

Aug. 27, 1963

D. S. PETERSON

3,101,880

DIVISIBLE CASE

Filed July 18, 1960

2 Sheets-Sheet 1

FIG-1

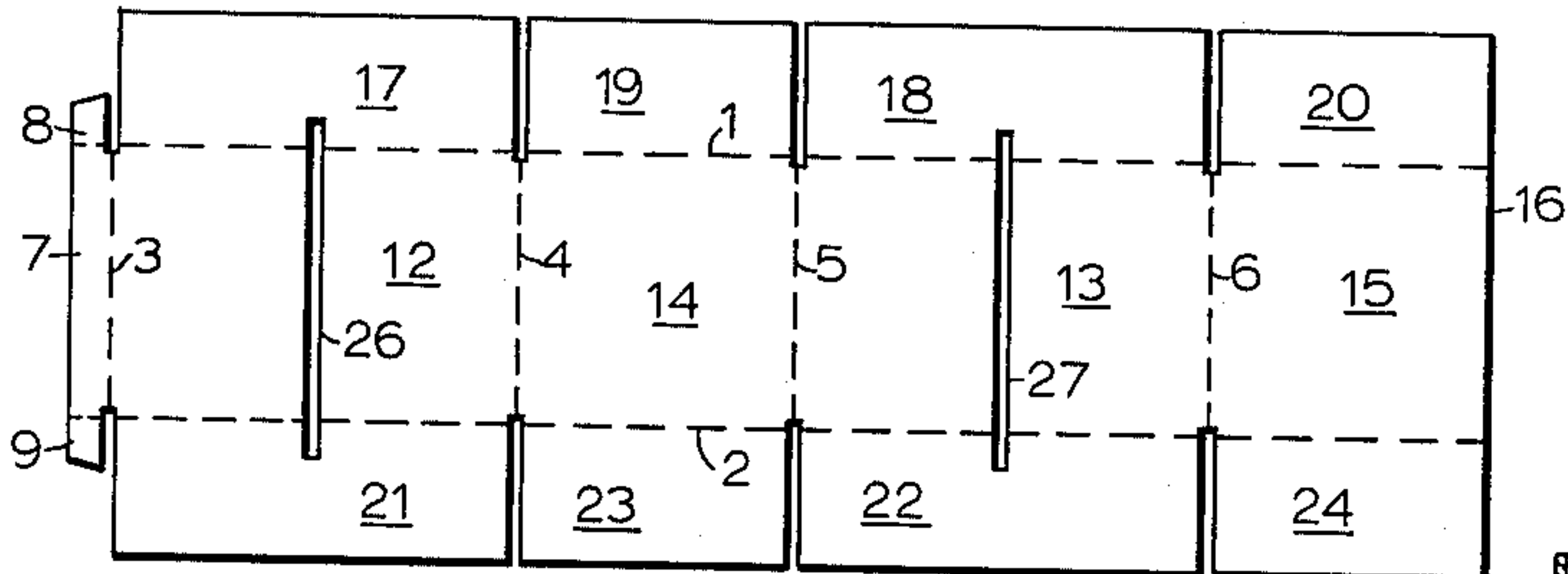


FIG-2

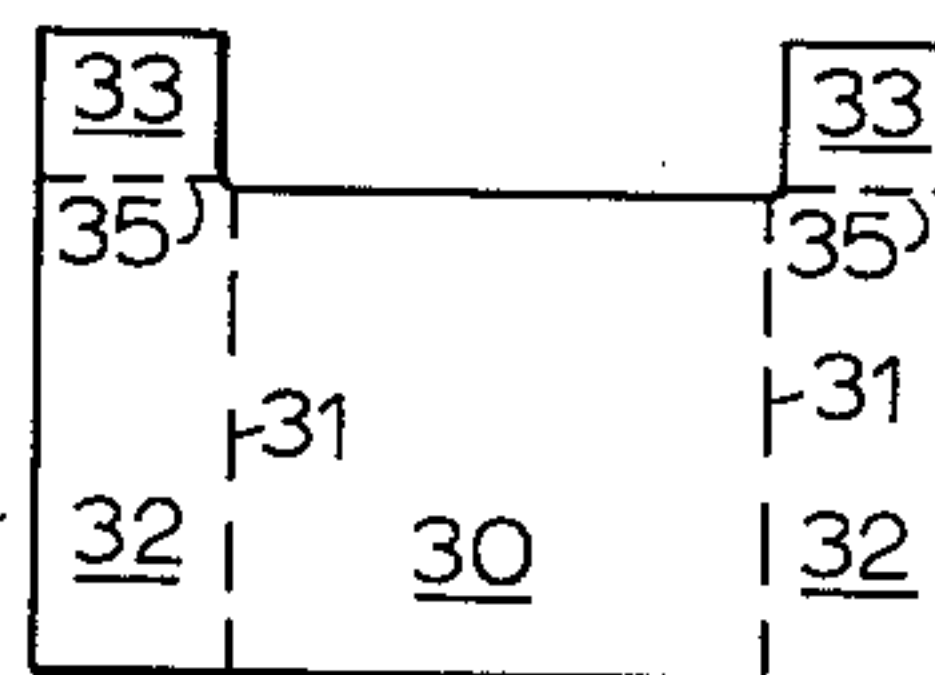


FIG-4

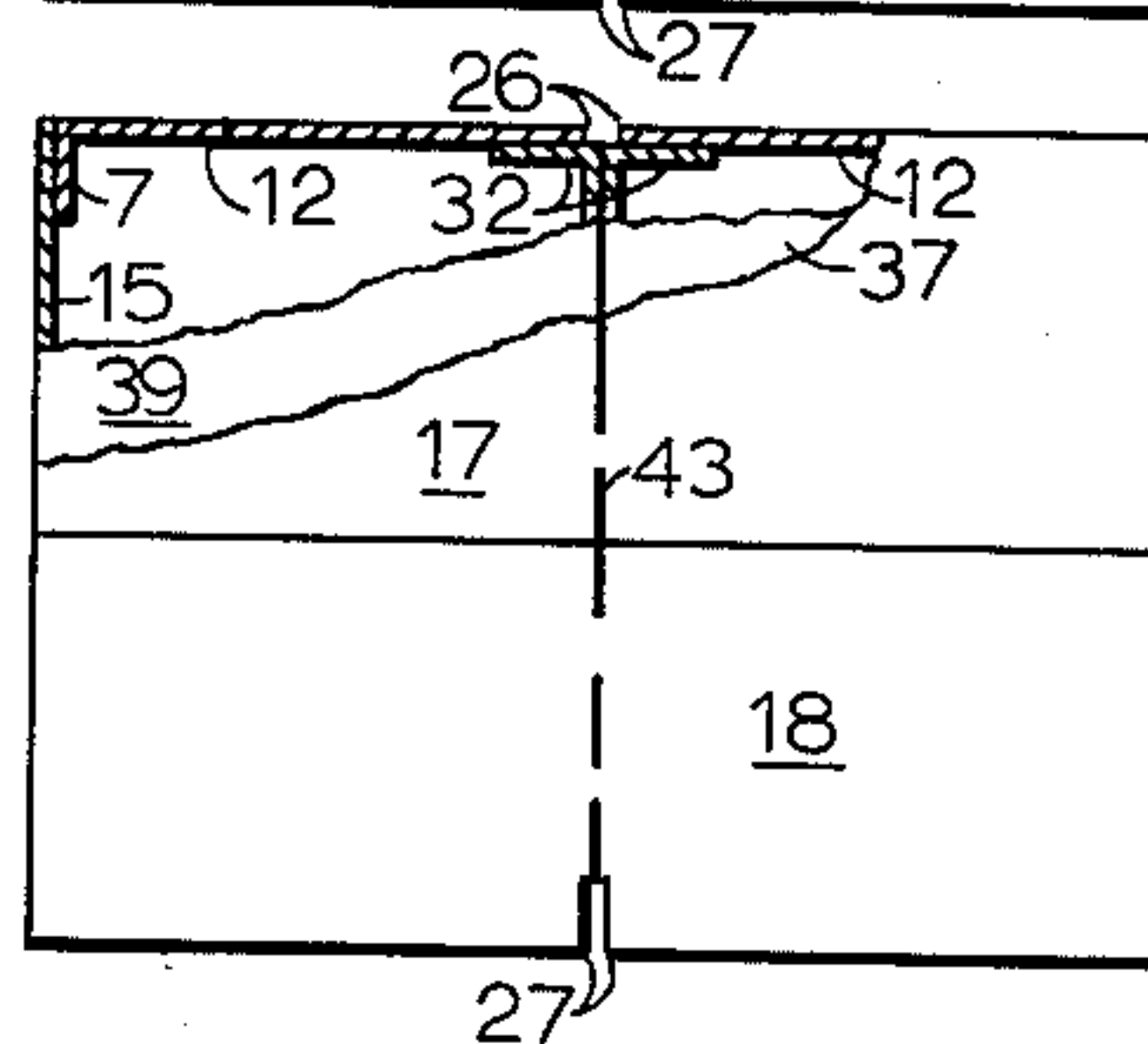
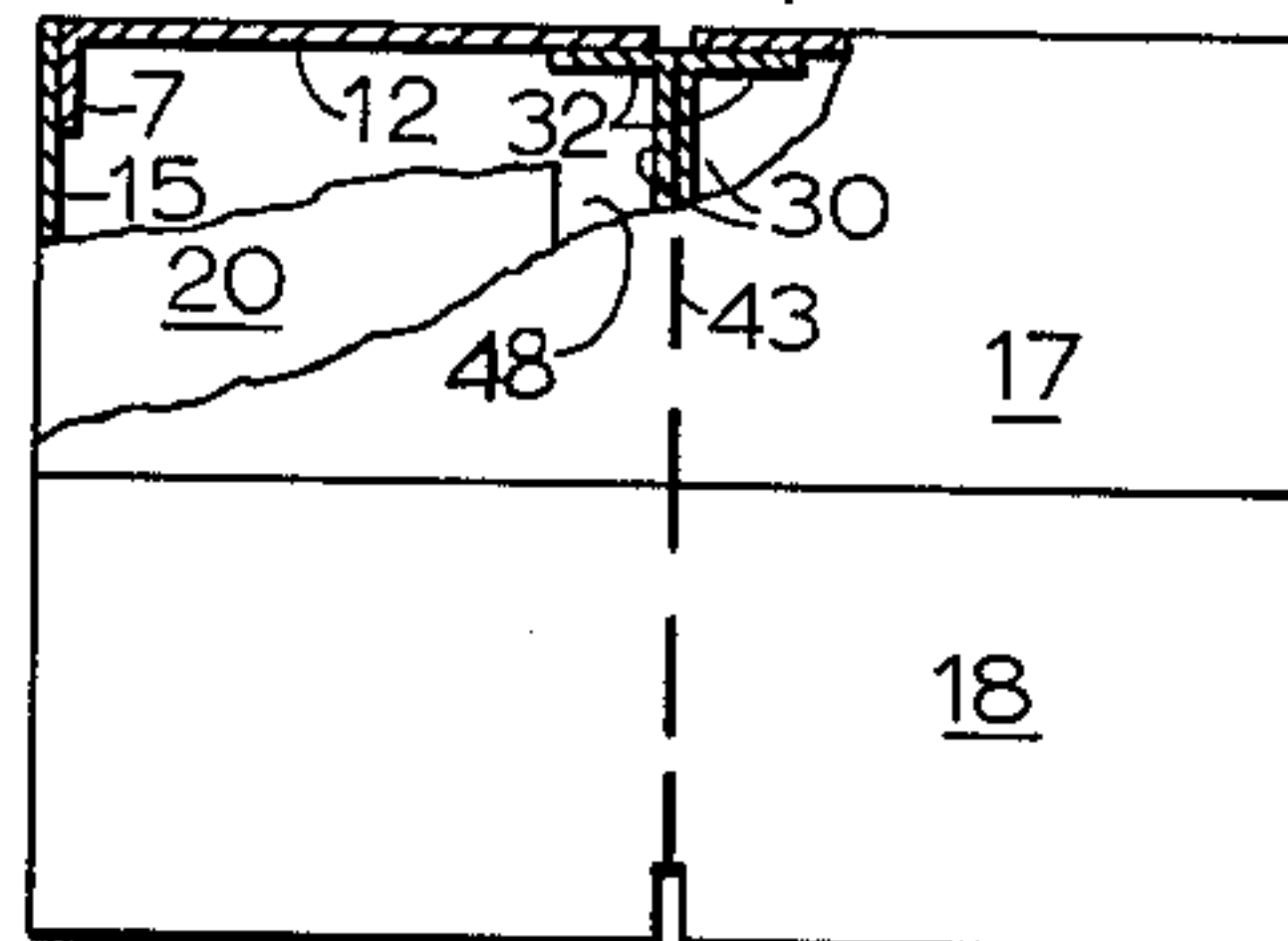
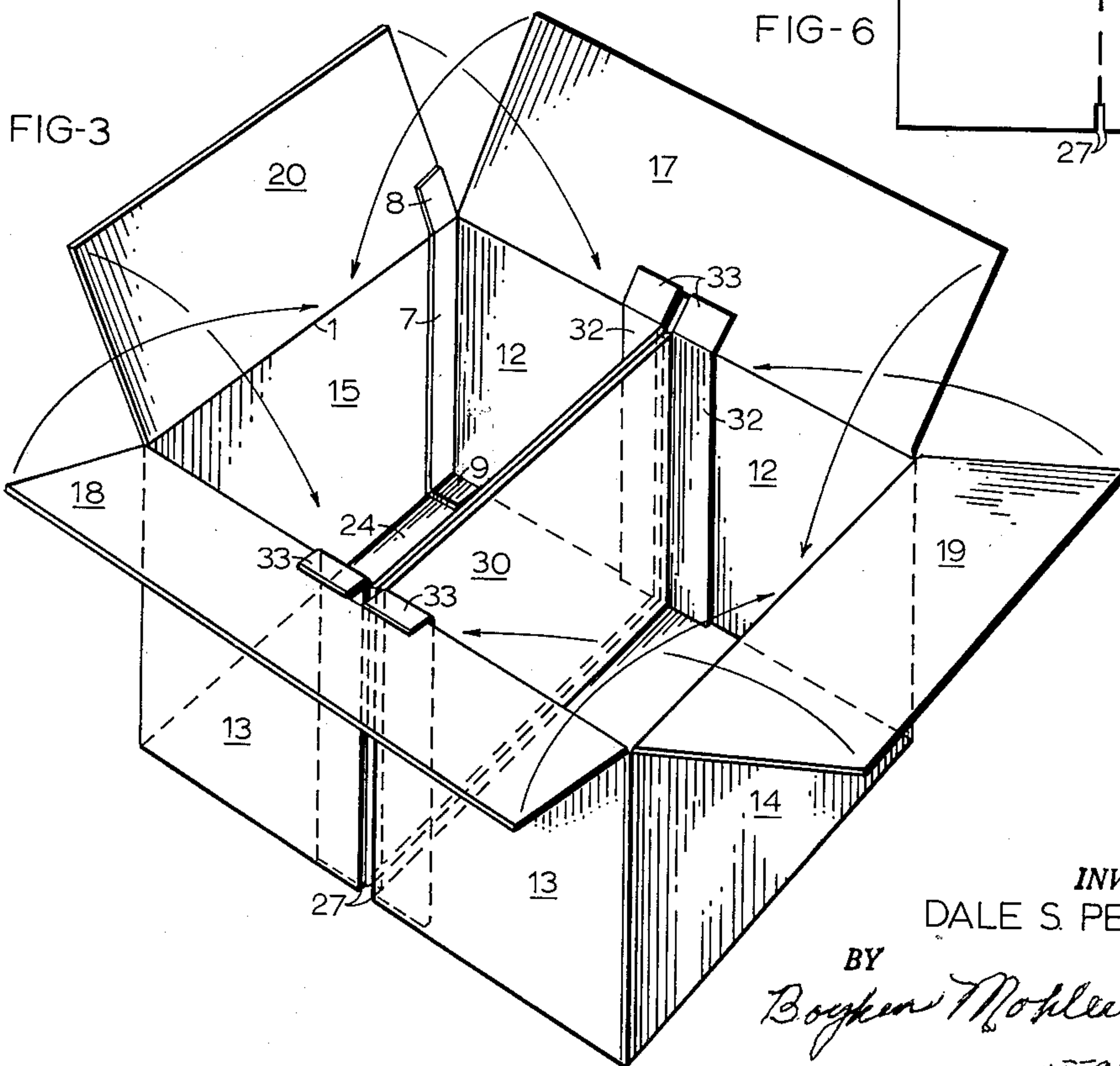


FIG-6

FIG-3



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FIG-9

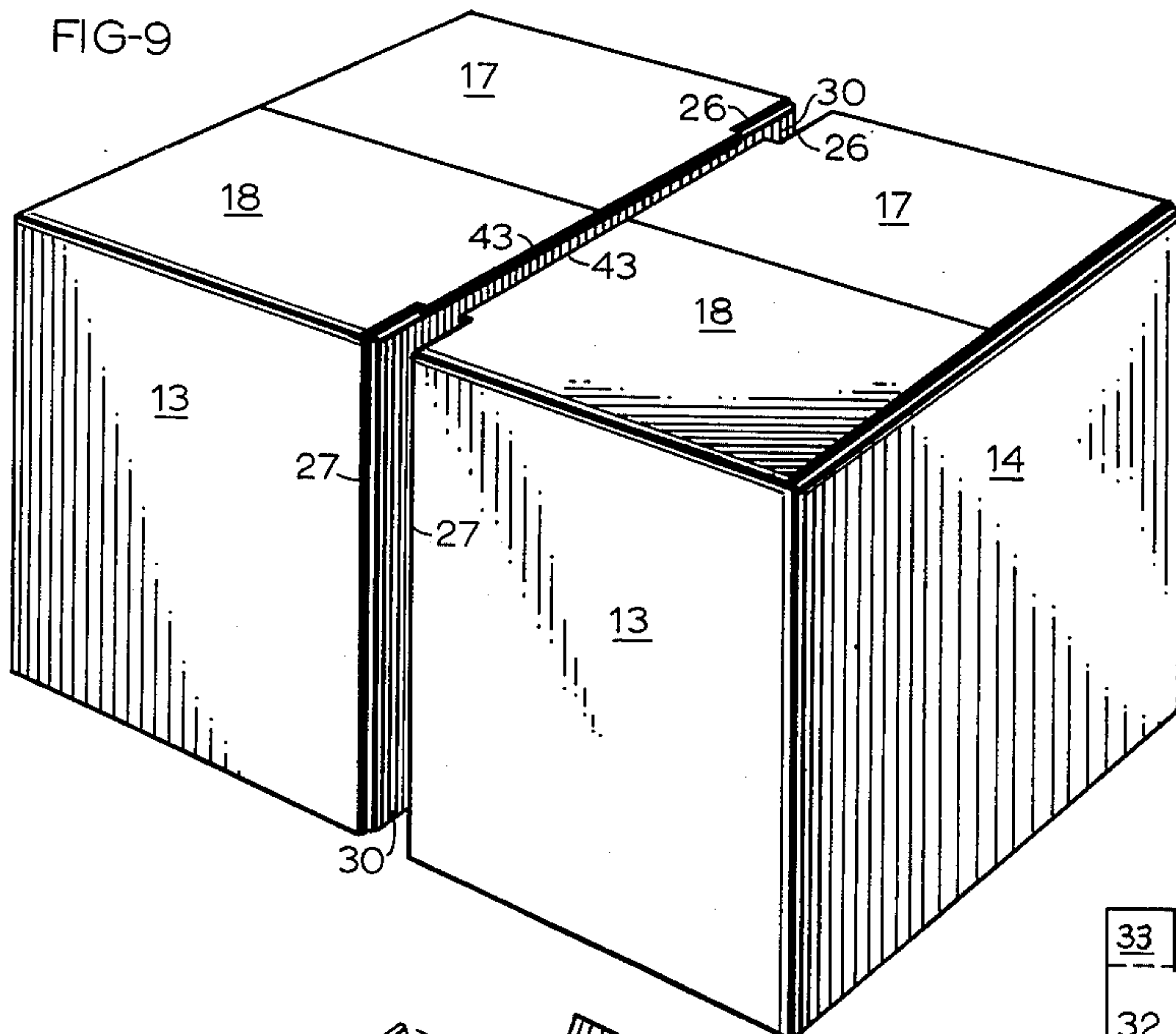


FIG-8

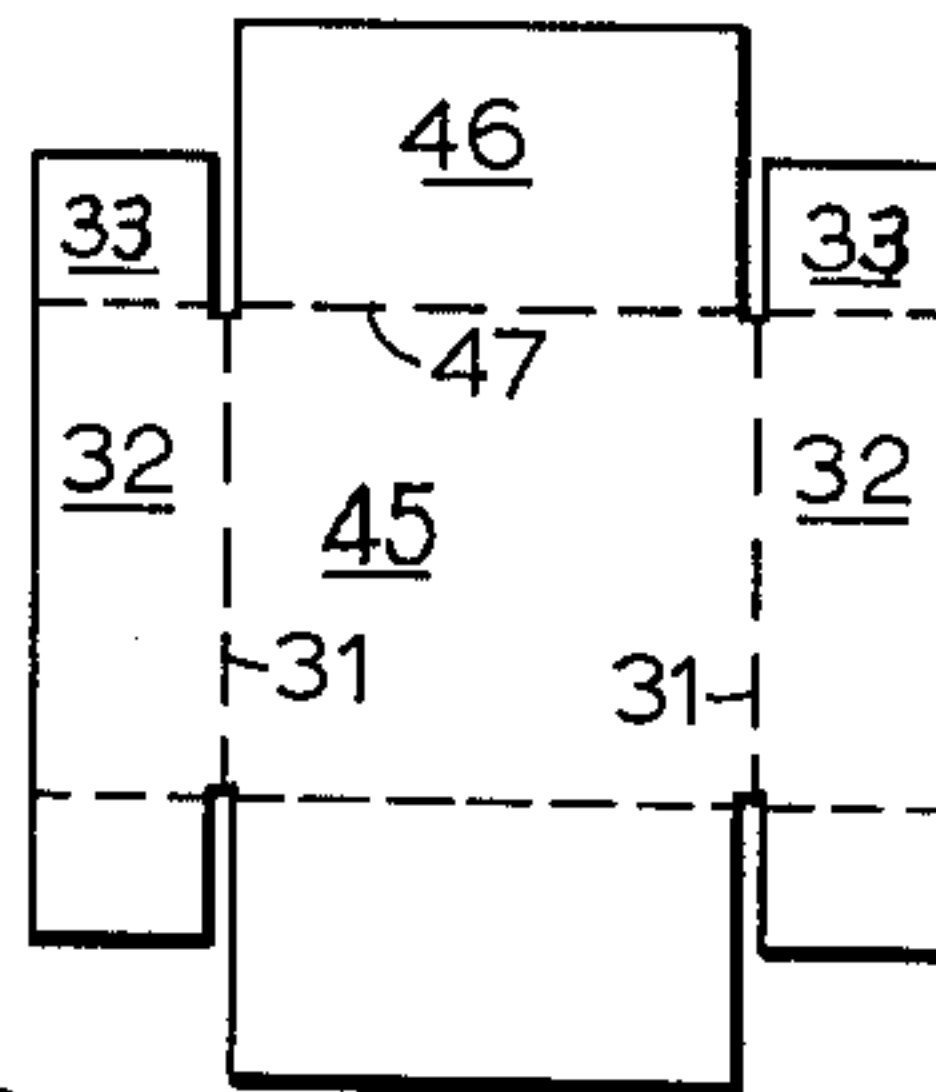
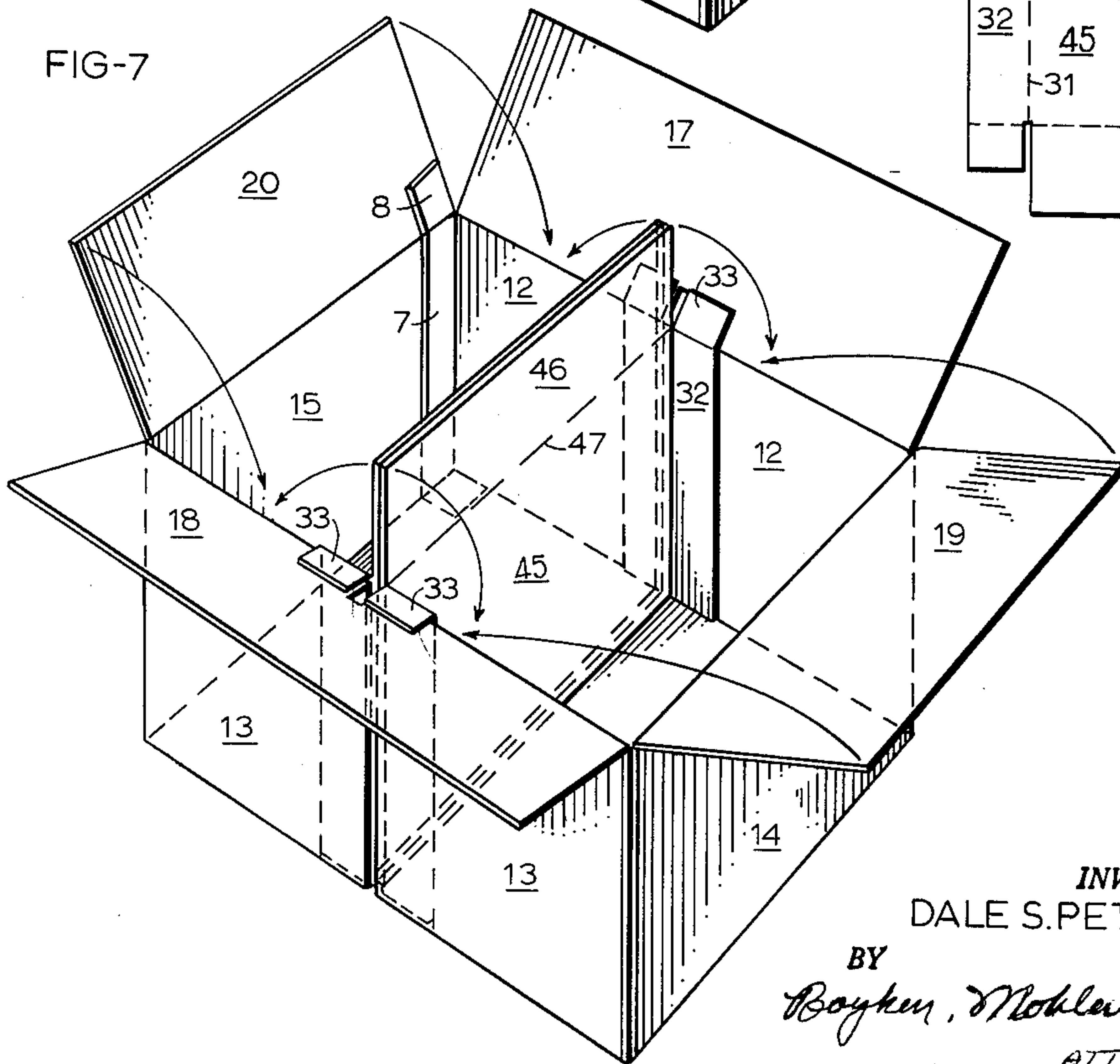


FIG-7



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3,101,880

DIVISIBLE CASE

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4 Claims. (Cl. 229-15)

This invention relates to a divisible case, and has for one of its objects the provision of a fiberboard case that is divisible into separate smaller cases.

In the canning, and other industries, the packers have found it desirable to provide a unitary pack or case holding, for example, two dozen cans or other units, that may be separated to form separate sealed packages or cases holding say one dozen cans or units each. Each of the separate sealed packages or cases, of course, should be pilfer proof.

The provision of a divisible case enables the distributor to distribute less than case lots without the necessity for breaking open a full case and handling loose cans, and leaving a partially filled case of loose cans, which is not only costly in time and trouble, but encourages pilferage. Also, the retailer in many instances will sell half cases of products to customers where they would not purchase full cases, and by having a divisible case no time is wasted in handling and repackaging loose cans.

Among the problems that must be solved in making a case that is divisible is that of providing a case that may automatically be loaded by conventional case loading equipment, and which case, when loaded, may be closed and sealed by conventional closing and sealing equipment.

Another problem is that of providing a divisible case that is sufficiently economical in material and method of assembly or folding, to be practical. In order to be acceptable the structure of the case should lend itself to rapid assembly and should be adapted to be collapsed to a flat condition for shipment and storage, and the separate case sections, when the case is divided, should remain sealed against pilferage of the contents.

One of the objects of the invention is the provision of a divisible case that solves all of the above-mentioned problems. The case is economical to make and to assemble, and may be folded to a flat condition for shipment or storage, and when the case is set up, filled and sealed and is then divided into separate sections or cases, the latter remains sealed against pilferage of the contents, but may be quickly opened in the same manner as a filled, non-divisible conventional case.

A still further object of the invention is the provision of a divisible case that is strong, rigid, and that is easily separated into sections.

Other objects and advantages will appear in the description and in the drawings.

In the drawings,

FIG. 1 is a reduced size plan view of a blank from which the body of the case is adapted to be formed.

FIG. 2 is a side elevational view of one of two identical partitions adapted to be secured within the case.

FIG. 3 is a perspective view of the case after it has been formed with the partition. The top closure flaps are shown in the open position.

FIG. 4 is a reduced top plan view of a closed case formed from the blank of FIG. 1, partly broken away and in section.

FIG. 5 is a reduced size plan view of a blank that is slightly different from the blank of FIG. 1. The partition structure for use with this blank is the same as used in FIG. 3.

FIG. 6 is a reduced top plan view of a closed case formed from the blank of FIG. 5, partly broken away and in section.

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FIG. 7 is a perspective view of an open case formed from the blank of FIG. 1 but having a partition that is a modification of the type shown in FIG. 2.

FIG. 8 is a side elevational view of the modified partition of FIG. 7.

FIG. 9 is a perspective view of a closed case that has been divided, and this view would be applicable to any of the structures shown.

In detail the blank of FIG. 1 is a generally oblong sheet of double faced corrugated fibreboard formed with a pair of parallel, spaced folding creases 1, 2 extending longitudinally thereof. Parallel spaced folding creases 3, 4, 5, 6 extend transversely of the blank between and at right angles to creases 1, 2. Crease 3 is adjacent to one end of the blank and defines the juncture between a glue flap 7 and the main body of the blank, which flap is elongated and extends longitudinally of the crease 3, with free end extensions 8, 9 that extend oppositely outwardly of lines coincidental with creases 1, 2.

The portion 12 of the blank outlined by creases 1, 2, 3, 4 is one of the side walls of the carton when the blank is folded to provide a case, and the portion 13 between creases 1, 2, 5, 6 will form the side wall opposed to said wall 12.

The portion 14 between creases 1, 2, 4, 5 and the portion 15 between creases 1, 2, 6 and the free end edge 16 of the blank define the other two opposed side walls.

The flaps 17, 18 are along crease 1 and form into opposite top closure flaps said flaps being integral with side walls 12, 13, respectively, while flaps 19, 20 are the two opposite top closure flaps integral with side walls 14, 15 along crease 1.

Along crease 2 are bottom closure flaps 21, 22 that are integral with side walls 12, 13 along crease 2, while bottom closure flaps 23, 24 are integral with side walls 14, 15 along crease 2. These bottom flaps are identical with the top closure flaps.

The side walls 12, 13 are formed with slots 26, 27, the slot 26 being midway between and parallel with the creases 3, 4, while slot 27 is midway between and parallel with creases 5, 6. Said slots terminate at their ends within the top and bottom closure flaps 17, 21 (for slot 26) and 18, 22 (for slot 27), and at points spaced from but adjacent to folding creases 1, 2.

The case, or carton, is formed by folding the blank along creases 3-6 so that flap 7 laps the side wall 15 along the free edge 16 of the blank, and said flap is then secured to said side wall 15 along said free edge with tape, or staples. The end extensions 8, 9 on the glue flap may be similarly secured to the top and bottom flaps 20, 24 respectively, as seen in FIG. 3.

FIG. 2 shows one of two identical partitions 30 that are adapted to be positioned within the case, back to back, to extend across the case between the slots 26, 27.

Each partition is formed with parallel folding creases 31 equally spaced from opposite end edges of the case, providing marginal portions 32 along said end edges, which marginal portions project at 33 beyond one of the edges of each partition. The distance between creases 31 is equal to the width of the case between slots 26, 27 and when the portions are positioned flat together, the corresponding marginal portions or end flaps 32 at each of the two corresponding ends of the partitions are folded away from each other to lie against the side walls 12, 13 of the case at opposite sides of the slots 26, 27. These end flaps 32 are secured to said side walls by glue or staples or in any other suitable manner, and the extensions 33 of the end flaps are similarly secured to the top closure flaps 17, 18 alongside the extensions of slots 26, 27 that extend into said flaps 17, 18. The height of the partitions is substantially equal to the height of the side

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walls, and folding creases 35 are formed at the junctures between the extensions 33 and the body of each partition to align with the folding crease 1 when the partitions are secured in place so that the extensions 33 will bend with the top closure flaps 17, 18.

These extensions 33 enable loading the cases by automatic loading apparatus. In such equipment, the top closure flaps are open and inclined away from the open upper end of the case so the cans may be moved into said open end, and as the extensions 33 are also inclined away from the open end of the case, the cans will be readily moved into the case without engaging the end edges of the flaps 32. Instead, the extensions 33 would tend to guide the cans into the case.

After the cans are in the case, the top closure flaps 19, 20 are folded down onto the cans and then closure flaps 17, 18 are folded flat onto the flaps 19, 20 and are glued or stapled to the latter.

The closure flaps 17, 18 preferably extend across the open end of the case to meeting relation. If the case were square, it is obvious that the closure flaps 19, 20 would also extend to meeting relation if the flaps were all of the same width. However, in cases where the side walls 12, 13 are longer than walls 14, 15, if the closure flaps were all of the same width, the closure flaps 19, 20 would not extend to meeting relation at the division between the partitions 30, but would be spaced from the partitions. Nevertheless the flaps 17, 18 would fully cover the contents of the case at opposite sides of the partition.

FIG. 5 shows a blank in which the top closure flaps 37, 39 and the bottom closure flaps 38, 40 that correspond in positions to flaps 19, 23 and flaps 20, 24 are sufficiently wide to substantially extend over the contents in the case, as seen in FIG. 6. Except for the above difference, and the use of a flap 41 that does not have extensions thereon, such as are shown in FIG. 1, the blank of FIG. 5 is identical with the blank of FIG. 1.

As seen in FIGS. 4, 6, a heavy broken line 43 may be imprinted on the top flaps 17, 18 extending between the terminating ends of the slots 26, 27 and a similar line is printed on the bottom side of flaps 21, 22 together with instructions to cut the flaps along said lines. This is easily and readily accomplished, since the slots 26, 27 partially extend into the top and bottom closure flaps 17, 18 and 21, 22 to enable insertion of a knife through the slot extensions and between the partition blanks, and said blanks will then automatically guide the knife along lines 43 upon drawing the knife across said top and bottom closure flaps. This structure is preferable to the employment of rows of perforations to form lines of weakness, since cases are frequently dropped or are roughly handled, and may be caused to break apart accidentally if lines of weakness are used. Also, by use of the full length top and bottom closure flaps which are conventional in standard cases, standard automatic loading apparatus may be used in the conventional manner.

FIG. 7 shows a case in the same position as that of FIG. 3, but in this instance, the partition blanks 45, one of which is shown in reduced size in FIG. 8, are each formed with a central upward extension 46 that is adapted to be folded along crease line 47 to overlie the contents of the goods at the side adjacent thereto, to cover the space indicated at 48 in FIG. 4. Otherwise, the partition blanks are the same as shown in FIG. 2.

In filling a case having the partition blanks of FIG. 8, a flat sleeve holds the extensions 46 to permit loading the case by conventional loading apparatus.

The numerals used in FIG. 7 are the same as for FIG. 3, except for the partitions. The structure of FIG. 7 will provide a more rigid half-case when the case is divided, particularly if the top closure flaps 18, 19 are glued to the extensions 46, and also each half case is more fully closed. However, in any of the structures shown, the half or fractional cases will be closed against pilferage after the case has been divided.

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The cases of FIGS. 3 and 7, and the case formed from the blank of FIG. 5, will fold to a flat condition when the top and bottom closure flaps are extended, and no manipulation other than would be required were the partition blanks omitted, will be required to set up the case for filling. Also, the case may be filled and sealed by use of standard equipment and the blanks use a minimum of fibreboard.

The provision of full length top and bottom closure flaps for holding the case sections together insures an exceptionally strong and rigid case.

The invention is not to be limited by the exact embodiment of the cases shown, which are merely by way of illustration and not limitation, as various other forms may be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. A divisible rectangular case comprising a single blank of fibreboard cut and folded to provide two pairs of opposed side walls forming the four lateral sides of said case and top and bottom closure flaps extending from the upper and lower edges of each of said side walls, the closure flaps on each pair of opposed side walls being foldable toward each other to close the upper and lower sides of said case with the flaps on one pair of opposed side walls overlapping the flaps on the other pair of said side walls, a pair of partition blanks in face to face relation extending between the side walls of one pair thereof and intermediate the side walls of the other pair thereof, means securing said pair of blanks to said one pair of side walls, the closure flaps on said one pair of opposed side walls being outermost relative to the inside of the case, the side walls of said one pair each being formed with a slot substantially in register with the plane of division between said pair of partition blanks to enable inserting a knife through the slot in one side wall of said one pair and between said partition blanks for cutting across the closure flaps to the slot formed in the side wall at the other side of said case for thereby dividing said case in a plane disposed between said partition blanks, said means securing said pairs of partition blanks to said one pair of opposed side walls being a pair of coplanar flaps integral with said blanks, respectively, and against the oppositely facing surfaces of said one pair of opposed side walls at opposite sides of said slots formed therein, said coplanar flaps having extensions at their upper ends extending over and secured against the top closure flaps on said one pair of side walls for folding with said last mentioned closure flaps to positions extending angularly outwardly of said case to enable filling said case past said last mentioned flaps free from obstruction by the upper ends of said coplanar flaps.

2. A divisible rectangular case comprising a single blank of fibreboard cut and folded to provide two pairs of opposed side walls forming the four lateral sides of said case and top and bottom closure flaps extending from the upper and lower edges of said side walls, the closure flaps on each pair of opposed side walls being foldable toward each other to close the upper and lower sides of said case with the flaps on one pair of opposed side walls overlapping the flaps on the other pair of said side walls, a pair of partition blanks in face to face relation extending between the side walls of one pair thereof and intermediate the side walls of the other pair thereof, means securing said pair of blanks to said one pair of side walls, the closure flaps on said one pair of opposed side walls being outermost relative to the inside of the case, the side walls of said one pair each being formed with a slot substantially in register with the plane of division between said pair of partition walls and extending at its ends into the closure flaps carried by said one pair of side walls to enable inserting a knife through either of the extensions of either of said slots for cutting across the closure flaps to the extensions of the other slot for separating said case in said plane.

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3. A divisible rectangular case comprising a single blank of fibreboard cut and folded to provide two pairs of opposed side walls forming the four lateral sides of said case and top and bottom closure flaps extending from the upper and lower edges of each of said side walls, the closure flaps on each pair of opposed side walls being foldable toward each other to close the upper and lower sides of said case with the flaps on one pair of opposed side walls overlapping the flaps on the other pair of said side walls, a pair of partition blanks in face to face engaging relation extending between the side walls of one pair thereof and intermediate the side walls of the other pair thereof, means securing said pair of blanks to said one pair of side walls against the oppositely facing surfaces thereof, the closure flaps on said one pair of opposed side walls being outermost relative to the inside of the case, the side walls of said one pair each being formed with a slot substantially in register with the plane of division between said pair of partition blanks to enable inserting a knife through the slot in one side wall of said one pair and between said partition blanks for cutting across the closure flaps to the slot formed in the side wall at the other side of said case for thereby dividing said case in a plane disposed between said partition blanks, the closure flaps on said other pair of opposed side walls extending the major distance between said other side walls and said pair of partition blanks having extensions thereon secured to the oppositely facing surfaces of the closure flaps on said one pair of side walls.

4. A divisible rectangular case comprising a single blank of fibreboard cut and folded to provide two pairs of opposed side walls forming the four lateral sides of said case and top and bottom closure flaps extending from the upper and lower edges of each of said side walls, the closure flaps on each pair of opposed side walls being foldable toward each other to close the upper and lower sides of said case with the flaps on one pair of opposed

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side walls overlapping the flaps on the other pair of said side walls, a pair of partition blanks in face to face relation extending between the side walls of one pair thereof and intermediate the side walls of the other pair thereof, means within said case securing said pair of blanks to the opposed surfaces of said one pair of side walls, the closure flaps on said one pair of opposed side walls being outermost relative to the inside of the case, the side walls of said one pair each being formed with a slot substantially in register with the plane of division between said pair of partition blanks exposed to view through said slot to enable inserting a knife through the slot in one side wall of said one pair and between said partition blanks for cutting across the closure flaps to the slot formed in the side wall at the other side of said case for thereby dividing said case in a plane disposed between said partition blanks, said partition blanks each including top and/or bottom flaps integral therewith extending toward the side wall of said other pair thereof that is adjacent thereto and the closure flaps carried by said other pair of side walls and the top and bottom flaps on said partition blanks being secured to the closure flaps on said one pair of side walls that overlap them, said closure flaps on said one pair of opposed side walls terminating in continuous free opposed edges at the top and bottom sides of said case and being formed with continuations of said slots adjacent to their junctures with said last mentioned side walls for initially guiding such knife between said partition blanks and across said last mentioned closure flaps to their said terminating free edges.

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