

# United States Patent

[11] 3,581,906

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3,200,983 8/1965 Walter ..... 220/22  
 3,207,321 9/1965 Joyce ..... 211/126

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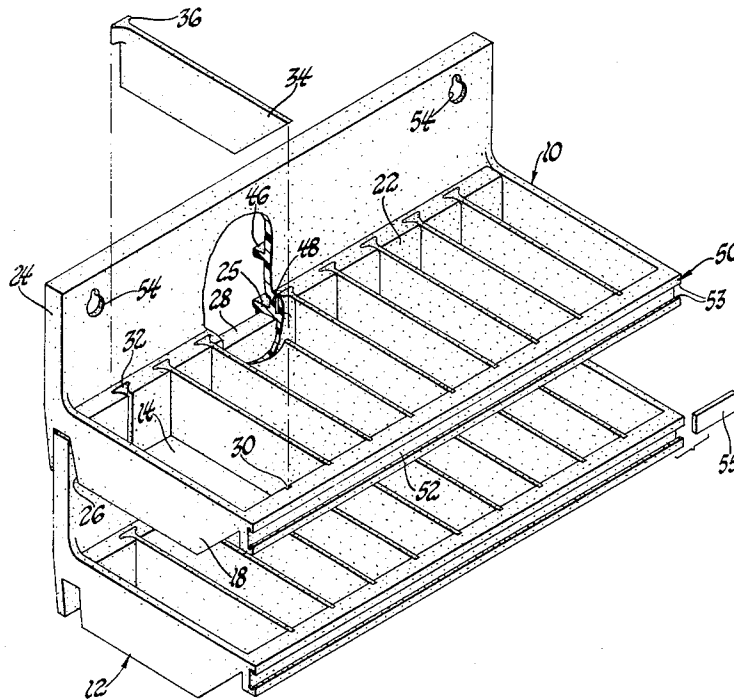
[54] **STORAGE BIN**  
**11 Claims, 6 Drawing Figs.**

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 B65b 21/00  
 [50] Field of Search ..... 211/126,  
 133, 88, 87, 184; 312/119, 117, 128; 220/97 (B),  
 97 (C), 23.83, 23.6, 22.1, 22, 22.3; 108/91; 40/16,  
 16.2, 17, 18, 10; 248/225, 224

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**ABSTRACT:** A storage bin construction which permits several such bins to be assembled in a vertically stacked array. Each bin includes a flat bottom, a front wall, and a generally upstanding rear wall joined by sidewalls. The front and rear walls are provided with registering vertical slot openings to accommodate removable partitions. The slot openings in the rear wall extend into vertical strengthening ribs formed on the outer face of the rear wall. In addition, each bin includes an upstanding support member joined to and generally rearwardly spaced from said rear wall to define a downwardly opening vertical slot to receive the upper portion of the support member of another similar bin into telescopic relation therewith to provide a vertically stacked array.



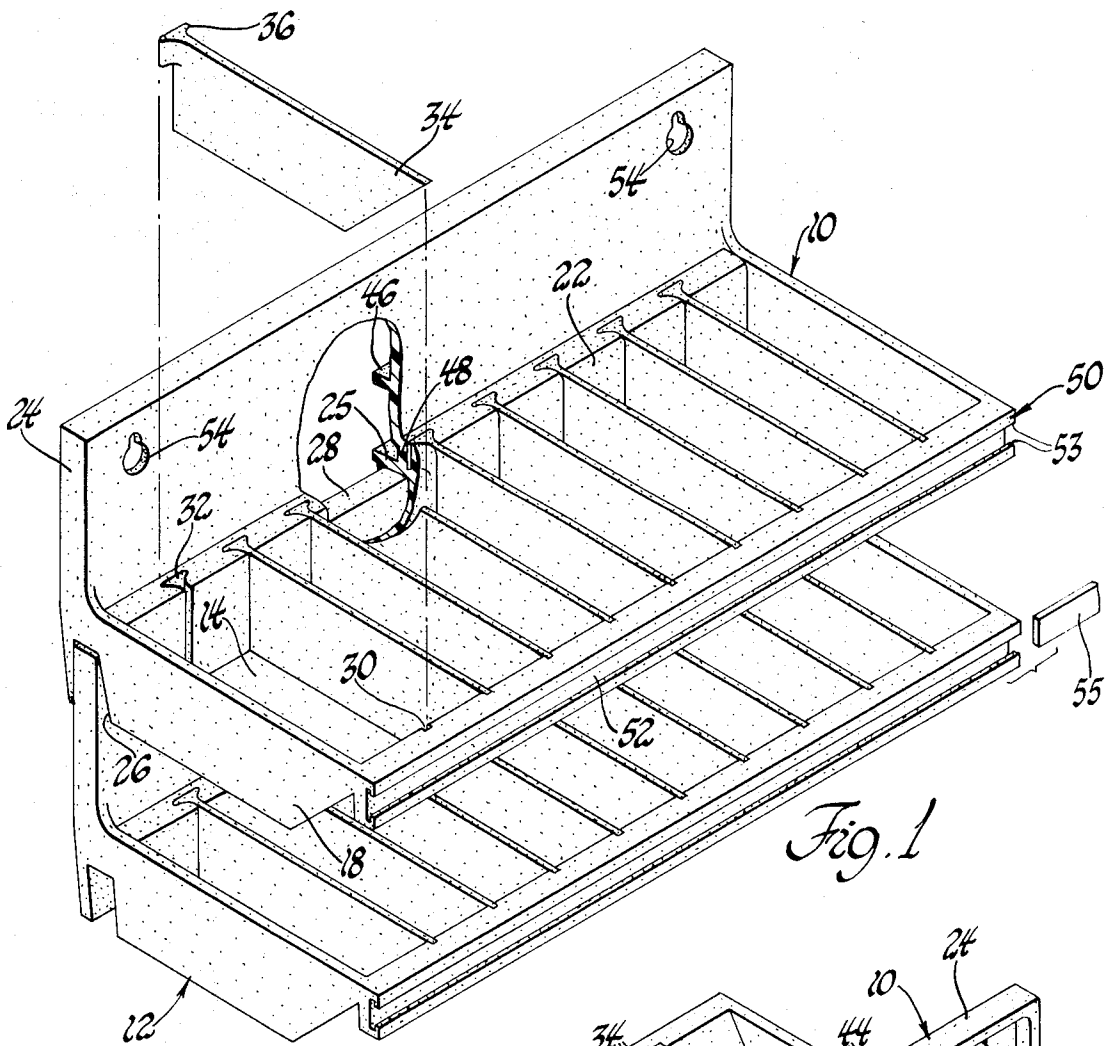


Fig. 1

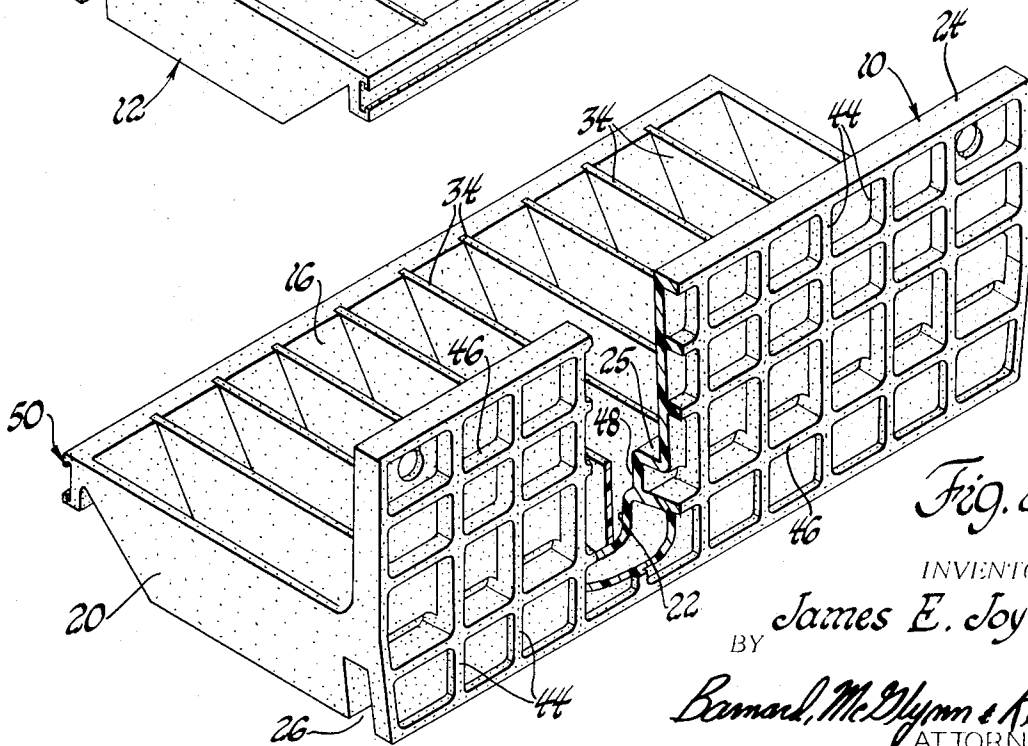


Fig. 2

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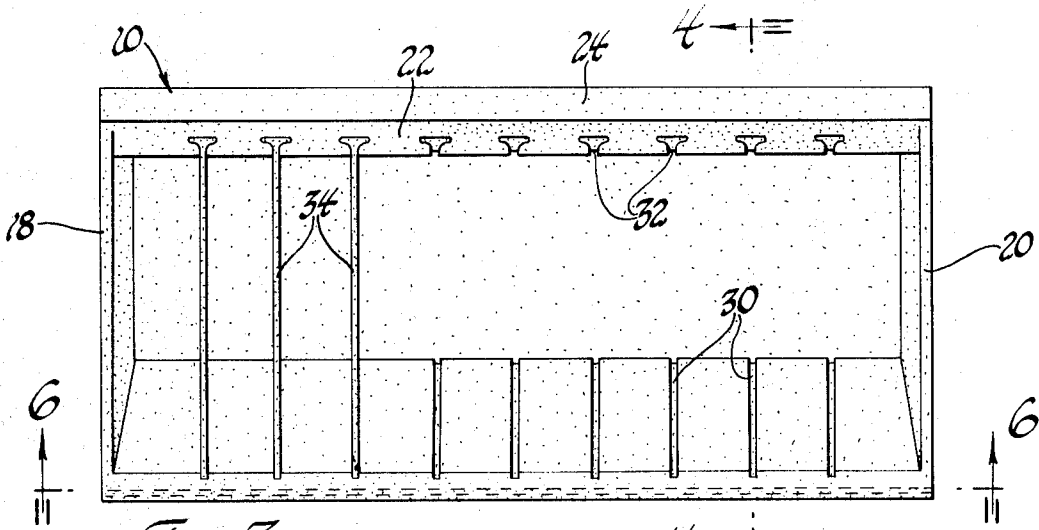


Fig. 3

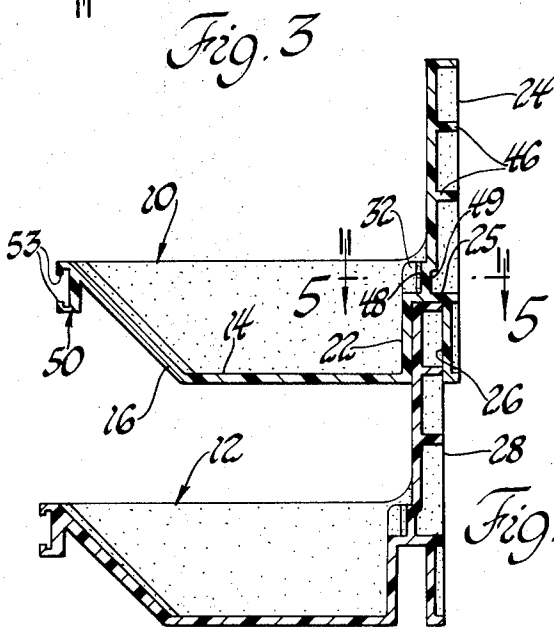


Fig. 4

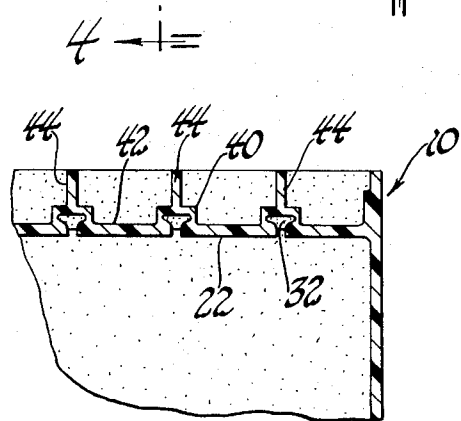


Fig. 5

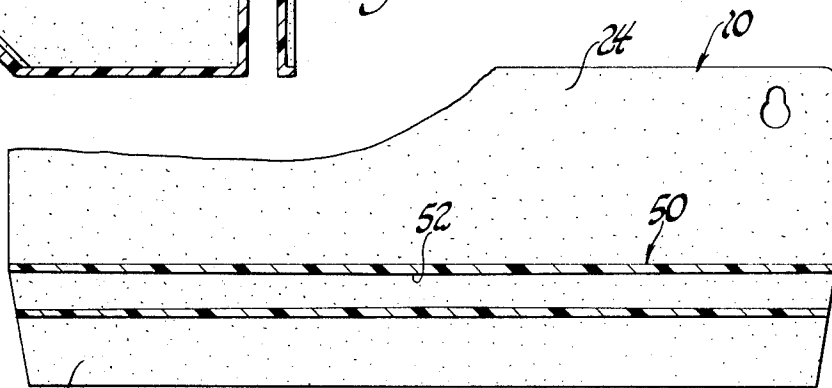


Fig. 6

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## STORAGE BIN

This invention relates to storage bins of the type useable to hold relatively small articles in batch quantities and more particularly to such a storage bin which can accommodate removable partition members.

U.S. Pat. No. 3,207,321 granted to James E. Joyce on Sept. 21, 1965, discloses a storage bin which may be stacked with other similar bins in a vertically stacked array. In the aforementioned patent the bin disclosed includes a generally flat horizontal bottom, an upstanding rear wall, an upstanding and generally forwardly angled front wall and sidewalls joining the front and rear walls. The front and rear walls are provided with registering grooves or slots to accommodate removable partitions.

In accordance with the present invention which constitutes an improvement to the storage bin described in U.S. Pat. No. 3,207,321, the quantity of material required to construct a storage bin having removable partitions may be minimized without sacrificing strength or rigidity in the overall assembly with or without said partitions. In general, this is accomplished by providing a comparatively thin rear wall having a plurality of laterally spaced vertically extending ribs formed on the outer face of the rear wall and defining intermediate recesses. The slot openings formed in the inner face of the rear wall extend rearwardly into the ribs.

In a preferred embodiment the slot openings formed in the rib portions of the rear wall exhibit a rearwardly increasing lateral dimension over at least an upper portion of the vertical length thereof. Accordingly, the partitions may be formed to have at the rear edge thereof a laterally outwardly enlarged portion which fits snugly within the correspondingly contoured slot opening in the rear wall.

In a specific and preferred form of the invention each bin is provided with an upstanding back support member having a portion which extends vertically above the rear wall and a lower portion which is parallel to but spaced rearwardly from the rear wall to define a downwardly opening slot. This slot accommodates in telescopic relation therein the upper portion of the back support member of a similar bin whereby two or more bins may be disposed in a vertically stacked array.

In a still more specific form of the invention the front wall of the bin may be provided with a lateral slot forming a track to receive a suitable identification tag. The inner horizontal surfaces of the track are tapered from the lateral ends thereof toward the middle whereas the horizontal surfaces of the track lips are parallel and nontapered to prevent the tag or tags from falling out of the slot.

Further features of the invention and the advantages thereof will be made clear from a reading of the following specification describing an illustrative embodiment of the invention, this specification to be taken with the accompanying drawings of which:

FIG. 1 is an isometric view of two storage bins constructed in accordance with the invention and disposed in a vertically stacked array;

FIG. 2 is a rearward view of one of the storage bins of the type shown in FIG. 1;

FIG. 3 is a top view of one of the storage bins of FIG. 1;

FIG. 4 is a side view of the array of FIG. 1;

FIG. 5 is a sectional view along section line 5-5 of FIG. 4; and

FIG. 6 is a sectional view along line 6-6 of FIG. 3.

FIG. 1 illustrates a pair of identical bins 10 and 12 for storing relatively small articles in partitioned sections. Each bin, of which bin 10 will be taken as representative, comprises an integrally molded assembly of a generally flat horizontal bottom 14, an upstanding and outwardly angled front wall 16, upstanding sidewalls 18 and 20, and an upstanding rear wall 22. The sidewalls 18 and 20 may be slightly inwardly tapered toward the bottom as shown in FIGS. 1 and 3 to permit the bins 10 and 12 to be nested for shipping or storing when not in use. The bin assembly is preferably constructed from a suitable organic polymeric material, but other materials may be used.

As best shown in FIGS. 4 and 5, the rear wall 22 of bin 10 has formed thereon a series of vertical ribs 40 separated by a plurality of recesses 42. A plurality of vertical slots 32 are formed in the inner face of the rear wall 22 to extend into the material defining the ribs 40. The front wall 16 of bin 10 has formed therein a series of laterally spaced vertical slots 30 as best shown in FIGS. 1, 2 and 3. Slots 30 are in register with the slots 32 in the rear wall 22 to receive partitions 34 which divide the bin 10 into a number of separated areas each of which may be employed to hold relatively small articles in batch quantities.

As shown in FIGS. 1, 3, 4 and 5, the slots 32 are outwardly enlarged toward the rear of the bin over the portion of slot 32 above the cross rib 25. Correspondingly, partition 34 has formed on the rearward edge thereof an outwardly enlarged portion 36 which extends over approximately one-third of the total vertical dimension of the rearward edge thereof. The enlarged portion 36 of partition 34 mates with the flared portion of slot 32 to securely lock the partition in place when the front and rear edges thereof are properly inserted into the slots 30 and 32 respectively. Although the partitions 34 are securely maintained in this position by virtue of the snug fit of enlarged portion 36 within slot 32, each partition may be readily removed by imparting a vertical displacement thereto. Bin 10 is further provided with an upstanding back member 24 which is joined to the rear wall 22 by the cross rib 25 and the sidewalls 18 and 20. The back member 24 is of greater vertical dimension than the rear wall 22 and is parallel to and rearwardly spaced from the rear wall 22 to define a downwardly opening vertical slot 26. The slot 26 extends laterally across bin 10 and is dimensioned to receive the upper portion of the back support member 28 of bin 12 as shown in FIGS. 1 and 4. Accordingly, bins 10 and 12 may be disposed in a vertically stacked array wherein bin 12 provides the support for bin 10 and the storage compartments of both bins are accessible.

In a similar fashion, back member 24 has formed thereon a series of vertical ribs 44 which are connected to and register with the somewhat wider ribs 40 of the rear wall 22 of bin 10. The vertical ribs intersect and are integral with horizontal ribs 46 extending laterally across the rear face of back member 24 to strengthen and rigidify the entire back member 24 to provide the needed support for the stacking features shown in FIGS. 1 and 4. A vertical rib 48 extending laterally across the bin 10 extends between the rib 25 and the point where the rear wall 22 and the back member 24 become coextensive and forms a vertical spacer which operates along with the sidewalls 18 and 20 to limit the extent to which the back member 28 of bin 12 may be inserted into the slot 26 of bin 10 and permit the deep recess 49 in order to eliminate excess material from the structure.

As shown in FIGS. 1, 2, 4 and 6, the upper edge of front wall 16 has disposed thereon and integral therewith a laterally extending tag track 50 having a vertical slot 52 formed therein. Track 50 includes two vertical lips 53 which maintain one or more identification tags 55 within the slot 52. In forming the slot 52, two inwardly tapered horizontally facing tools are brought into the track 50 from the ends thereof such that the inner horizontal surfaces of slot 52 converge toward the center. Thus, the vertical dimension of slot 52 is a minimum at the center and increases toward a maximum at the laterally opposite ends. However, the vertical clearance between the lips 53 is constant across the track 50 and is less than the smallest vertical clearance between the inner horizontal surfaces of slot 52. Accordingly, should a series of tags 55 be placed end-to-end within slot 52, the tags toward the ends of slot 52 are prevented by the lips 53 from falling forwardly out of the track 50. The vertical dimension of tag 55 is greater than the largest vertical distance between the lower inner horizontal surface of slot 52 and the upper lip 53, which occurs near the ends of slot 52. The tag 55 may be formed of paper or plastic or metal and carry suitable indicia to identify bin contents.

Back member 24 may also be provided with a pair of laterally spaced holes 54 to facilitate a hanging of the bin 10 as desired.

In use, the bins 10 and 12 may be placed in a flat support surface such as a table top, individually suspended from a wall by means of holes 54, or stacked one atop the other as shown in FIGS. 1 and 4. Each bin may be subdivided into as many sections as desired by means of partitions 34. When used in the stacked form of FIGS. 1 and 4, the bins 10 and 12 are vertically spaced to provide access to the contents of each bin. Further, the partitions 34 not placed in slots 30 and 32 may be stored in an upright position in a bin section for easy access.

It is to be understood that the embodiments described herein are illustrative in nature and the foregoing description is not to be construed in a limiting sense.

The embodiments of the invention in which I claim an exclusive property or privilege are defined as follows:

1. A bin for storing articles in partitioned sections thereof comprising an integral assembly of: a bottom; an upstanding rear wall; a substantially upstanding front wall; substantially upstanding sidewalls joining the bottom, rear and front walls to close the bin; a plurality of laterally spaced vertically extending ribs formed on the outer face of said rear wall and defining intermediate recesses; a plurality of vertically extending slot openings formed in the inner face of said rear wall and extending into said ribs; a plurality of vertically oriented slot openings formed in the inner face of said front wall and in register with said slot openings in said rear wall; and partition members having front and rear edges selectively disposable in the slot openings of said front and rear walls respectively.

2. A bin as defined in claim 1 wherein said slot openings in said rear wall are formed to exhibit a rearwardly increasing lateral dimension over at least an upper portion of the vertical length thereof, and said partition members are formed to have at the rear edge thereof a laterally outwardly enlarged portion disposable within said upper portion of said slot openings.

3. A bin as defined in claim 2 wherein said front and sidewalls are inwardly angled to permit nesting of said bins.

4. A bin as defined in claim 1 wherein said integral assembly further includes an upstanding support member substantially parallel to and extending vertically above said rear wall and being rearwardly spaced from said rear wall to define a

downwardly opening vertical slot extending laterally across the bin and adapted to receive the upper portion of a support member of a similar bin to thereby maintain the bins in a vertically stacked array.

5. A bin as defined in claim 4 wherein said support member has formed on the rear face thereof a plurality of interconnecting vertical and horizontal reinforcing ribs, at least some of the vertical reinforcing ribs being in register with the ribs of said rear wall.

6. A bin as defined in claim 4 wherein said rear wall and support member are joined at the upper edge of said rear wall, the integral assembly further including a plurality of spacers disposed within said slot and extending vertically downward from the joined portions of said rear wall and support member to limit the extent of telescopic insertion of the support member into the slot of the next uppermost bin.

7. A bin as defined in claim 1 wherein said integral assembly is molded organic polymeric material.

8. A bin as defined in claim 4 wherein said integral assembly is molded organic polymeric material.

9. A bin as defined in claim 1 the integral assembly further including a track joined to said front wall and having a vertical slot extending across the bin to receive a suitable identification tag.

10. A bin as defined in claim 9 wherein said track slot decreases in height toward the center thereof, and a pair of vertically disposed lips formed forwardly of the slot to maintain a tag within the slot.

11. In combination with a bin for storing articles, a track disposed forwardly on the bin for slidably carrying an identification tag, the track including an elongated slot defining a vertical bottom surface and horizontal upper and lower side surfaces, said slot decreasing in vertical height from each end toward the center thereof, and a pair of opposed vertically extending upper and lower lips forwardly of the slot, the tag having a vertical dimension greater than the greatest vertical clearance between the lower of the slot side surfaces and the upper lip whereby the tag is maintained in the slot irrespective of the horizontal location thereof within the slot.

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