April 21, 1931. W. N. VANCE 1,801,943

BOX INSERT

Filed May 16, 1927 3 Sheets-Sheet 1

Fig. 1

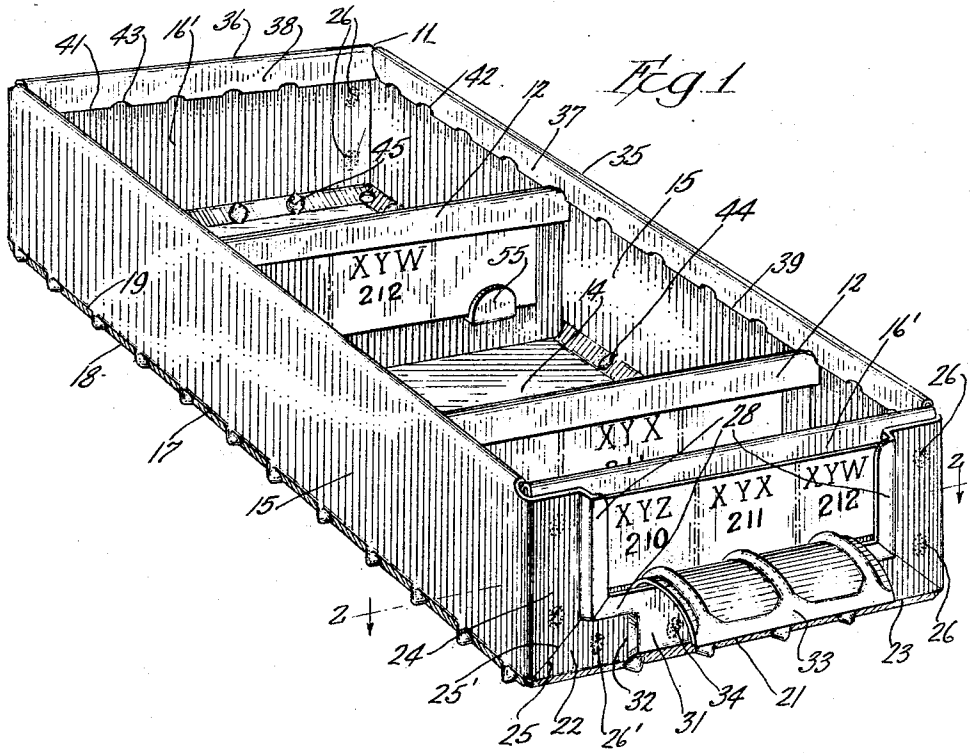


Fig. 2

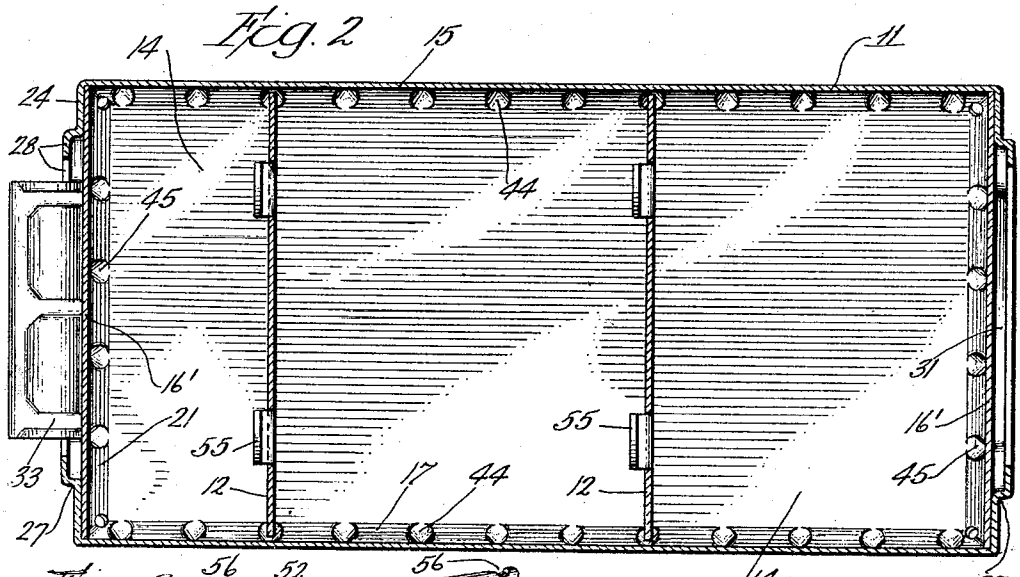
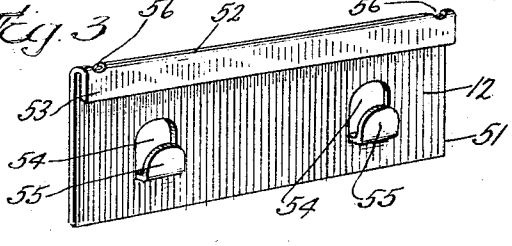


Fig. 3



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April 21, 1931. W. N. VANCE 1,801,943

BOX INSERT

Filed May 16, 1927 3 Sheets-Sheet 2

Fig. 4

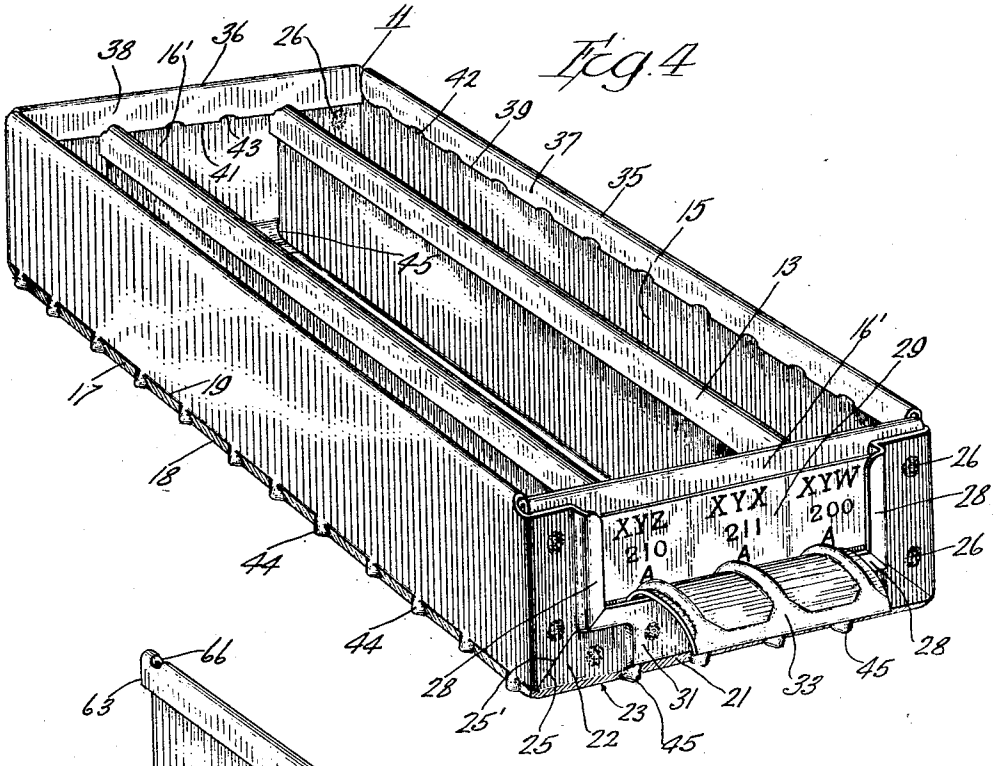
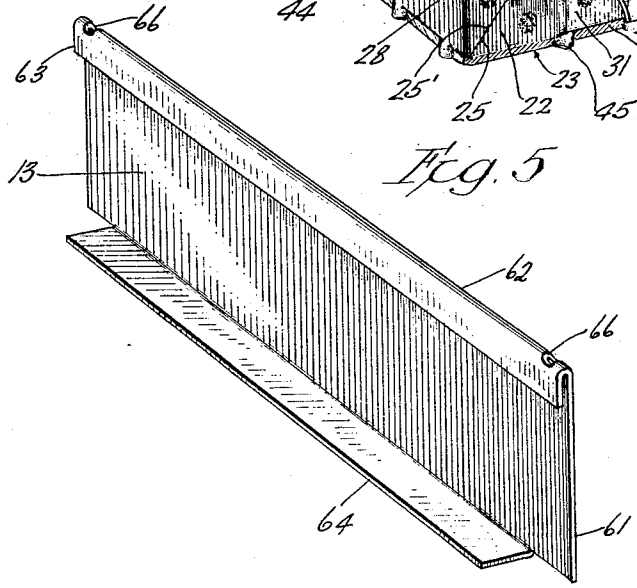


Fig. 5



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April 21, 1931. W. N. VANCE 1,801,943

BOX INSERT

Filed May 16, 1927 3 Sheets-Sheet 3

Fig. 6

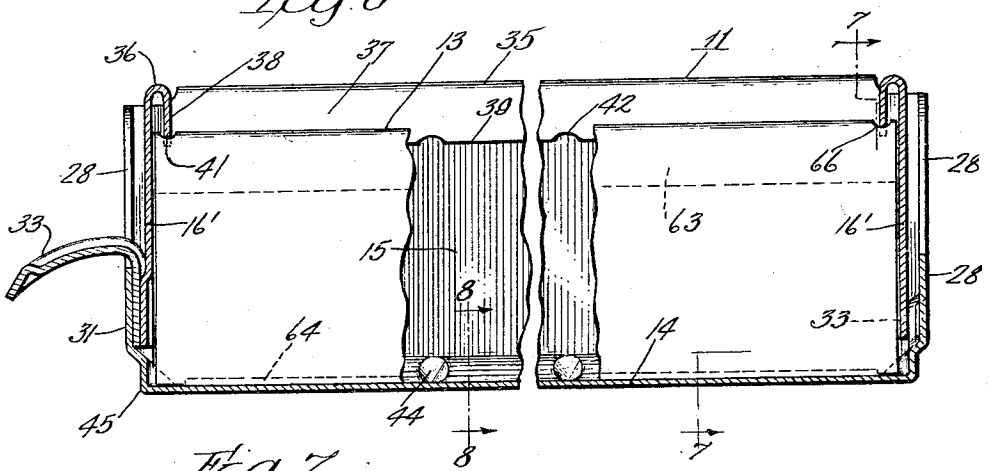


Fig. 7

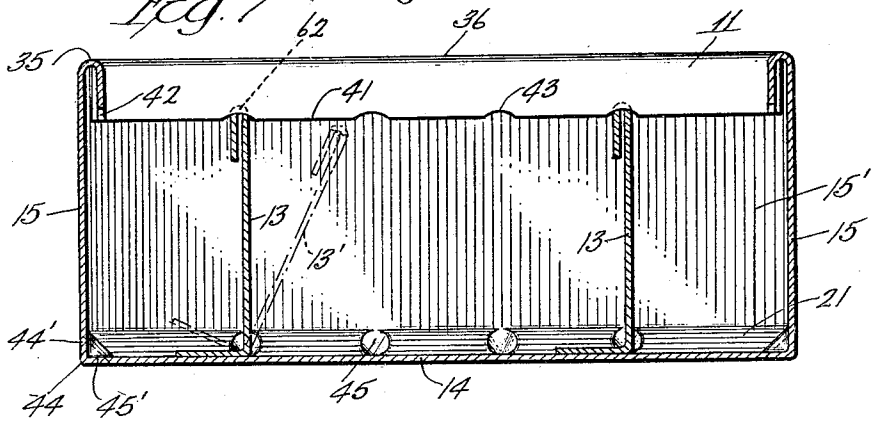
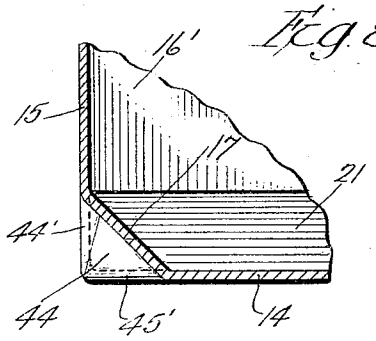


Fig. 8



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Patented Apr. 21, 1931 1,801,943

UNITED STATES PATENT OFFICE

WALTER N. VANCE, OF CHICAGO HEIGHTS, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LYON METAL PRODUCTS, INCORPORATED, OF AURORA, ILLINOIS, A CORPORATION OF ILLINOIS

BOX INSERT

Application filed May 16, 1927. Serial No. 191,585.

The invention has general reference to shelf boxes and relates more particularly to metal shelf boxes adapted for use as box inserts in connection with shelf structures.

Box inserts for storing small parts in shelf structures are subjected to heavy duty and rough usage. Strength, durability and lightness are essential characteristics and a shelf box in which these characteristics are embodied has great utility. The utility of shelf boxes is also increased if removable partitions are provided within the box. Such partitions are adapted to be adjustably mounted within the boxes to provide compartments of various size and shape therein, and to have maximum utility should combine lightness with strength and simplicity. Heretofore it has been thought necessary to supply cumbersome supporting devices to lock adjustable shelf box partitions in place within shelf boxes. Such supports not only increase the weight of the resulting shelf box structure but are difficult to adjust and do not increase the strength of the shelf box in which they are positioned.

The principal object of the invention is the provision of a shelf box having adjustable partitions which engage therein without auxiliary supporting devices, and which resiliently engage the sides and bottom of the box directly thereby bracing the box and providing it with greatly increased strength and rigidity.

Another important object of the invention is the provision of an improved metal shelf box which is in itself of especially rigid construction.

Another important object of the invention is the provision of simplified longitudinal and cross partitions by means of which a shelf box may be divided into adjustable compartments along either axis.

Another important object of the invention is the provision of adjustable partitions in a shelf box which brace the walls and bottom thereof and give additional strength to the box.

Another important object of the invention is the provision of a novel shelf box construction in which less material is used and greater rigidity is secured.

Numerous other objects of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a perspective view of a metal shelf box embodying my invention;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a perspective view of a cross partition for the metal shelf box embodying my invention;

Fig. 4 is a perspective view of a metal shelf box embodying my invention;

Fig. 5 is a perspective view of a longitudinal partition for the shelf box embodying my invention;

Fig. 6 is a longitudinal sectional view of the shelf box embodying my invention;

Fig. 7 is a sectional view taken on line 7—7 of Fig. 6, showing the method of insertion of a longitudinal partition; and

Fig. 8 is a sectional view taken on line 8—8 of Fig. 6.

For the purpose of illustrating my invention I have shown on the drawing a sheet metal shelf box 11 adapted to be provided either with cross partitions 12 are with longitudinal partitions 13. The partitions are adjustably mountable in the box and form compartments of various sizes within the box for the storage of assorted parts.

The shelf box 11 comprises a bottom wall 14, side walls 15 and end walls 16. The bottom and side walls are formed from a single sheet of metal, properly shaped and folded on lines of bend 18 and 19 to form the rectangular bottom wall 14, the side walls 15 and edge walls 17 extending diagonally between the bottom and side walls of the box. Edge walls 21 similar to edge walls 17 are bent diagonally upward from the bottom wall 14 at the ends thereof and end flanges 22 having mitered edges 25 are bent upwardly from edge walls 21 along lines of bend 23. These flanges 22 embrace the base of rectangular end panels 16′. The side walls 15 are also

provided with end flanges 24 bent inwardly and folded over the end panels 16′ and having mitered edges 25′ which engage the mitered edges 25 of the bottom flanges 22. The side wall flanges 24 and end flanges 22 are secured to the end panels 16′ by spotwelding indicated at 26 or by other convenient fastening means, to form the end walls 16.

The extremities of flanges 22 and 24 are offset at 27 to provide label holding parts 28 spaced from the outer face of the end panel 16′. The label holding parts provide channels in which a label card 29 may be positioned.

The central portion 31 of the bottom end flange 22 is offset as at 32 and spaced from the outer face of the end wall 16 to provide a pocket in which a handle 33 may be positioned. The handle so positioned is secured by spot-welding indicated at 34 or other convenient fastening means. The end portions of the flange 22 are not offset from plate 16 but are secured thereto as at 26′.

The upper edges of side walls 15 are turned inwardly and downwardly along lines of bend 35 to provide inwardly disposed flanges 37. The lower edges 39 of these flanges are provided with a plurality of notches 42. The end panels 16′ are provided at their upper edges with similar inwardly disposed downturned flanges 38, the lower edges 41 of which are provided with a plurality of notches 43 similar to notches 42.

Cone shaped depressions 44 and 45 are provided at intervals in the edge walls 17 and 21 respectively. The depressions register with the notches of the over-hanging flanges 37 and 38, that is to say, the depressions 44 and 45 are formed in the edge walls 17 and 21 vertically beneath the notched portions 42 and 43 of the flanges 37 and 38. The vertical and horizontal sides 44′ and 45′ of the cone shaped depressions are continuous with the side walls 15 and bottom 14 of the box. The angularity of the edge-walls and the depressions 44 and 45 provides a peculiarly rigid and well reinforced construction and permits the use of materially lighter gage stock to provide a box of desired strength and rigidity. The registering conical depressions and notches also provide means for engagement of partitions 12 and 13 within the box, as will be presently explained.

Each longitudinal partition 13 comprises a rectangular portion 61 of length equal to the distance between the inner faces of the bodies of the end walls of the box. The upper edge is folded over to provide a down-turned flange 63 and a rounded upper edge surface 62. The upper edge 62 is notched at each end at 66, said notches being spaced apart a distance equal to that between the down-turned flanges 38 of opposite end walls of the box 11. A right angle flange 64 is formed at the bottom of the partition and extends from adjacent one end to adjacent the other. The partition 18 is insertable in the box on a diagonal of the base 14, and may then be tilted and turned until the bottom corners thereof are positioned in the conical depressions 45 of opposite edge walls 21, as shown at 13′ in Fig. 7. The partition may then be rotated about its base to vertical position and the upper edge thereof sprung beneath end flanges 38, as shown at 13 in Fig. 7. In this position the notched portions 66 of the partition engage with the notched portions 43 of flanges 38.

The cross partition 12 comprises a rectangular sheet of metal 51 of length equal to the distance between the inner faces of the bodies of the side wall. The upper edge is folded over to provide a down-turned flange 53. The upper bent edge 52 is notched at each end as at 56, said notches being spaced apart a distance equal to that between the down-turned flanges 37 of opposite sides of the box 11. The partition is angularly positionable in the box and has bottom corners adapted for engagement in depressions 44 of opposite side edges 17 of the box. The partition may then be rotated to vertical position and the upper edge thereof sprung into engagement beneath the side flanges 39, the resilience of the parts permitting this procedure. So positioned the notched portions 56 of the top of the partition engage notched portions 42 in the opposite side flanges 38 and the partition is held locked in place.

The longitudinal partitions 13 are longer than the cross partitions 12 and have a basal flange 64 to provide necessary rigidity. The longitudinal flanges can therefor be positioned by rotation in one direction only. The shorter cross partition needs no lateral strengthening flange and hence is positionable by rotation about its base in either direction. The construction herein described provides an especially strong partitioned shelf box in which the partitions themselves act as cross braces to hold the box structure firmly together and provide great rigidity thereof.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that many changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A box, comprising a bottom, side and end walls, and diagonal edge walls joining the adjacent edges of said walls and bottom, said edge walls having cone shaped depressions arranged at intervals, and said side and end walls having correspondingly

notched inturned flange portions at their upper edges, and a removable partition having lower corners adapted for engagement in said depressions and having an upper edge for engagement with said notched flange portions, said partition being adapted to be removably positioned in said box between opposite walls thereof, and to be held in resilient engagement between said upper notched and lower depressed portions.

2. A box, comprising a bottom, side and end walls, and diagonal edge walls joining the adjacent edges of said walls and bottom, said edge walls having cone shaped depressions arranged at intervals, and said side and end walls having correspondingly notched inturned flange portions at their upper edges, and a removable partition having lower corners adapted for engagement in said depressions and having an upper notched edge for engagement with said notched flange portions, said partition being adapted to be held in resilient engagement between said upper flanged portions and said bottom.

3. A box and partition therefor, said box having opposite side walls provided with inwardly arranged and downwardly extending notched flanges at their upper edges for engaging the upper edge of a partition, and said partition having its upper edge returned to form a flange and notched for engagement with the notches of the flanges of the side walls.

4. A box and a partition therefor, the side walls of said box having inwardly and downwardly extending flanges at their top, said flanges being notched to receive the upper edge of partition, the side walls and bottom of the box being connected by inwardly pressed portions spaced apart to receive the lower corners of the partition therebetween, and said partition being adapted to fit between said depressed portions and into said notches.

5. A box and a partition therefor, the side walls of said box having inwardly and downwardly extending flanges at their top, said flanges being notched to receive the upper edge of partition, the side walls and bottom of the box being connected by inwardly pressed portions spaced apart to receive the lower corners of the partition therebetween, and said partition being adapted to fit between said depressed portions and having a flange along its lower edge and intermediate its lower corners for engaging the presented surface of the bottom of the box.

6. A box and a partition therefor, said box having its side walls and bottom walls joined by a short angularly inclined wall, interrupted at intervals by right angle portions arranged in the planes in the bottom and sides of the box, said partition having portions adapted for engagement in said right angle portions at the bottom and for engagement with the side walls adjacent the top.

7. In combination with a box having means formed therein to detachably engage the upper and lower portions of a removable partition, a partition comprising a rectangular sheet having a curled upper edge provided with notches therein to engage the partition retaining means of the box.

8. A box comprising a bottom, side and end walls, said box having registering depressions arranged at intervals in the junction of the bottom with the opposed side walls, said walls having correspondingly notched inturned flange portions in their upper edges and a removable partition having lower corners adapted to engage said depressions and having an upper notched edge for engagement with said notched flange portions, said partition being adapted to be held in resilient engagement between said upper flanged portions and said bottom.

WALTER N. VANCE.