

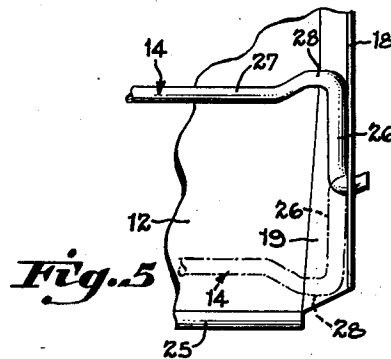
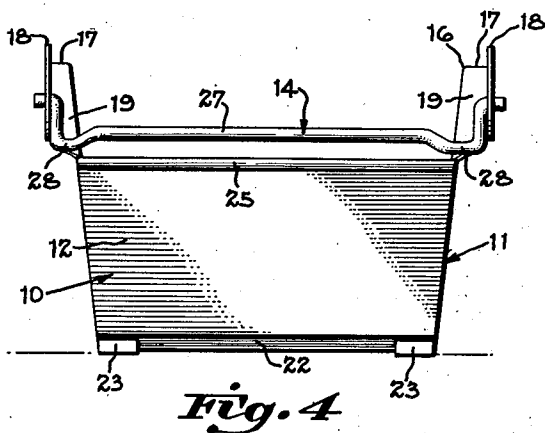
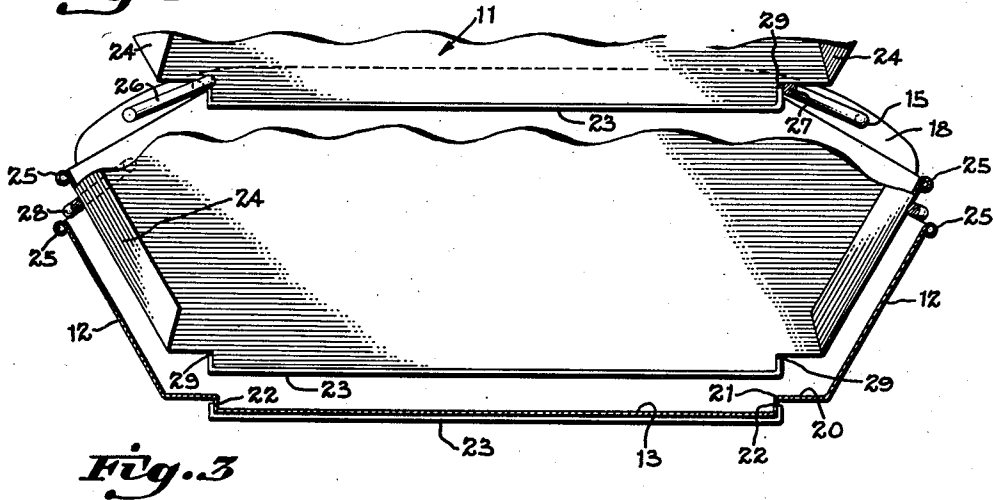
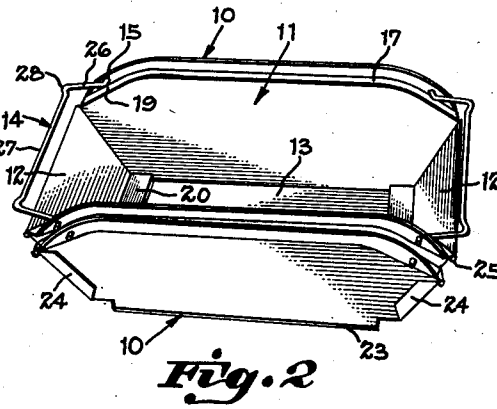
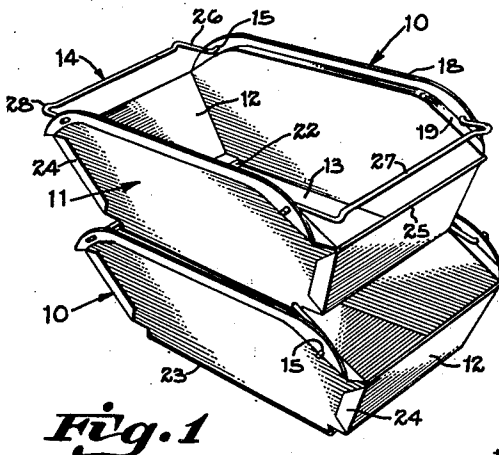
June 9, 1953

G. E. COURSEY

2,641,383

CONTAINER WITH HANDLE STACKING MEANS

Filed May 28, 1951



INVENTOR.
George E. Coursey.

BY
Wood, Henson & Evans.
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,641,383

CONTAINER WITH HANDLE STACKING MEANS

George E. Coursey, Cincinnati, Ohio, assignor to
The Charles Wm. Doepke Manufacturing Com-
pany, Rossmoyne, Ohio, a corporation of Ohio

Application May 28, 1951, Serial No. 228,704

9 Claims. (Cl. 220-97)

1

This invention relates to a receptacle or box for storing and handling small parts of various kinds, such as nuts, bolts, or other similar articles. It is particularly concerned with a structure of the type in which the units may be stacked one on top of another when in operative use, or when out of use may be nested to occupy a minimum of storage space. The preferred form of unit is also so constructed that a plurality of stacked units may be arranged in side by side relationship, and in this position likewise occupy a minimum of storage space.

It is appreciated that in the past container units of a generally similar type have been provided for use in connection with a large variety of articles and that certain of the features of the preferred form of the invention are to be found in earlier structures. However, the structure of the invention includes particular novel improvement which combine to render it an extremely effective unit for the intended purpose.

One of the objects of the invention has been to provide a container of the type adapted to be nested and stacked having hoppers on each end thereof, so that when two or more are in the stacked position, the interiors of the lower containers are readily accessible from both ends, thereby greatly facilitating the handling of parts in a factory or production line where adjoining departments are required to utilize the same parts.

Another object has been to provide a plurality of container units adapted to be nested to the maximum degree permitted by the configuration of the structure, but which when nested will never jam and thereby render it difficult to dislodge one unit from the other.

Another object has been to provide a container of the character described in which a pair of transversely extending shoulders are formed in the base, one at each end thereof. These shoulders engage with the bails of the next lower unit in the stacked position to prevent either longitudinal or transverse movement of the unit, and at the same time provide a transverse reinforcement for the base of the container.

Another object has been to provide bails necessarily configured to perform the dual functions of nesting and stacking, but configured in one plane only, thereby greatly simplifying their manufacture.

Another object has been to provide flange extensions on the outer ends of the side walls of substantial and outwardly increasing width for supporting the bails in the nested position and

2

to accomplish this result without correspondingly extending the side wall ends laterally.

Another object has been to provide a container of the character described from a single sheet of metal or equivalent material cut and formed to the desired configuration.

Other and further objects and advantages will be apparent from the further and more detailed description of a structure comprising a preferred form of the invention when considered in conjunction with the drawings in which:

Figure 1 is a perspective view of a pair of units of the type of the invention arranged one on top of the other in stacked relationship.

Figure 2 is a perspective view of the same units arranged in nested relationship.

Figure 3 is a longitudinal cross sectional view showing two boxes in the nested position and a third in the stacked position.

Figure 4 is an end view of one of the units with the bails in nesting position.

Figure 5 is an enlarged fragmentary view of the upper right hand corner of Figure 4 with the bail in stacking position and the nesting position shown in dotted lines.

Referring now to the drawings for a further and more detailed description of the invention, the general nature of the structure and the stacking and nesting utilities thereof are clearly apparent from the drawings and particularly Figures 1 and 2, in which 10 designates a unit generally. As shown, the container is of generally rectangular configuration having an open upper face. It is formed preferably from a single sheet of medium gauge metal cut and formed to the desired configuration.

The side walls, which are of identical configuration, are designated generally as 11. These walls are flared outwardly as shown particularly in Figure 4. The end walls are designated 12 and are also flared outwardly to form hoppers. The bottom is designated as 13. Bails 14 have their outer ends journaled in the side walls as at 15 and are adapted to be swung from the extended or nesting position, shown for example in Figure 4, to the retracted or stacking position, shown in full lines in Figure 5. Shoulders 16 are formed at the upper edges of the inner faces of the side walls and the walls are then continued outwardly to form the flanges 17 and again upwardly to form the wall extensions 18. It is in these extensions that the bails are journaled. As shown particularly in Figures 1, 2 and 4, the flanges 17 are parallel to the base in their central section but incline down-

3

wardly from shoulders 16 to the end walls. As this downward inclination continues, the flanges widen in correspondence to the inclination of the side walls so that at their outer ends they provide relatively wide seats 19 for the bails when the latter are in stacking position. It will be noted, however, that the extensions 18 remain vertical and straight longitudinally and this greatly facilitates the positioning of the units in side by side position to occupy a minimum of space.

The details of the construction of the base 13 are best illustrated in Figure 3. In this view as previously stated, the end walls 12 are inclined outwardly as shown to form hoppers at each end of the units, so that parts can be deposited in and withdrawn from any desired unit in a stack. At their lower ends, the end walls 12 are turned horizontally inwardly to form the base sections 20 which have their inner termination points at the shoulders 21. The walls then extend downwardly to form the vertical offset 22 and finally are configured horizontally to form the base section 13. These base sections are preferably reinforced at each side of a unit by the skid strips 23—23 which add strength to the structure and prevent the wearing out of the base if the units are subjected to continuous sliding movement over a hard surface, such as a cement floor.

The side walls 11 are preferably secured to the end walls 12 by folding over flaps 24 at each corner and then spot welding. Beads 25 are preferably formed at the upper edges of the end walls to add additional rigidity.

The exact construction of the bails 14 is of considerable importance. As shown particularly in Figures 4 and 5, they are bent in one plane only which greatly reduces the manufacturing cost. The arms 26 extend substantially parallel to the side wall extensions 18 in both positions while the transverse portions 27 are substantially parallel to the end walls. Offsets 28 are formed at each end of the transverse portions 27. In the stacked position shown in Figure 1, the transverse portions 27 of the bails as defined by the offset portions 28 engage the notches 29 formed between the sections 20 and 22. The offsets themselves engage the corners of the container at the respective ends of notches 29. The bails thus prevent the shifting of one unit with respect to the other either longitudinally or horizontally when the units are in stacked position.

It will be noted from Figures 4 and 5 particularly that the length of the bail arms 26 with relation to the distance between the points 15 at which they are journaled in the side walls and the upper ends of the end walls is such that in the stacked position the transverse portions 27 of the bails are disposed slightly to the interior of the upper beaded edges 25 of the end walls. It will be observed also that the transverse portions 27 of each bail is below the pivot axis of the bail as defined by the journals 15. As a result of this construction, when the units are in nested position, the upper units are in each case supported by the bails of the next lower unit rather than by the inner walls of the container. And no matter how tightly the upper container is forced against the bails of the next lower one, the instant that the upper container is raised, due to the fact that the transverse portions 27 of the bails are below their pivots and must swing outwardly if raised at all, contact is im-

4

mediately broken. The containers, therefore, cannot jam and it is a very simple matter to lift out one or more of the upper units by simply elevating the bails of the unit below the lowest one which it is desired to elevate.

The arrangement provided for supporting the units in stacked position is also particularly effective. As contrasted with more complicated constructions in which an actual locking arrangement is provided between the bails of one container and the base of the one which is superimposed on it, the engagement here between the notch 29 and the angle formed between the transverse portions 27 of the bails and the offset portions 28 is entirely adequate for the purpose intended, and at the same time is very easy to engage and disengage. An additional advantage resides in the fact that the bends required to form the notch 29 add a considerable degree of transverse strengthening to the container.

A further advantage of the structure is found in the broad seats 19 provided for the bails in nesting position. Since in lighter weight materials there is some tendency of the sides to spring apart and cause the bails to swing downwardly into the interior of the container, this tendency is completely averted by the construction described. A further factor in achieving this result is found in the fact that the side wall extensions 18 form a straight line longitudinally. This permits the bail arms 26 to be positioned very close to the inner surface of the end wall extensions 18 at all times, as will be particularly noted in Figures 4 and 5, and further prevents the bail ends from slipping out of the bores in which they are journaled.

An important feature of the invention is the ease and simplicity of its manufacture. As previously stated, the side and end walls are formed from a single sheet of metal so that there is a minimum of fabrication expense. The bails are likewise configured in a single operation because the configuration is in one plane only.

The present container can be used in a number of different ways to facilitate the handling of small parts. In a stock room, for example, a plurality of the containers can be stacked in a bank and used in place of conventional small parts bins. Since the containers have hoppers at both ends, the parts are available at both sides of the bank. Also, the offsets 28 on the bails are adapted to receive hooks so that the containers may be hung from chain conveyors to move parts or small sub-assemblies from place to place in manufacturing processes utilizing production line techniques.

The containers in addition can be used without the bails for storing parts on a workbench. In this use, the bails are removed and several containers bolted together side by side with the bolts extending through the bail holes.

While the structure which has been described and illustrated comprises the preferred form of the invention, it will be obvious that various changes and departures may be made without departing from the principles of the invention as set out in the ensuing claims.

Having fully described by invention, I claim:

1. A container for parts or the like comprising a pair of outwardly flared side walls, a pair of outwardly flared end walls and a base, each of said side walls having a continuous horizontal flange spaced from the upper edge thereof, said flanges being inclined downwardly at their ends, said side walls having extension portions extend-

5

ing upwardly from the outer edge of said flanges, bails journaled in said extension portions, one bail being adjacent each end of the container, said bails having transverse arms substantially parallel to the end walls of the container, the ends of the transverse arms being adapted to be supported on the side wall flanges, said bails being adapted to be swung from a stacking position in which the transverse arms are towards the center of the container to a nesting position in which they are slightly inwardly of the upper edges of the end walls and below the uppermost level of the flanges, in said latter position said bails forming the sole support for a like container superimposed thereon.

2. A container for parts or the like adapted to be selectively stacked or nested with a plurality of like containers, said container comprising a pair of outwardly flared side walls, a pair of outwardly flared end walls and a base, said end walls being lower than the side walls, each of said side walls having a continuous horizontal flange spaced from the upper edge thereof, said flanges being inclined downwardly at their ends, bails journaled in said side walls at points above said flanges and being adapted to be supported thereby, one bail being adjacent each end of the container, said bails having transverse portions with an offset adjacent each outer end thereof, said bails being adapted to be swung from a stacking position in which the transverse portions are adjacent the center of the container to a nesting position in which they are adjacent the end walls thereof, the base of said container being configured to form transverse offsets at each end thereof, said transverse offsets being engageable with the offset portions of the bails of a lower container when said bails are in stacking position to support said container and to restrain longitudinal and transverse movement of the upper container with respect to said lower container.

3. A container for parts or the like adapted to be selectively stacked or nested with a plurality of like containers, said container being formed from a single sheet of flat material and comprising a pair of outwardly flared side walls, a pair of outwardly flared end walls, said end walls being lower than the side walls and said side walls being inclined downwardly at their ends to constitute hoppers at each end of the container when a plurality of containers are in stacked position, each of said side walls being configured to provide a continuous outwardly extending horizontal flange spaced from the upper edge thereof, said flanges being inclined downwardly at their ends, bails journaled in the side walls at points above the flanges but below the uppermost level thereof, one bail being adjacent each end of the container, said bails having transverse portions with an offset adjacent each end of said transverse portions, said bail being adapted to be swung from a stacking position in which the transverse portions are towards the center of the container to a nesting position in which they are adjacent the end walls thereof, the base of the container being configured to form transverse ledge portions at each end thereof, said ledge portions being engageable with the offsets of the bails of a lower container when said bails are in stacking position to support said container against movement in any direction and at the same time to permit access to any container in the stack through the hoppers provided at each end of the containers.

6

4. A container for parts or the like adapted to be selectively stacked or nested with a plurality of like containers, said container comprising a pair of outwardly flared side walls, a pair of outwardly flared end walls and a base, said end walls being lower than the side walls and said side walls being inclined downwardly at their ends to constitute hoppers at each end of the container when a plurality of containers are in stacked position, each of said side walls being configured to provide a continuous outwardly extending horizontal flange spaced from the upper edge thereof, said flanges being inclined downwardly at their ends, bails journaled in the side walls at points above the flanges, one bail being adjacent each end of the container, said bails being configured in one plane only to provide arm portions adapted to swing parallel to the side walls of the container, transverse portions adapted to swing parallel to the end walls and offset portions formed on the transverse portions adjacent each end thereof, said bails being adapted to be swung from a stacking position in which the transverse arms are towards the center of the container to a nesting position in which they are adjacent the end walls thereof, said offset portions being engageable with the base of an upper container of like configuration in the stacking position to prevent relative movement between the two containers.

5. A container for parts or the like adapted to be selectively stacked or nested with a plurality of like containers, said container comprising a pair of outwardly flared side walls, a pair of outwardly flared end walls, and a base, said end walls being lower than the side walls and said side walls being inclined downwardly at their ends to constitute hoppers at each end of the container when a plurality of containers are in stacked position, each of said side walls being configured to provide a continuous outwardly extending horizontal flange spaced from the upper edge thereof, said flanges being inclined downwardly at their ends and progressively increasing in width from the point at which their downward inclination commences to the ends of the container, bails journaled in the side walls at points above the flanges, one bail being adjacent each end of the container, said bails having arm portions adapted to swing parallel to the side walls of the container and closely contiguous thereto and transverse portions adapted to swing parallel to the end walls, said bails being adapted to be swung from a stacking position in which the transverse portions are towards the center of the container to a nesting position in which they are inwardly of the end walls thereof, in said latter position the arm portions of said bails being supported by the widened portions of the flanges and the transverse portions being engageable with the end wall of an upper container of like configuration.

6. A small parts container or the like comprising outwardly flared side and end walls and a bottom, said end walls being lower than the side walls and flared to a substantially greater degree than said side walls, said side walls slanting downwardly at their respective ends and constituting end hoppers in conjunction with the respective end walls, the upper margin of each side wall turned outwardly and then upwardly to provide a continuous ledge at the inner side thereof, a pair of bails, each bail of the pair configured in a single plane to provide end pivots with arms extending at right angles to the end

7

pivots and a transverse portion connecting said arms, each bail mounted transversely of the container adjacent an end thereof with its end pivots journaled in the respective side walls in the downwardly slanting ends thereof above the ledges, whereby the ledges are engaged by the arms of the bails when they are swung inwardly toward the center of the container, in which position the bails are adapted to support a similar container in stacked relationship, and engaged by the arms of the bails when they are swung toward the end walls, in which position the bails are adapted to support a similar container in nested relationship.

7. A small parts container or the like comprising outwardly flared side and end walls and a bottom, said end walls being lower than the side walls and flared to a substantially greater degree than said side walls, said side walls slanting downwardly at their respective ends to constitute in conjunction with the respective end walls a pair of end hoppers, the upper margin of each side wall turned outwardly and then upwardly to provide a ledge extending the full length thereof, a pair of bails, each bail of the pair configured to provide end pivots with arms extending at right angles to the end pivots and a transverse portion connecting said arms, each bail mounted transversely of the container adjacent an end thereof with its respective ends pivotally journaled in the side walls above the ledges and in the downwardly slanting ends thereof, whereby the arms of the bail are adapted to rest upon the ledges adjacent the end wall with the transverse portion of the bail lower than the axis of its end pivots, and the arms of the bail being of such a size that when in the described position the transverse portion of the bail is spaced inwardly of the end wall.

8. A small parts container comprising outwardly flared side and end walls and a bottom, said end walls being lower than the side walls, a pair

8

of bails, each bail of the pair having end pivots with arms extending at right angles to the end pivots and a transverse portion connecting the arms, each bail pivotally journaled in the respective side walls adjacent one end of the container in such a position that when the bail is swung outwardly the transverse portion is parallel to but spaced inwardly from the end wall, and means supporting the bail in the outward position with its transverse portion below the axis of its end pivots where it is engageable with the end wall of a second like container nested therein.

9. A small parts container comprising outwardly flared side and end walls and a bottom, said end walls being lower than said side walls and flared to a substantially greater degree than said side walls, a pair of bails, each bail of the pair having a pair of end pivots disposed upon a common axis and a transverse portion disposed in spaced parallel relationship with respect to said axis, each bail having its end pivots journaled in the respective side walls adjacent an end of the container in such a position that the bail may be swung into an outwardly and downwardly angulated position in which the transverse portion is parallel to, but spaced inwardly from, the adjacent end wall and below the axis of said end pivots, and means supporting said bail in said position where it is engageable with the end wall of a second like container nested therein.

GEORGE E. COURSEY.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,308,824	Walker	July 8, 1919
1,447,800	McLennan et al.	Mar. 6, 1923
1,862,609	Shaw	June 14, 1932
2,061,414	Tufts et al.	Nov. 17, 1936
2,224,818	Hovorka	Dec. 10, 1940