

Aug. 27, 1963

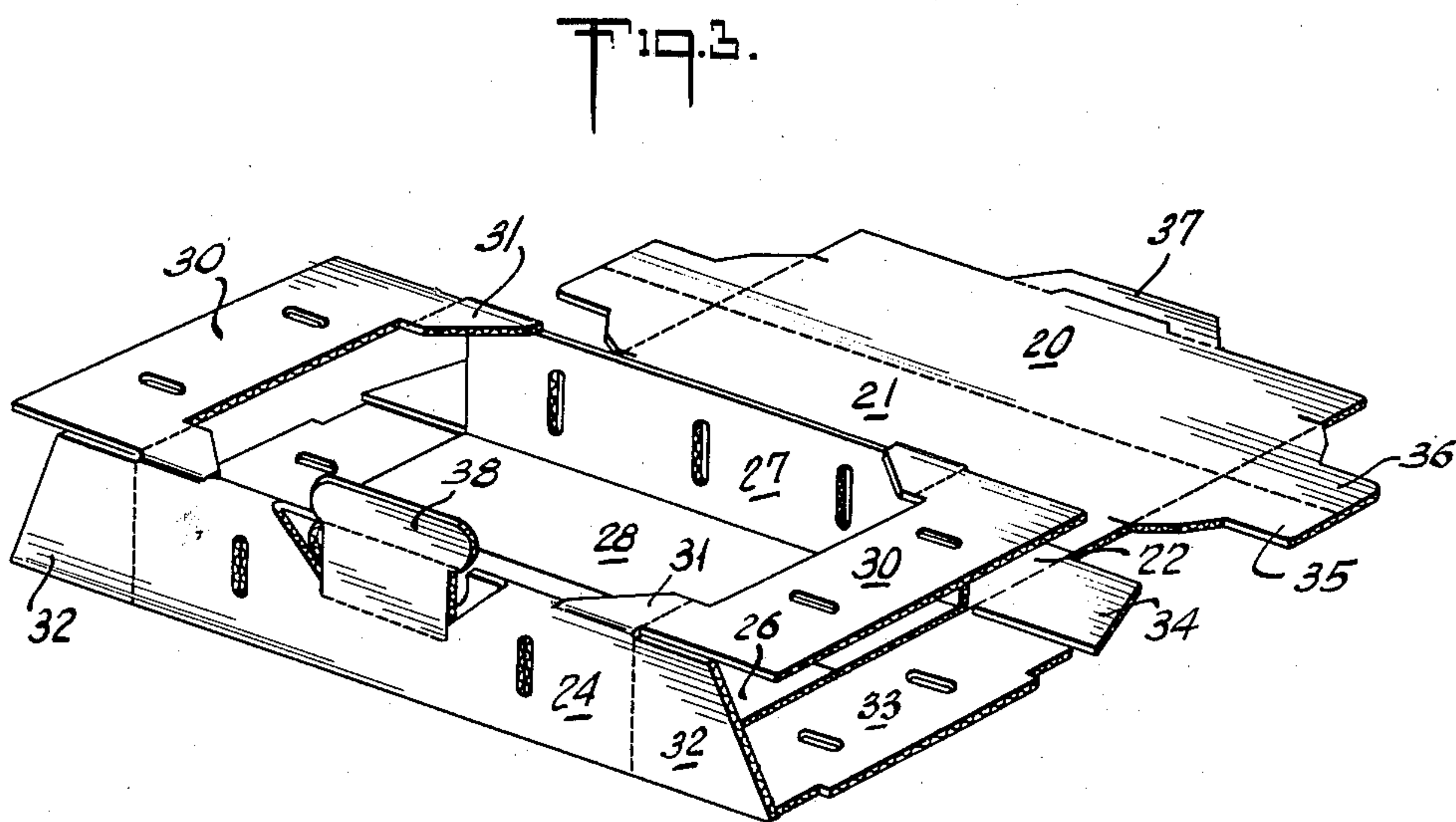
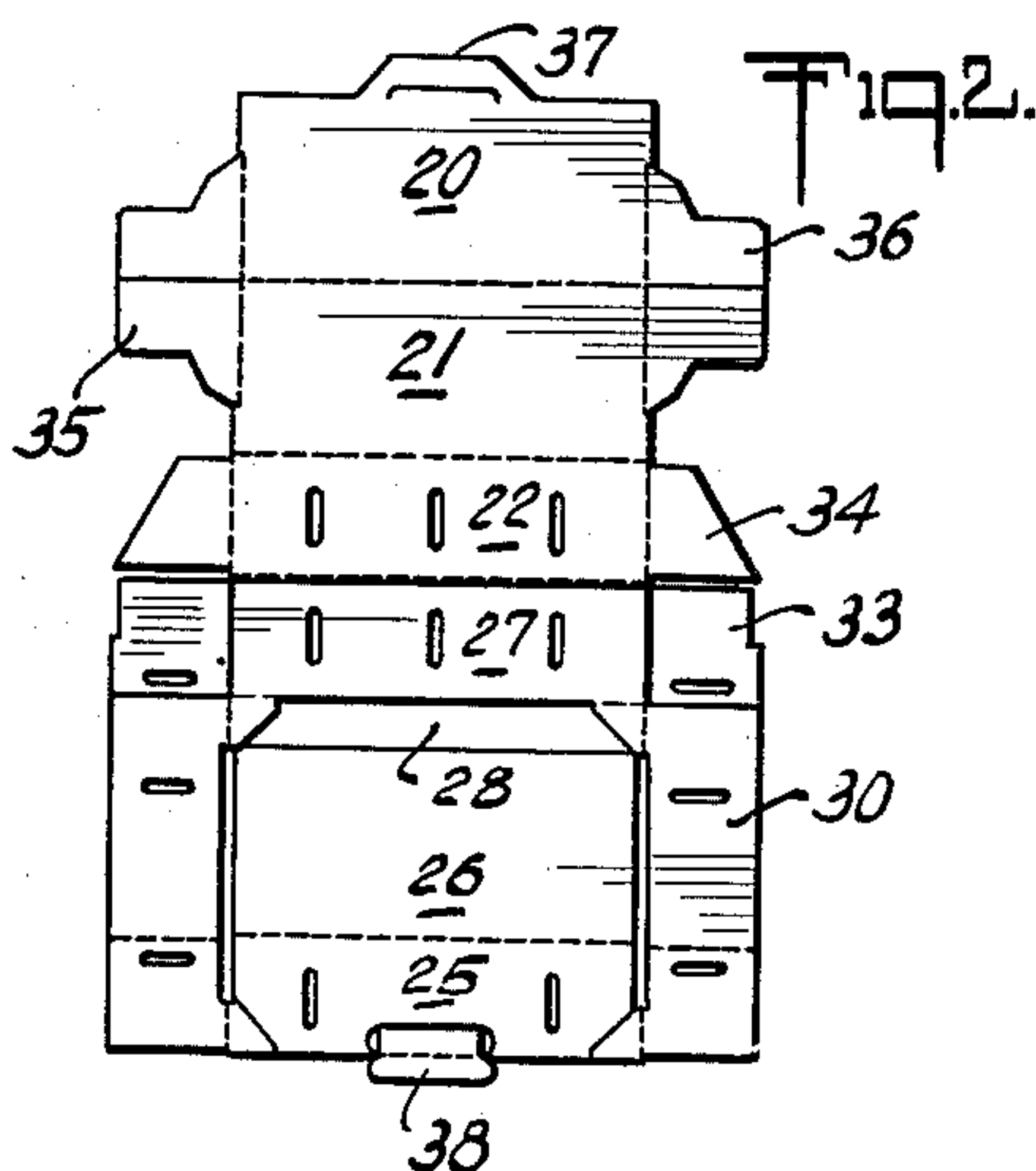
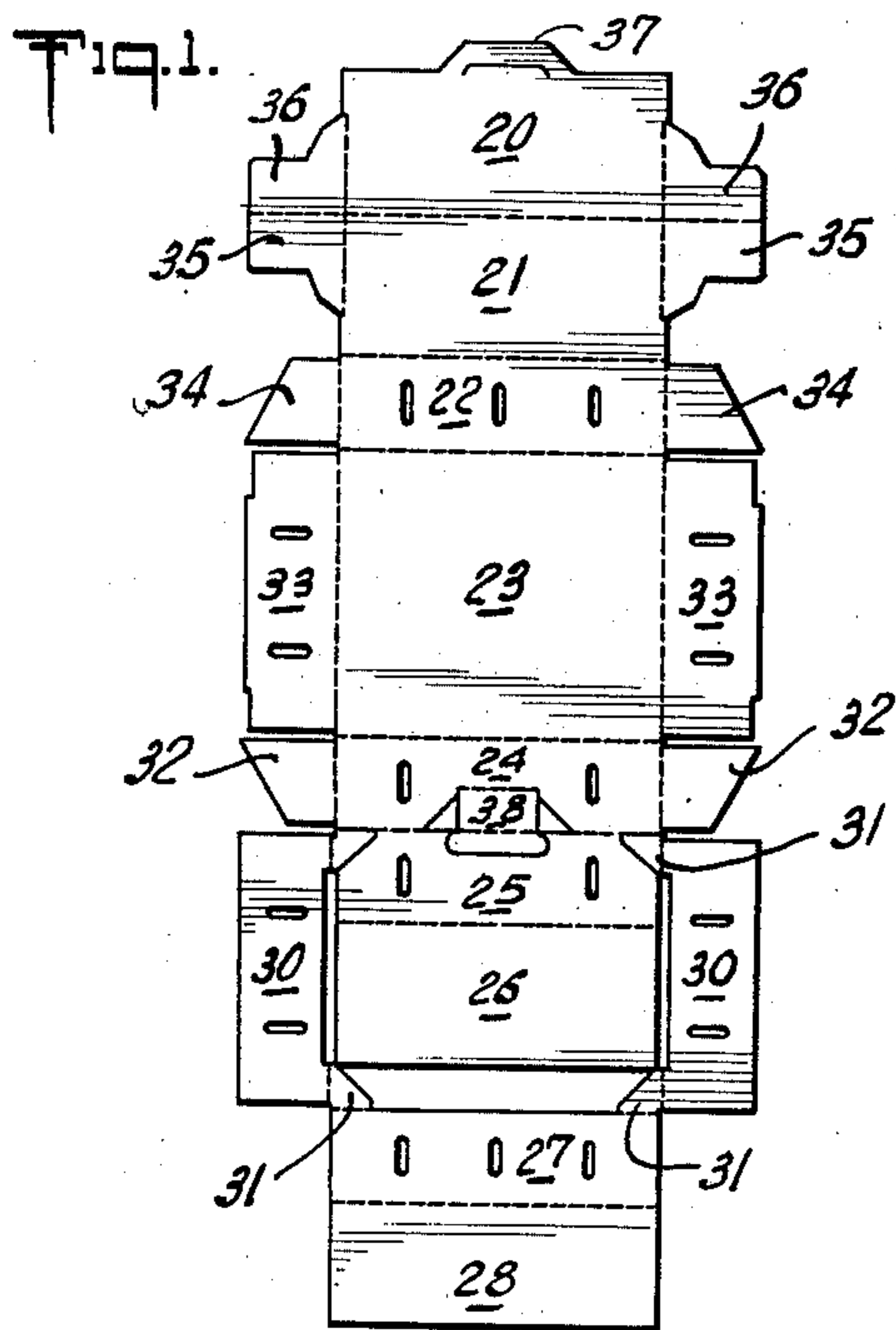
W. B. CRANE

3,101,881

FRESH FRUIT AND VEGETABLE CONTAINER

Filed Sept. 20, 1957

4 Sheets-Sheet 1



INVENTOR
WALTON B. CRANE
BY *Edward J. Kelly*
ATTORNEY

Aug. 27, 1963

W. B. CRANE

3,101,881

FRESH FRUIT AND VEGETABLE CONTAINER

Filed Sept. 20, 1957

4 Sheets-Sheet 2

Fig. 4.

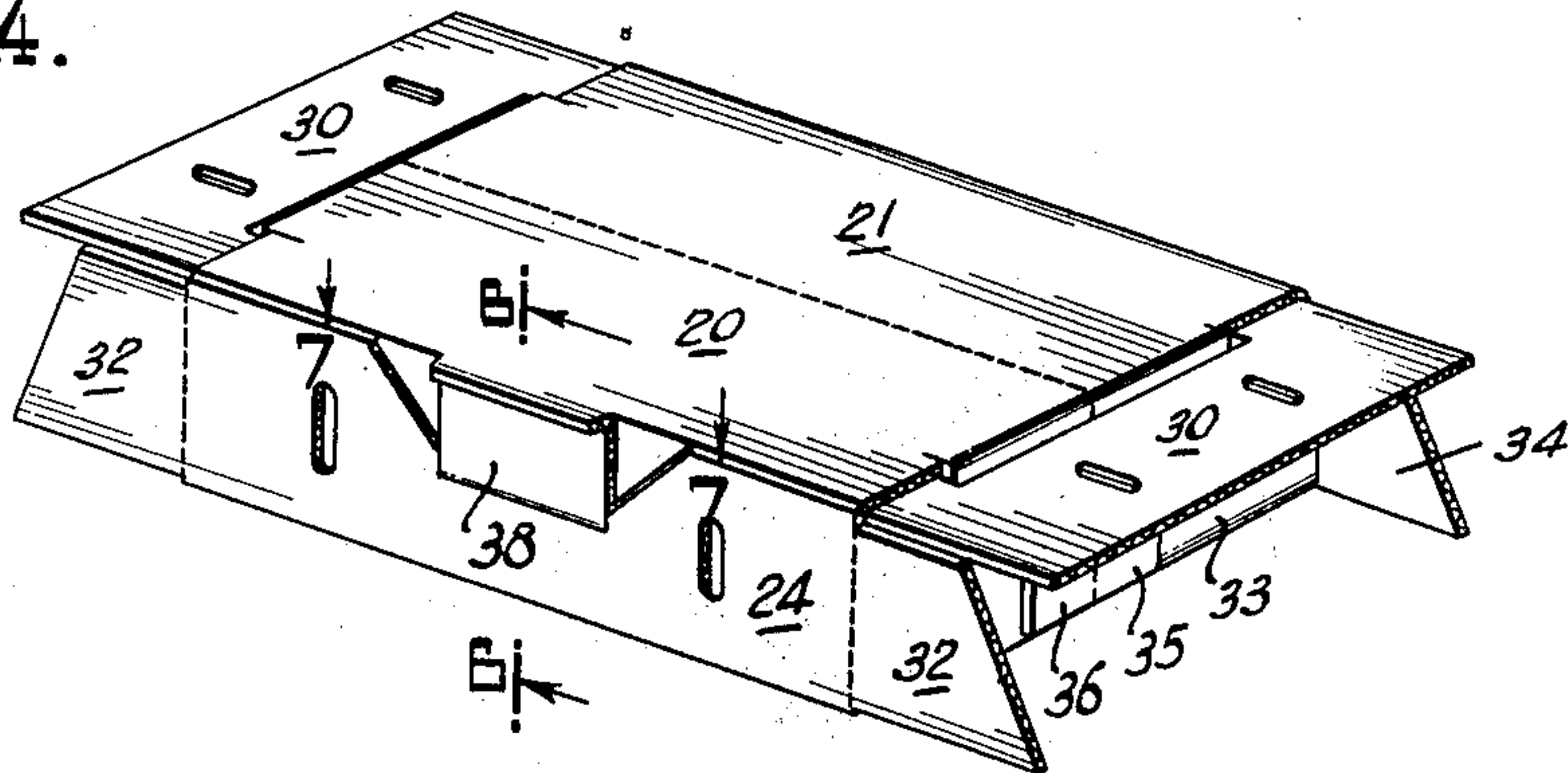


Fig. 5.

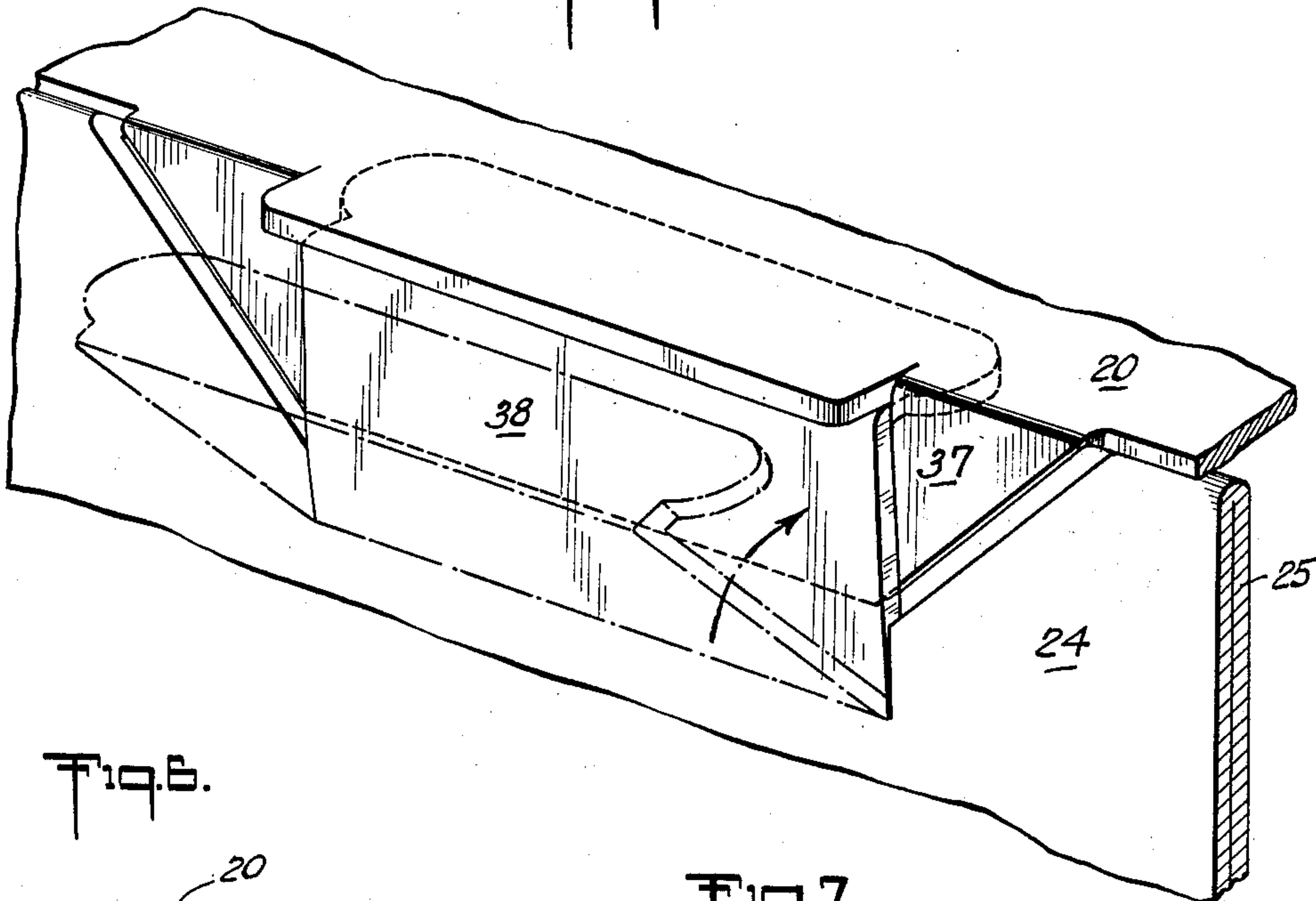


Fig. 6.

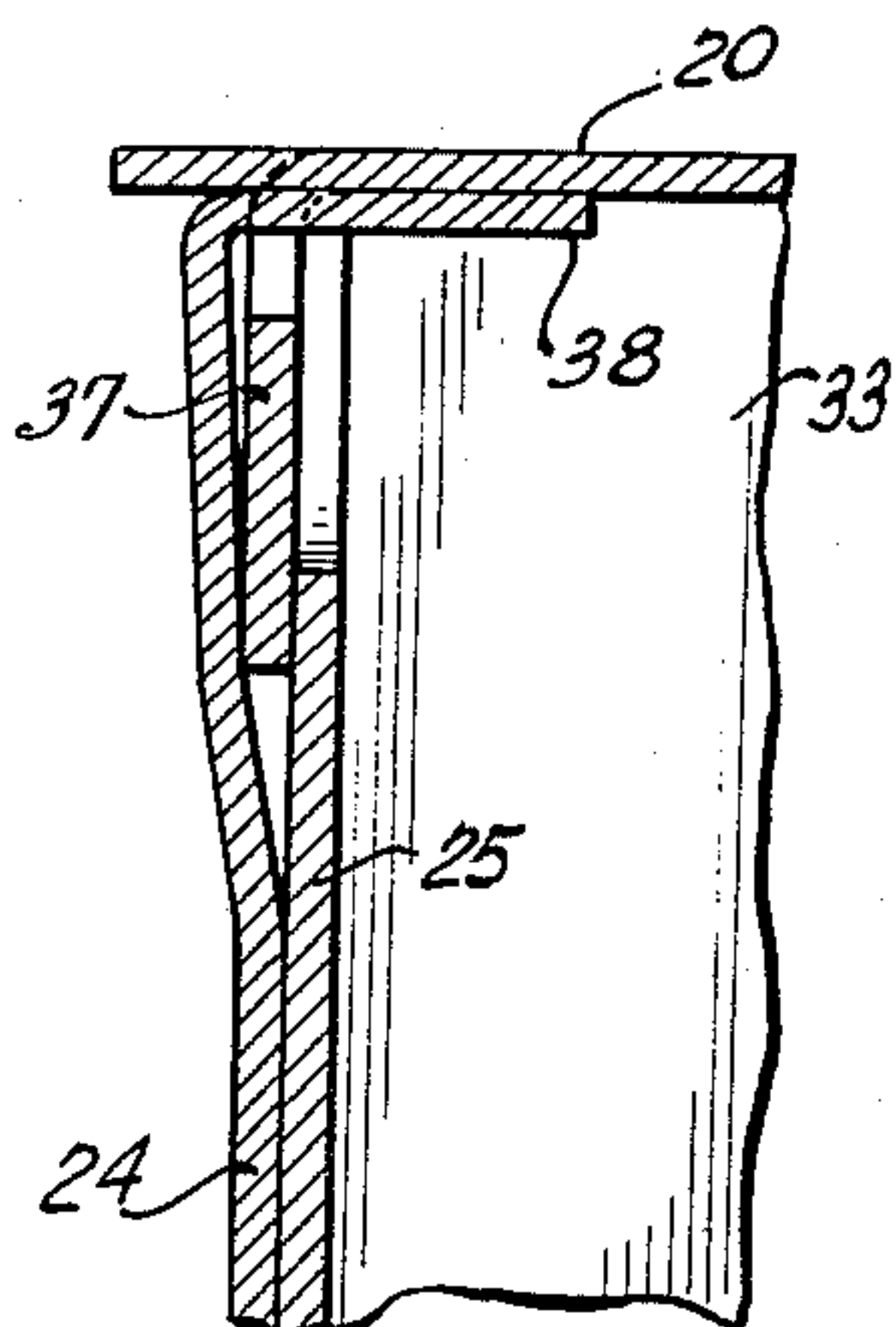
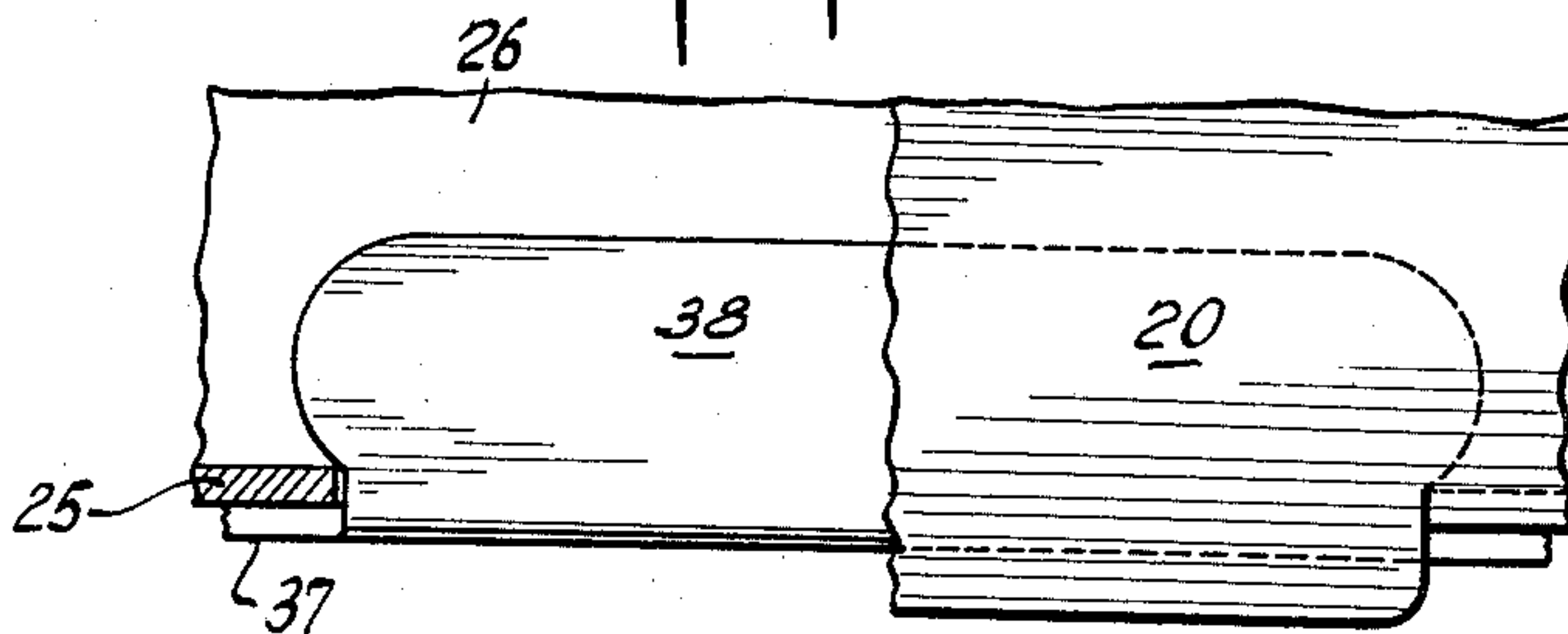


Fig. 7.



INVENTOR
WALTON B. CRANE

BY *Edward J. Kelly*
ATTORNEY

Aug. 27, 1963

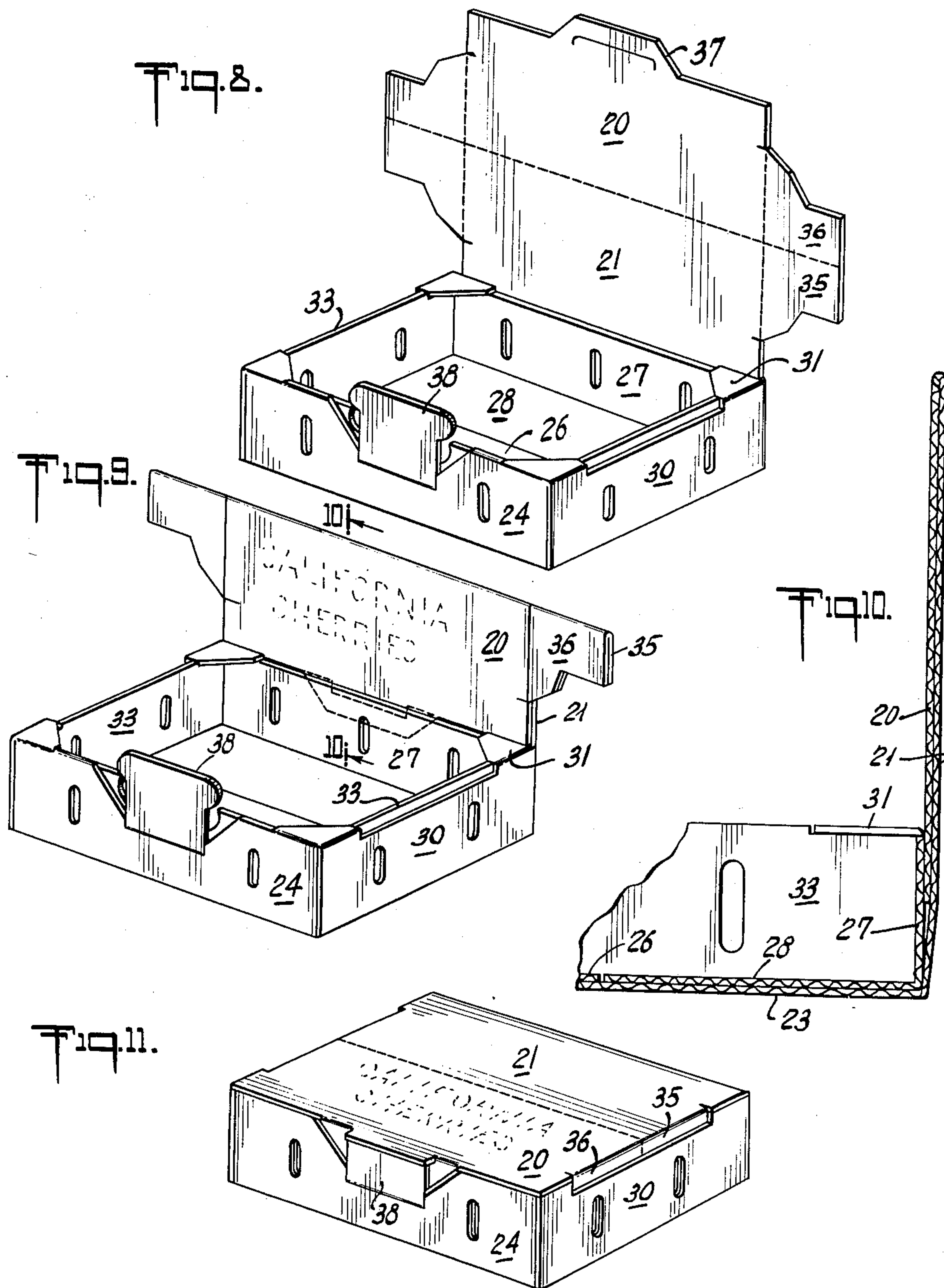
W. B. CRANE

3,101,881

FRESH FRUIT AND VEGETABLE CONTAINER

Filed Sept. 20, 1957

4 Sheets-Sheet 3



INVENTOR
WALTON B. CRANE
BY *Edward J. Willey*
ATTORNEY

Aug. 27, 1963

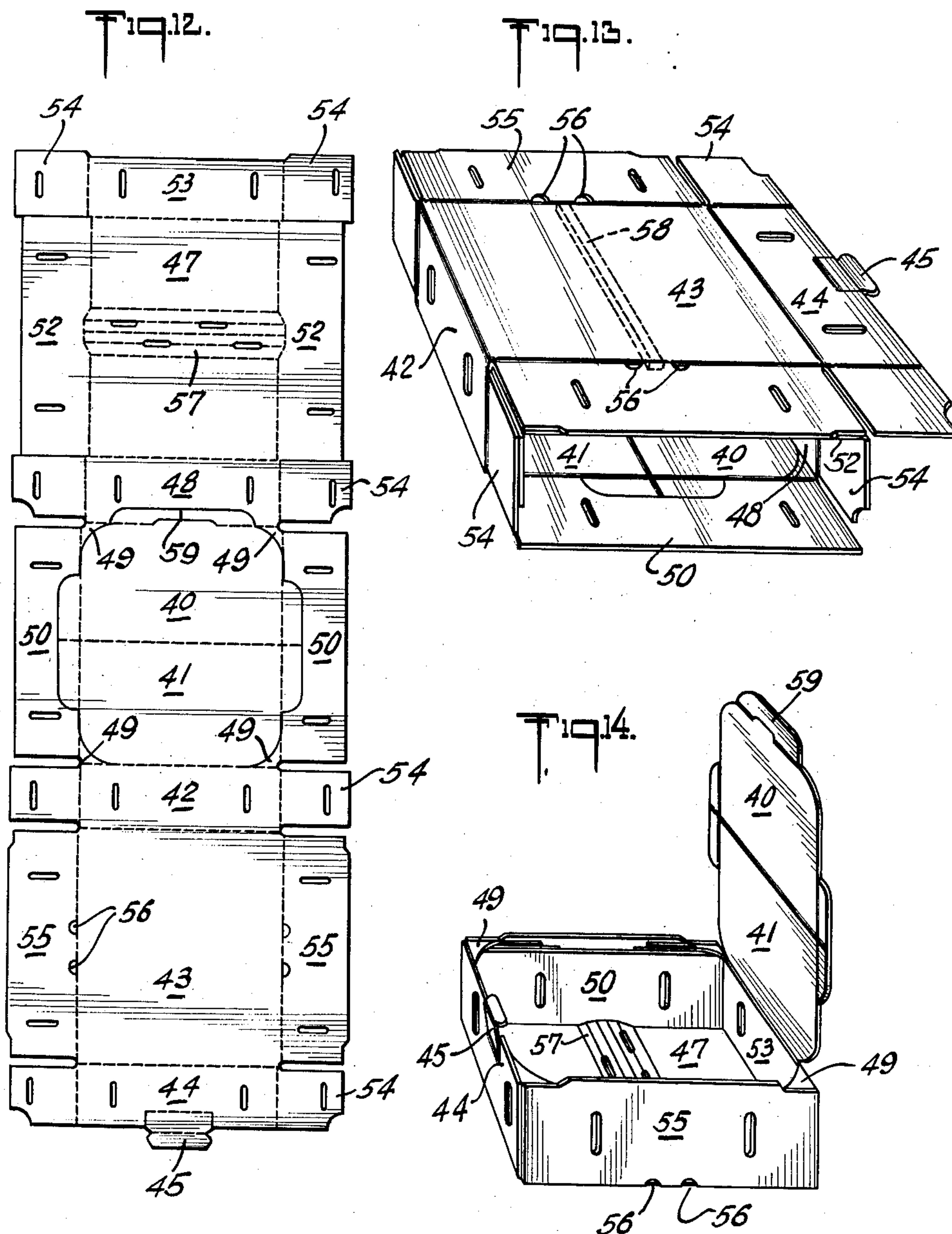
W. B. CRANE

3,101,881

FRESH FRUIT AND VEGETABLE CONTAINER

Filed Sept. 20, 1957

4 Sheets-Sheet 4



INVENTOR
WALTON B. CRANE

BY
Edward J. Willey
ATTORNEY

1

3,101,881

FRESH FRUIT AND VEGETABLE CONTAINER

Walton B. Crane, 1734 Grevelia St.,
South Pasadena, Calif.

Filed Sept. 20, 1957, Ser. No. 685,118
3 Claims. (Cl. 229—34)

This invention relates to containers for shipping fresh fruits and vegetables and more particularly to such containers constructed of paperboard such as corrugated board, solid fibreboard, or the like.

Bulk materials packed in corrugated boxes tend to settle and flow causing downward bulging of the box. This problem is particularly acute in the case of grapes and certain other fruits and vegetables, such as tomatoes, plums, peaches, apricots, cherries, nectarines, etc. The problem with grapes is that because of the small size of the fruit which increases the tendency to flow, the shape of the container in which these fruits are packed is such that the bottom area is comparatively large, thus making it more susceptible to bulge. The presence of high humidity necessary in the storage and handling of the fruit weakens the box. Storage periods of a few weeks, plus six to nine days in transit to the east coast from California, for example, makes further demands on a box of this type.

In addition to being constructed to withstand the above conditions, it is preferable that the box be a one-piece box that can be easily and quickly set up by machine in order to meet the needs of large volume shippers and which can be loaded and lidded with facility in either the field or packing shed. An important feature of such a box should be that it can easily be opened for inspection and reclosed without leaving evidence that it has been opened.

In addition to the great stiffness required in the bottom of these boxes, there is a need for more ventilation for purposes of cooling than can be obtained by conventional means of cutting holes in some or all of the six exterior surfaces of the container. This problem is particularly acute in the case of grapes at the center and bottom of the container, because of the difficulty of passing air through the interstices. It is evident that the need for cooling is greater in precisely that area of the container which can least afford to be weakened by ventilation holes.

It is therefore the object of the present invention to provide an inexpensive paperboard container for the shipment of those fresh fruits and vegetables which can carry little or no weight themselves, and which are subject to storage and transportation at high humidity.

It is a further object of the present invention to provide a one-piece paperboard container that can be easily and quickly set up by machine, and which can be loaded and lidded easily in the field or packing shed.

It is a further object of the present invention to provide an improved inexpensive paperboard container for fresh fruits and vegetables that can easily be opened for inspection and reclosed without leaving evidence that it has been opened.

It is a further object of the present invention to provide an improved corrugated container having ventilation in the bottom thereof while maintaining substantial strength.

These and other objects are attained by the present invention which may best be understood by reference to the attached drawings showing preferred embodiments of the invention. It will be understood, however, that variations and substitutions may be made within the scope of the claims.

FIG. 1 is a plan view of the blank of a container in accordance with the present invention;

2

FIG. 2 is a perspective view of the blank partially folded;

FIG. 3 is a perspective view showing the box partially folded with the cover open;

FIG. 4 is a perspective view of the box of FIG. 3 with the cover closed;

FIG. 5 is a detailed view of the closure means in open and closed position;

FIG. 6 is a fragmentary cross-section view taken on the lines 6—6 of FIG. 5;

FIG. 7 is a plan view partially cut away, taken from the top of FIG. 4 as indicated on the lines 7—7 of FIG. 4;

FIG. 8 is a perspective view of the box of FIGS. 1 to 7 in folded position but with the cover open;

FIG. 9 is a perspective view of the box of FIG. 8 shown with the cover folded to form a display box;

FIG. 10 is a fragmentary cross-section taken on the lines 10—10 of FIG. 9;

FIG. 11 is a perspective view of the box of FIG. 8 with the cover closed;

FIG. 12 is a plan view of a blank alternative to FIG. 1;

FIG. 13 is a perspective view taken from the bottom of the box formed from the blank of FIG. 12, and

FIG. 14 is a perspective view showing the completely assembled box formed from the blank of FIG. 12 with the cover open.

Referring to FIG. 1 there is shown the blank of one embodiment of the present invention. Panels 20 and 21 which will ordinarily be continuous with each other and not folded comprise the lid. Panel 22 is the outer back wall which is foldably connected to panel 21 and to panel 23 which comprises the bottom of the box. Folded from the bottom 23 is a front panel 24, an inner front panel 25 and a portion of the inner liner for the bottom of the box 26. By reason of the triangular corner pieces 31—31—31—31, panels 27 and 28 are also foldably connected to panel 24. Panel 27 is the inner liner for the back of the box and panel 28 is part of the bottom liner. Also folded from the triangular portions 31—31—31—31 are end flaps 30—30. At each end of front panel 24 are tabs 32—32. Folded from bottom panel 23 are side walls 33—33. From the outer back panel 22 are connected end flaps 34—34 by means of fold lines. The portion of the cover panel 21 contains end flaps 35—35 which are ordinarily continuous with end flaps 36—36 folded from panel 20. Cover tuck flaps 37 is adapted to receive the front tuck flap 38.

In setting up the box as shown at FIG. 2, panel 28 has first been brought around and glued to the upper or back portion of bottom panel 23. Panel 26 is then folded inwardly and held in place on bottom panel 23 or preferably, panels 24 and 25 are glued or otherwise adhered together such that when the box is erected, panel 28 will be held in place on bottom panel 23. The box is now ready for shipment.

FIG. 3 shows the first step of erecting the box where it is formed into a tubular shape.

FIG. 4 shows the cover in closed position and the inner end walls folded inwardly.

At FIG. 5 there was shown an enlarged perspective of the front tuck flap 38 being inserted into the cover tuck flap 37.

FIG. 6 is a segmental cross-section on the lines 6—6 of FIG. 4 showing the front tuck flap 38 engaged in the cover tuck flap 37.

At FIG. 7 there is shown a segment of the closed box showing the tuck flap 38 in place.

FIG. 8 discloses the box with the cover open.

FIG. 9 shows the box with the cover folded so that panel 20 is behind panel 21 for display purposes.

FIG. 10 is a segmental cross-section on the lines 10—10

3

of FIG. 9 showing the folded back cover when the box is used for display.

FIG. 11 is a perspective view of the box completely closed and ready for shipment.

It will be noted that in closing the box flaps 35 and 36 are placed between end walls 30 and 33 thus preventing damage to the fruit but substantially forming triple end walls.

It will thus be seen that from a single blank there has been formed a box of unusual strength having a double bottom, double front and back walls and triple end walls in addition to the triangular corner reinforcements 31. After the box has been set up the lidding is accomplished by a continuous inward and downward motion, after which the front locking tab is inserted. In this manner no gluing or fastening device is required on the part of the packer and the box may be reopened for inspection without damage to the contents and without indicating that it has been reclosed. The integral lid provides secure closure and contributes to the strength of the box. In the preferable construction of the box the double bottom may be glued, the double front wall may also be glued as well as the double back wall and the triple side walls are partially glued. The gluing is not only for the purpose of setting up the box but for added structural strength. The display feature of the box is desirable since the use of the locking tab inserted between the two back panels keeps the display erected but does not damage the contents.

With reference to FIGS. 12, 13 and 14, there is shown an alternative container involving a reinforcement and ventilating feature in the bottom. The blank is made up of panels 40 and 41 which are ordinarily continuous and in the same plane and which form the cover connected by fold lines to panel 42 which is the outer back wall which, in turn, is connected by fold lines to panel 43 which is the outermost bottom member. From bottom panel 42 outer front panel 44 is connected by fold lines and at one edge thereof is a tuck flap 45. Bottom liner panel 47 is connected by fold lines with the front panel liner 48 foldable from panel 42 through substantially triangular segments 49—49—49—49 and intermediate side panels 50—50. Bottom liner 47 is also connected by fold lines with side liner panels 52—52 as well as to back liner panel 53. Both the back and front outer panels and liner panels have end flaps 54—54 foldable therefrom in the erected box. These flaps 54 are usually glued to the adjacent walls. Outer side wall panels 55—55 are foldable from the bottom panel 43.

In FIG. 13 there is shown a bottom view of the first step in folding the box wherein substantially a tube is formed starting with bottom liner 47 which is not seen in this figure and folding so that the cover formed by panels 40 and 41 is parallel to it and then continuing the formation of the tube with panel 42 overlapping panel 53 and the bottom panel 43 overlapping bottom liner 47. Gluing is not essential in the formation of the box up to this point but it is preferable in order to make the box more rigid to glue panels 42 and 43 together as well as panels 44 and 48. As will be seen from the erected box shown at FIG. 14, the side panels 50 are first folded inwardly and then all of the end flaps 54 are folded into the sides of the box and preferably glued together to the side wall liners 50—50 and to the end walls 55—55. It will be noted that end walls 55—55 contain small cut-outs 56—56. These cut-outs are adapted to connect with an arcuate section formed by a plurality of fold lines 57 in bottom liner 47. This

4

area of bottom liner 47 also contains vent holes and when bottom liner 47 is folded into the box a strip of wood or the like 58 is inserted between the liner 47 and the bottom 43 of the box causing the liner 47 to form an arcuate section across the box connecting with the cut-outs 56 and permitting ventilation thereby in addition to the strengthening caused by the wood or strip of other rigid material. The box also contains vents in all of the side and end panels and the cover is in two sections so that it may be folded back for display as shown in FIGS. 8, 9 and 10 above. In closed position tuck flap 45 is inserted in a tuck flap 59 which is foldable from the top of the box. In this manner the box may be closed by hand, opened for inspection and reclosed without evidence that it has been opened.

I claim:

1. A shipping container of one piece of paperboard comprising a double face to face contact bottom, a double front wall glued together in face to face contact, a double face to face contact back wall, triple face to face contact side walls at least partially glued together and an integral lid, the said double bottom comprising an outer panel and an inner liner with a rigid wooden bar between, said rigid bar substantially bisecting the bottom of the box, the area of the bottom liner adjacent said bar containing vents, said vents connecting with the atmosphere through apertures in the side walls.
2. A shipping container of one piece of paperboard construction comprising two bottom panels in face to face contact, two front wall panels glued together in face to face contact, two back wall panels in face to face contact, triple side walls in face to face contact at least partially glued together and an integral lid, said lid containing side flanges and a front flange containing a slit, the outer of said front wall panels containing a tab of greater length than the slit adapted to be inserted in the slit to form a lock, and small substantially triangular corner sections folded from and integral with a front wall, two side walls and a back wall panel so as to form a reinforcing means.
3. A shipping container of one piece of paperboard construction comprising two bottom panels in face to face contact, two front wall panels glued together in face to face contact, two back wall panels in face to face contact, triple side walls in face to face contact at least partially glued together and an integral lid, said lid containing side flanges and a front flange containing a slit, the outer of said front wall panels containing a tab of greater length than the slit adapted to be inserted in the slit to form a lock, and small substantially triangular corner sections folded from and integral with a front wall, two side walls and a back wall panel so as to form a reinforcing means, the area between said bottom panels having a rigid wooden bar between substantially bisecting the bottom of the box.

References Cited in the file of this patent

UNITED STATES PATENTS

1,664,308	Miller	Mar. 27, 1928
2,018,519	Hall	Oct. 22, 1935
2,103,382	Petter	Dec. 28, 1937
2,375,843	Gottlieb	May 15, 1945
2,568,204	Reeser	Sept. 18, 1951
2,593,333	Myers	Apr. 15, 1952
2,663,485	Johnson	Dec. 22, 1953
2,668,654	Freel	Feb. 9, 1954
2,758,778	Arneson	Aug. 14, 1956
2,764,336	White	Sept. 25, 1956