May 26, 1959 R. W. SITLER 2,888,160

TRAY CONSTRUCTION AND METHOD OF MAKING SAME

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Fig. 1

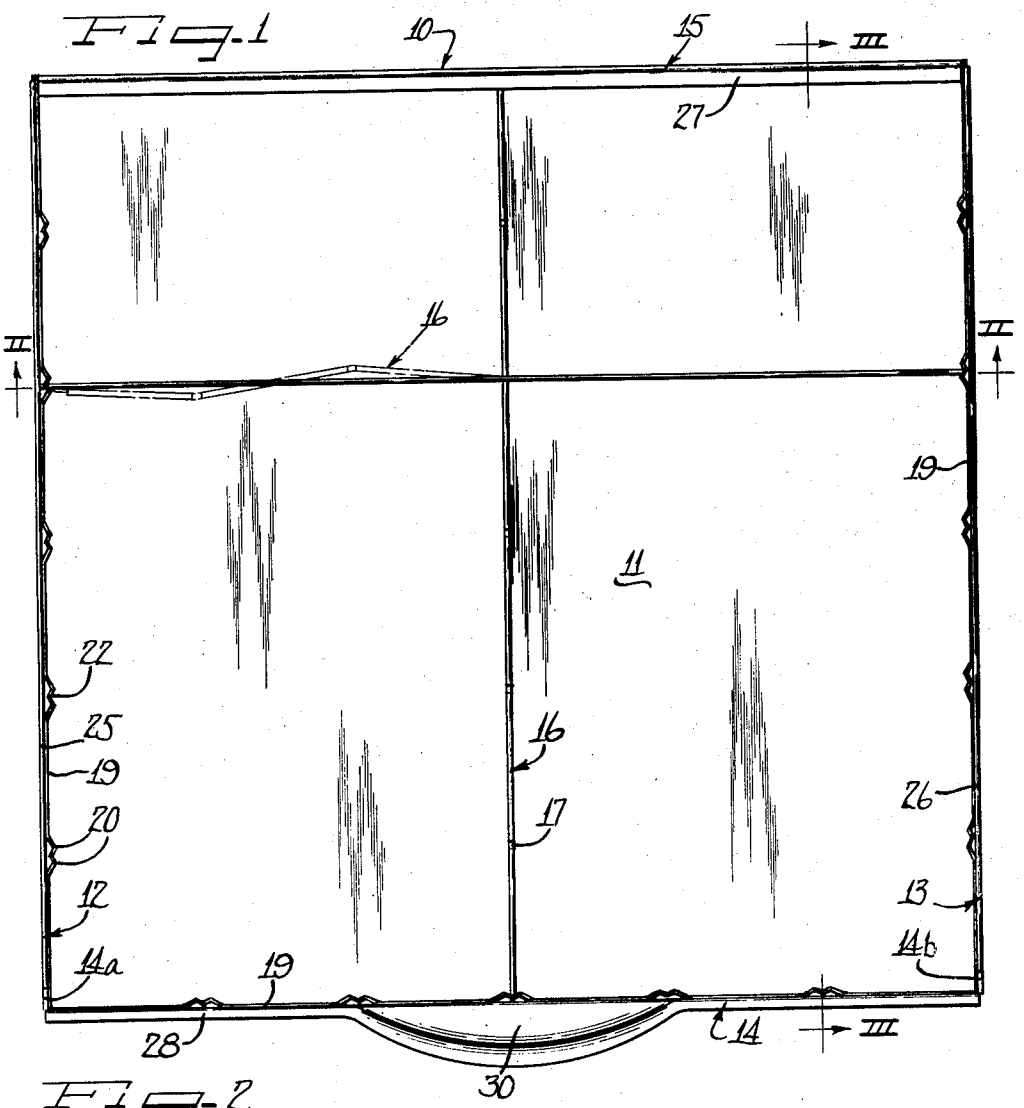
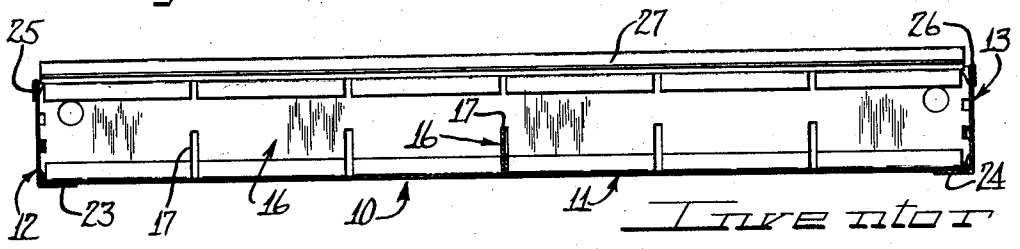


Fig. 2



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Fig. 3

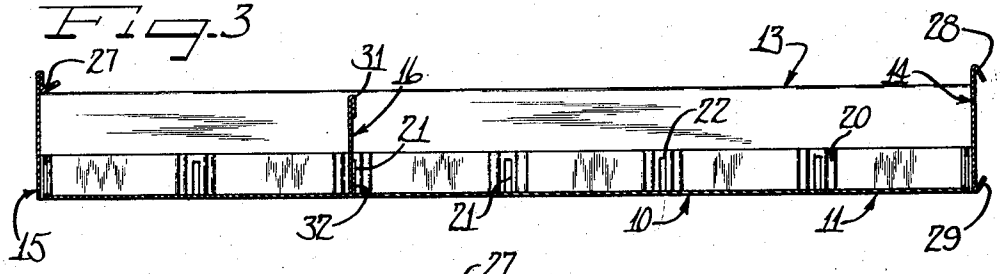


Fig. 4

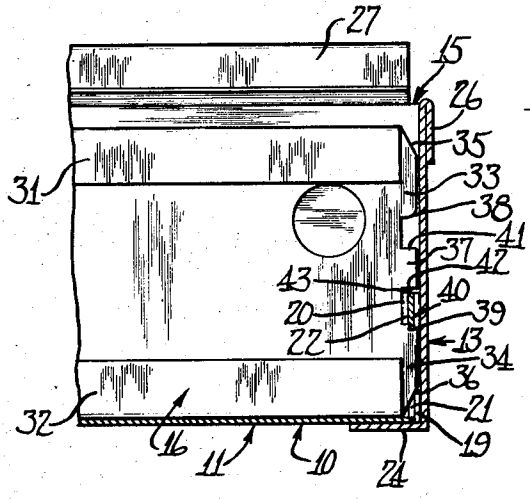


Fig. 5

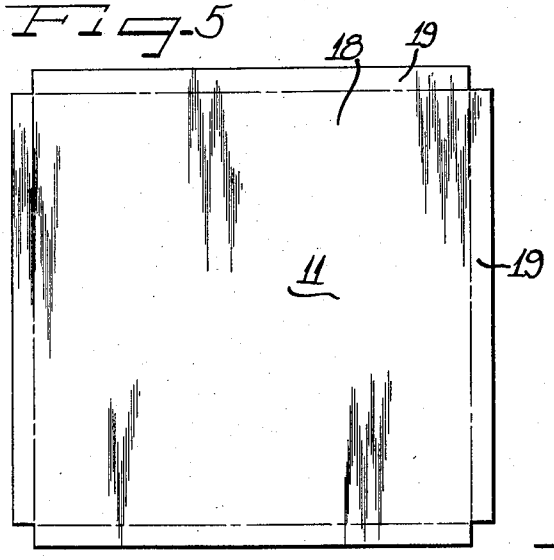
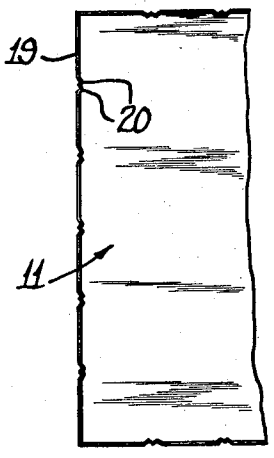


Fig. 6



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2,888,160

TRAY CONSTRUCTION AND METHOD OF MAKING SAME

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Application January 19, 1956, Serial No. 560,116

3 Claims. (Cl. 220—22)

This invention relates generally to a new and improved tray construction and method of making same.

More specifically, this invention relates to a tray which readily lends itself to being divided into a large number of separate compartments by means of intersecting dividers, the dividers and sides of the tray cooperate in a greatly reinforced and stabilized structure.

The divider elements here utilized may be readily detachably engaged with the side walls of the tray. Still further, the divider elements are provided with a special tab arrangement which is adapted to retainingly cooperate with the side walls of the tray.

Accordingly, an object of this invention is to provide a new and improved tray construction.

Another object of this invention is to provide an interlocking arrangement between the divider elements and tray such that the divider elements will not work upwardly in use allowing the contents to work under the divider elements, rather the divider elements being positively detachably interlocked with the tray.

Still another object of this invention is to provide a new and improved method of making a tray.

A further object of this invention is to provide an economical tray construction and method of making same which lends itself to large scale production and which is highly efficient in operation.

According to the general features of this invention there is provided in a tray construction including a bottom having side walls connected therewith and at least one set of intersecting divider elements dividing the tray into a plurality of compartments, the improvement of the bottom having upturned opposed peripheral flanges terminating in flange edges and provided along each of the opposed flanges with opposed, spaced sets of centering guides having a slot therebetween, each of said slots being defined by edges, the intersecting divider elements being disposed between sets of the opposed flanges and each being provided at opposite ends thereof with vertically spaced outer tabs separated from one another by an intermediate tab, each outer tab having an associated shoulder with one of the tabs at each end of each divider element in one of the slots and each of the associated shoulders wedged against one of the slot edges to maintain the divider elements in locked engagement with the tray, the intermediate tab having shoulders on opposite sides thereof each facing one of the outer tab shoulders with one of the intermediate tab shoulders bearing against one of the flange edges to inter-lock each end of the divider element therewith, each of the divider elements being reversable and usable in an up side down divider element arrangement.

Other objects and features of the present invention will more fully become apparent from the following detailed description taken in conjunction with the accompanying drawings illustrating a single embodiment thereof, in which:

Figure 1 is a plan view of my novel tray showing the divider elements in full and dotted lines;

Figure 2 is a transverse cross sectional view taken substantially on the line II—II of Figure 1 looking in the direction indicated by the arrows;

Figure 3 is a longitudinal cross sectional view taken substantially on the line III—III of Figure 1 looking in the direction indicated by the arrows;

Figure 4 is an enlarged fragmentary cross sectional view showing in detail the locking action between one of the dividers and the tray side wall;

Figure 5 is a development of a blank of material from which the bottom panel of my tray is formed; and

Figure 6 is a plan view similar to Figure 5 only showing the peripheral flanges bent to shape with means provided thereon for retainingly cooperating with divider elements.

As shown on the drawings:

The reference numeral **10** indicates generally my novel tray construction which may be made from any suitable material with excellent results being attainable through the making of the tray from steel material and the like.

The tray **10** includes as components a bottom panel **11**, opposed sets of side walls **12, 13**, and **14, 15**; side walls **14** and **15** constituting the front and rear walls respectively of the tray **10**. Receivable within the confines of the tray are one or more flexible divider elements **16** which each have a series of slots **17** spaced along their length so as to be capable of inter-locking with an intersecting transversely positioned similarly constructed divider element **16**.

As is shown in Figures 5 and 6, the bottom member or panel **11** is of a special construction. In Figure 5 is shown a metal blank **18** which is purposely cut with a series of flanges **19** which lend themselves to being deformed and subsequently further formed as is shown in Figure 6.

These flanges or flange-like walls **19** are each turned up at substantially right angles to the base **11**. Thereafter at suitable intervals along the length of each of the flanges **19** sets of centering ribs or guides **20** are pressed into the flanges **19** and the bottom **11**. Selectively with the forming of the ribs **20** slots **21** are struck between each set of ribs **20** in grooved portion **22** (Figure 3). Thus, the bottom panel **11** is provided with a more or less continuous upturned vertically extending flange or flanges **19** about the outer periphery thereof which flange or flanges have a series of pressed out sets of ribs **20** between each of which is provided a slot **21** for purposes that will hereinafter become more apparent.

In the assembly of the various components of my novel tray construction it will be noted that initially the bottom panel **11** as shown in Figure 6 is formed to shape. Thereafter, side wall **12**, rear wall **15** and side wall **13** which are formed in a continuous strip of metal are wrapped around three sides of the bottom **11** with the walls **12, 13** and **15** in abutting relationship to the upstanding vertical flanges **19**. At this point, the flanges **19** may be suitably connected such as by means of welding to the strip comprising the aforementioned side walls.

It will be perceived from Figure 2 that the side walls **12** and **13** each have a continuous right angled flange **23** and **24** respectively extending along their length. These flanges are welded or otherwise secured to bottom **11** to provide a reinforced construction. In other words, not only is flange **19** secured with each of the walls **12, 15** and **13** but in addition, angled flanges **23** and **24** are secured to bottom **11**. The upper vertical edge of the side walls **12** and **13** is reverse bent or underturned at **25** and **26** respectively (Figure 2) to reinforce the side walls **12** and **13**.

Rear wall **15** has a special generally V-shaped flange **27** extending along its length (Figure 3) which extends generally at its top edge and serves generally to act as a stop to prevent goods from being dislodged from the compartments in the tray when the tray is moved.

Front wall 14 has along its length at its upper and lower edges turned flanges 28 and 29 which converge towards one another to provide a strip which lends itself to maintaining an indicia card or the like on the tray 10. As is shown in Figure 1 there is provided on the front wall 14 a hand grip 30 for manipulating the tray 10 in a cabinet (not shown) or any other suitable article.

The front wall 14 is secured to flange 19 depending from the bottom 11. Still further, the front wall 14 has two angled tabs 14*a* and 14*b* at opposite ends thereof (Figure 1) secured to one of the opposed side walls 12 and 13 to afford a reinforced and stabilized construction.

The dividers 16 of my invention are of a special construction as is best seen in Figures 3 and 4 it will be noted that the upper and lower vertical edges of the divider 16 are reverse bent at 31 and 32 respectively to reinforce same along their length. Still further, each end of the dividers 16 is provided with vertically spaced tabs 33 and 34 each having rounded end surfaces 35 and 36 on the outer vertical portions of the tabs 33 and 34. Intermediate the tabs 33 and 34 is an inter-locking or intermediate tab 37 which is in spaced relation to the aforesaid vertically spaced tabs 33 and 34.

On the vertically inner portions of tabs 33 and 34 respectively are provided rounded lead-in shoulders 38 and 39. The locking action between each end of the divider 16 and the ribs 20 and slots 21 in grooved portion 22 will be understood by a description of the locking action of one end of the divider 16 since the other end operates in the same manner.

The rounded lead-in shoulder 39 is adapted to interlockingly engage with upper edge 40 bounding notch 21. Thus, not only are the tabs 33 and 34 each selectively adapted to lodge between the ribs or centering guides 20 but in addition the shoulders 38 and 39 are intended to selectively lodge under notch edge 40 on flange 19. It will be noted that this edge 40 comprises an abutment disposed in a plane between shoulders 38 and 39.

An additional locking feature has been provided in that intermediate tab 37 has shoulders 41 and 42 which each are adapted to selectively cooperate with top edge 43 of flange 19.

The instant divider construction is submitted to be highly advantageous since it lends itself to being reversed in an up side down manner much in a similar fashion as egg crate dividers to be selectively used in the tray. Furthermore, each of the dividers may be used with any of the notches 20 on the tray, in other words, the dividers 16 have a wide range of versatility and adaptability.

In the assembly of the dividers in the tray, initially the ends of one of the dividers are aligned between the centering ribs or guides 20. Then the divider 16 is slightly flexed as is shown in the dotted lines in Figure 1 to allow the other end and more particularly the lower most of the outer tabs either tab 33 or 34 to engage in notch 21 after the other end of divider has been previously similarly engaged with the opposed flange 19. After the tab has been lodged within the slot 19, and upon the application of a slight straightening force, the divider element assumes its original shape.

Assembly of any subsequent transverse divider may be brought about by interconnecting the dividers 16 at either respective slots 17—17 as is shown in Figure 2.

Disassembly of the dividers may be brought about by reversing the aforesaid steps. Also, if the intersecting divider elements 16 are removed in toto from the tray they may be turned up side down and inserted back into the tray in the same or adjusted position or positions and operate in the same manner as aforesaid.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. In a tray construction including a bottom having side walls connected therewith and at least one set of intersecting divider elements dividing the tray into a plurality compartments, the improvement of said bottom having upturned opposed peripheral flanges terminating in flange edges and provided along each of said opposed flanges with opposed, spaced sets of centering guides having a slot therebetween, each of said slots being defined by edges, said intersecting divider elements being disposed between separate sets of said opposed flanges and each being provided at opposite ends thereof with vertically spaced outer tabs separated from one another by an intermediate tab, each outer tab having an associated shoulder with one of said tabs at each end of each divider element in one of said slots and each of said associated shoulders wedged against one of said slot edges to maintain the divider elements in locked engagement with said tray, said intermediate tab having shoulders on opposite sides thereof each facing one of said outer tab shoulders with one of said intermediate tab shoulders bearing against one of said flange edges to inter-lock each end of said divider element therewith, each of said divider elements being reversible and usable in an up side down divider element arrangement.

2. In a tray construction including a bottom having side walls connected therewith and at least one set of intersecting divider elements dividing the tray into a plurality compartments, the improvement of said bottom having opposed peripheral flanges terminating in flange edges and provided along each of said opposed flanges with opposed, spaced sets of centering guides having a slot therebetween, each of said slots being defined by edges, said intersecting divider elements being disposed between separate sets of said opposed flanges and each being provided at opposite ends thereof with vertically spaced outer tabs separated from one another by an intermediate tab, each outer tab having an associated shoulder with one of said tabs at each end of each divider element in one of said slots and each of said associated shoulders wedged against one of said slot edges to maintain the divider elements in locked engagement with said tray, said intermediate tab having shoulders on opposite sides thereof each facing one of said outer tab shoulders with one of said intermediate tab shoulders bearing against one of said flange edges to interlock each end of said divider element therewith.

3. In a tray construction including a bottom having side walls connected therewith and divider elements dividing the tray into a plurality compartments, the improvement of said bottom having opposed peripheral flanges thereabove terminating in flange edges and provided along each of said opposed flanges with opposed, spaced sets of centering guides having a slot therebetween, each of said slots being defined by edges, said divider elements being disposed between separate sets of said opposed flanges and each being provided at opposite ends thereof with vertically spaced outer tabs, each outer tab having an associated shoulder with one of said tabs at each end of each divider element in one of said slots and having its associated shoulder wedged against one of said slot edges to maintain the divider elements in locked engagement with said tray, said tab shoulders being spaced the same distance from the top and bottom edges of the divider so as to be reversible.

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