from the remaining sides of the bottom, means for locking the side walls and end walls in upstanding operative relation to one another, said end walls each including an inner and an outer wall member spaced from one another an appreciable distance with a top wall member between them, and means carried by the side walls for disposition between the end walls inner and outer wall members to form, at least, one transverse brace between said end walls inner and outer wall members.

11. A carton of the class described formed from a single blank comprising a carton bottom, extensions from two opposed sides of the carton bottom subdivided by score or fold lines to form side walls each of an inner and an outer wall member spaced from one another an appreciable distance with a top wall member between them and with one of said inner and outer wall members hingedly connected to the carton bottom, at least one of said extensions beyond its inner and outer wall members having panels disposed within the inner and outer wall members of its side wall and secured thereto to dispose one of said panels parallel with the carton bottom and spaced therefrom to form in said side wall, at least, one transverse brace extending between opposed inner faces of said side wall inner and outer wall members, said side walls inner and outer wall members and transverse brace securing and forming panels, respectively, through their score lines being articulated to one another whereby they may be folded to a flat position for shipping purposes and to an upstanding position for carton erection, end walls from the remaining sides of the bottom, means for locking the side walls and end walls in upstanding operative relation to one another, said end walls each including an inner and an outer wall member spaced from one another an appreciable distance, and tucking flap assemblies comprising flanges at the ends of side walls inner and outer wall members including panels as extensions of the side walls inner and outer wall members and transverse brace securing and forming panels and which flange panels are adapted to be ar-

ranged relative to one another and insertable within the end walls inner and outer wall members to brace said end walls inner and outer wall members relative to one another.

12. A carton of the class described formed of a single blank of card or paper board comprising a carton bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members, a bottom wall member carried by the other of said inner and outer wall members, and panels from said bottom wall members providing alternate glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, said side walls bottom wall members being positioned exteriorly of the sides of the bottom to which the side walls upstand, said bottom wall members being free of its adjacent panel for a short distance inwardly of the ends thereof to thereby provide tabs, and said end walls including a locking panel adapted to cooperate with the said side walls bottom wall members tabs in locking the end walls in erected positions.

13. A carton of the class described formed of a single blank of card or paper board comprising a bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members, a bottom wall member carried by the other of said inner and outer wall members, and panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall member and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, said side walls bottom wall members being located exteriorly of the carton bottom edges to which the side walls are articulated with the opposite ends of said bottom wall members for a short distance inwardly of their ends free of their adjacent panels to thereby provide tabs, said end walls each including an inner and an outer wall member, and a locking panel on the end wall outer wall member adapted to cooperate with the said side walls bottom wall members tabs in locking the end walls in erected positions.

14. A carton of the class described formed of a single blank of card or paper board comprising a bottom, extensions from two opposed sides of said carton bottom each subdivided to provide panels erectable into side walls each formed of an inner and an outer wall member spaced from one another an appreciable distance, with one of said inner and outer wall members articulated to the carton bottom, a top wall member joining the upper ends of said inner and outer wall members, a bottom wall member carried by the other of said inner and outer wall members, and panels from said bottom wall members providing glue flaps and transverse braces with certain of said glue flaps connected to the interior surface of its carton bottom articulated side wall members and certain of said glue flaps connected to the opposed inner surface of the remaining side wall member with the transverse braces extending between the said side walls inner and outer wall members and parallel with the bottom, whereby said spaced inner and outer wall members are transversely braced, end walls from the remaining edges of the bottom, said side walls bottom wall members being located exteriorly of the carton bottom edges to which the side walls are articulated with the opposite ends of said bottom wall members for a short distance inwardly of their ends free of their adjacent panels to thereby provide tabs, said end walls each including an inner and an outer wall member spaced from one another an appreciable distance with a top wall joining them at their upper ends, tucking flap assemblies hingedly carried by the side walls at the ends of their inner and outer wall members including in each assembly a transverse brace adapted to be enclosed by said end walls inner and outer wall members, and a locking panel on the end walls outer wall members adapted to be inserted beneath the side walls bottom wall members tabs for locking the end walls in erected positions.

WILLIAM P. FRANKENSTEIN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 21,158	Frankenstein	July 25, 1939
1,262,508	Kaufman	Apr. 9, 1918
1,787,498	Tinsley	Jan. 6, 1931
2,116,513	Frankenstein	May 10, 1938
2,148,048	Gray	Feb. 21, 1939
2,173,871	Zalkind	Sept. 26, 1939
2,301,575	Otten	Nov. 10, 1942
2,345,716	Smith	Apr. 4, 1944
2,397,934	Frankenstein	Apr. 9, 1946
2,444,183	Cahners	June 29, 1948
2,444,497	Clarke	July 6, 1948

FOREIGN PATENTS

Number	Country	Date
739,590	France	Nov. 3, 1932