SEARCH

May 11, 1954 P. ROSENBERG 2,678,253

BIN

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Fig. 1.

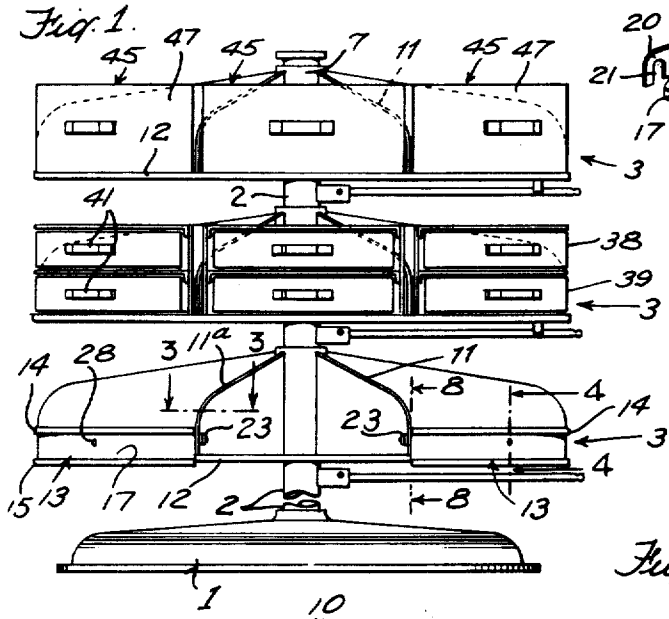



Fig. 2.

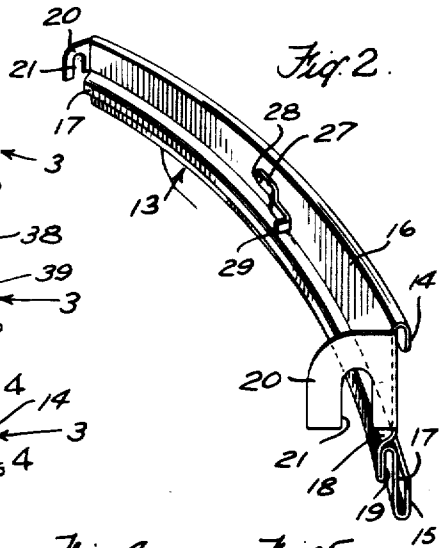



Fig. 3.

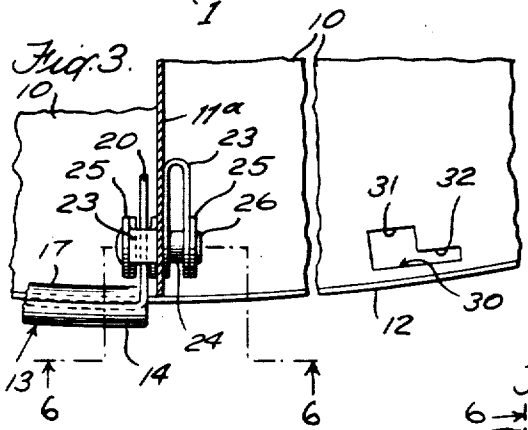



Fig. 4

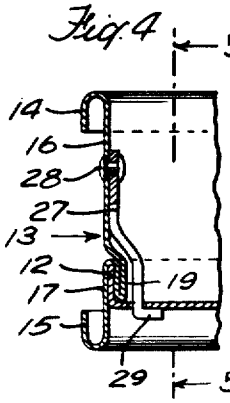



Fig. 5

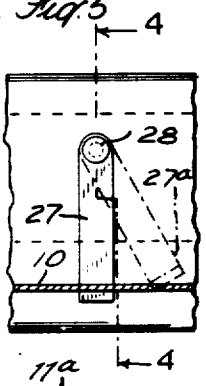



Fig. 6.

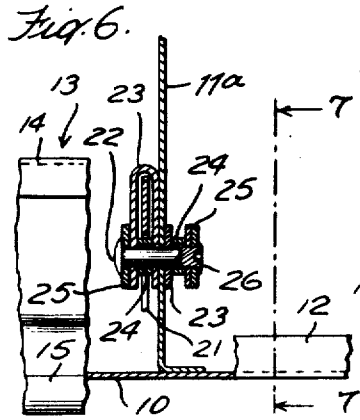



Fig. 7.

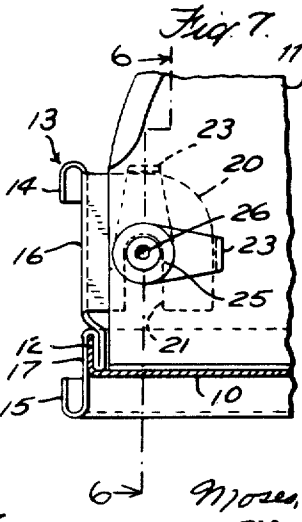
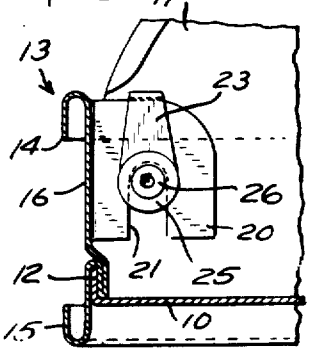



Fig. 8




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BIN

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Fig. 11.

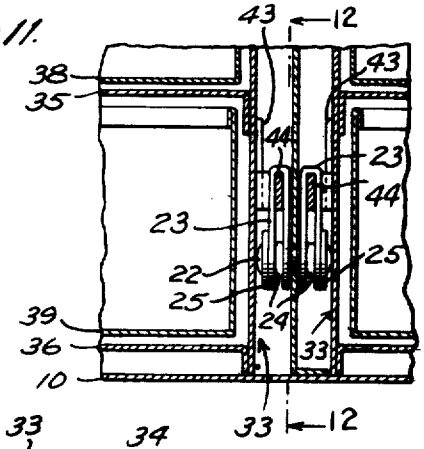



Fig. 12.

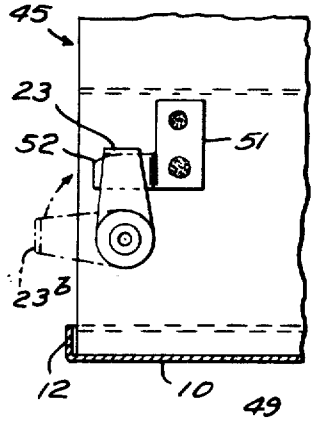
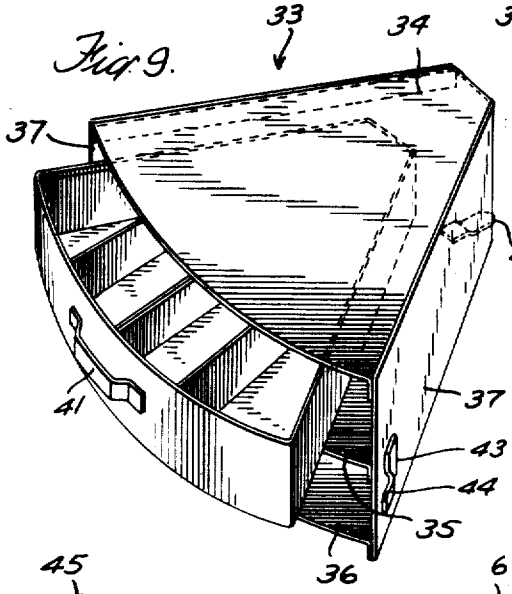



Fig. 9.



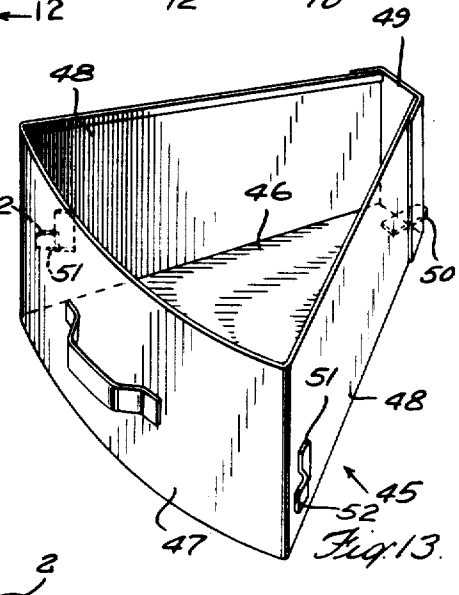




Fig. 13.

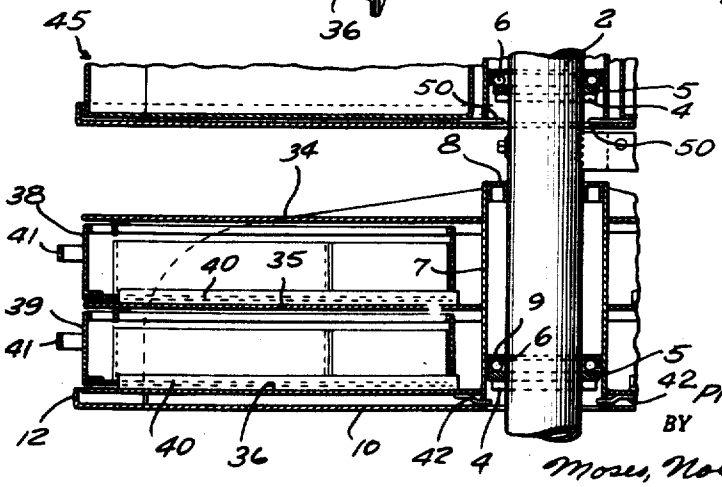



Fig. 10.

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Patented May 11, 1954

2,678,253

# UNITED STATES PATENT OFFICE

2,678,253

## BIN

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Application May 16, 1950, Serial No. 162,175

10 Claims. (Cl. 312—285)

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This invention relates to bins. It is illustratively disclosed herein as applied to revolving bins of metallic construction. While some of the features are especially useful in revolving bins and particularly in revolving bins of metallic construction, the invention is not to be understood as limited to bins of the revolving type nor to bins which are made of metal.

Revolving bins commonly include an upright central shaft and a series of bin sections mounted at different levels on the shaft, each with capacity for rotation relative to the shaft and independently of the others.

Each bin section generally comprises a sleeve rotatably mounted on the shaft, a platform or floor member having an upstanding circumferential flange, and a series of vertical, radially disposed dividers permanently connected to the sleeve and to the platform to support the platform from the sleeve, and to divide the platform into sectors.

It is desirable that the user of the bin have the continuing option to use a sector as an open bin compartment, or for holding a drawer cabinet section or, in the case of the uppermost section, for holding a deep tray. When the sector is used as a bin compartment, it is necessary that the compartment be provided with an outer boundary wall which is desirably adapted also to serve as an index card holder, but when the sector is to be made to contain a cabinet section, the outer boundary wall should be removed since it is not then needed and would be in the way. The cabinet casing must then be placed in the sector behind the front flange and in some way attached to the dividers so that it will not be lifted, or drawn forward, or possibly overturned when the drawers are pulled out. Similarly, when a tray is to be placed in a sector its radial side walls must be connected in some way to the radial dividers.

It is an object of the invention to provide latching members on the dividers which may be used either for holding the bin front, the cabinet casing, or the tray in place, and to so construct the bin front, the cabinet casing and the tray that they may be alternatively held in place by the same latching means.

Other objects and advantages will hereinafter appear.

With respect to the bin front the present invention is an improvement upon the invention disclosed in Letters Patent of the United States No. 2,327,742, granted to me on August 24, 1943. With respect to the securement in place of the cabinet casing and the tray the invention is an improvement upon the invention disclosed and

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claimed in Letters Patent of the United States No. 2,354,835, granted to me on August 1, 1944.

In the drawing forming part of this specification:

Figure 1 is a view in front elevation, partly broken away, of a revolving bin embodying features of the invention;

Figure 2 is a perspective view of a bin front embodying features of the invention;

Figure 3 is a fragmentary sectional view upon a larger scale than Figure 1, the section being taken upon the line 3—3 of Figure 1, looking in the direction of the arrows;

Figure 4 is also a fragmentary sectional view upon a larger scale than Figure 1, the section being taken upon the line 4—4 of Figure 1, looking in the direction of the arrows;

Figure 5 is a fragmentary sectional view taken upon the line 5—5 of Figure 4, looking in the direction of the arrows;

Figure 6 is a fragmentary sectional view taken upon the irregular section line 6—6 of Figure 3, looking in the direction of the arrows;

Figure 7 is a fragmentary sectional view taken upon the line 7—7 of Figure 6, looking in the direction of the arrows;

Figure 8 is a fragmentary sectional view upon the same scale as Figures 3 to 7, the section being taken upon the line 8—8 of Figure 1, looking in the direction of the arrows;

Figure 9 is a perspective view of a cabinet section which is adapted to be mounted in any one of the compartments of the revolving bin of Figure 1;

Figure 10 is a fragmentary vertical sectional view through the cabinet and adjoining bin parts;

Figure 11 is a fragmentary sectional view through the latches by which cabinet casings set in adjoining compartments are held in place;

Figure 12 is a fragmentary view in sectional elevation taken upon the line 12—12 of Figure 11, looking in the direction of the arrows; and

Figure 13 is a perspective view of a tray which is adapted to be set into any one of the compartments of the top bin section.

The illustrative bin comprises a base 1 which supports an upstanding central shaft 2. Bin sections 3 are mounted at different levels upon the shaft 2, each with capacity for rotation relative to the shaft and independently of the others. Only three bin sections are illustrated, but it is apparent, of course, that any desired number of sections may be mounted upon a single shaft. The lower section is shown used as storage bins, the second section is shown provided with cabinets, and the upper section is shown provided with trays.

The mounting of a bin section 3 is best illustrated in Figure 10. A pin 4 extends diametrically through the shaft 2 and projects beyond the shaft at opposite sides. A ring 5 rests on the ends of the pin 4 and supports a ball bearing 6. A sleeve 7 has welded to its inner surface upper and lower flanged rings 8 and 9. The ring 9 is supported upon the ball bearing 6. The ring 8 serves as a steadying bearing for engaging the shaft 2.

A platform or floor member 10 is supported from the sleeve 7 by a series of vertical, radially extending dividers 11, 11*a*, etc., each divider being suitably secured along its inner vertical edge to the sleeve 7 as by welding, and each being suitably secured along its lower horizontal edge to the platform 10 as by welding. The dividers separate the bin sections into a series of bin compartments, the dividers forming vertical radial walls for the compartments, and the platform 10 forming a common floor member for all of the compartments. The platform 10 is formed with a circumferential upstanding lip or flange 12.

The sectors of the bottom section are equipped to be duplicates of one another and, therefore, a description of an illustrative portion of the structure will suffice for all. A peripheral wall segment 13 (best illustrated in Figure 2) is adapted to be fitted upon the lip or flange 12 of the floor member 10 between the dividers 11 and 11*a*. This wall segment is desirably a formed arcuate sheet metal member having the cross-sectional shape illustrated in Figure 2.

The segment includes upper and lower edge portions 14 and 15 which are infolded to form opposed card receiving channels, vertical body portions 16 and 17 adjacent the respective edge portions which are disposed in co-planar relation, and an intermediate body portion 18 which is folded upon itself to form a two-ply section, the two-ply section being extended rearward and downward to provide a channel 19 for embracing the flange 12. The segment is also provided with inturned ears 20 at its opposite ends for attachment to the dividers 11 and 11*a*. The segment may be formed of light gauge sheet metal and yet be of adequate strength and rigidity to meet every practical requirement, the cross-sectional shape illustrated, together with the longitudinal curvature, serving to afford a high degree of rigidity in relation to the thickness of the metal employed.

Each ear 20 is formed with a downwardly extending, downwardly opening slot 21 for embracing a projection on the adjacent divider which will be described presently.

In Patent No. 2,327,742, each ear also had pivotally attached to it a latch cooperative with the divider projection for locking the bin front member 13 in place. In accordance with the present invention, however, the latches are omitted from the ears 20 and latches are provided instead upon the dividers. By this change the construction of the bin front members 13 is simplified and one standard form of latching mechanism is provided on the dividers adapted to cooperate with the ears 20, or to cooperate with cabinet casings or trays, for holding any one of these devices securely in place.

In each permanent divider near the lower outer corner thereof a headed pin 22 is mounted. The pin serves as a pivotal support for latches 23 which are provided at opposite sides of the divider. Each latch 23 is U-shaped in form and has both of its arms pivotally supported upon the pin. Between the arms of each latch there is interposed a spacing sleeve 24 or a circular spacing boss on one or both of the arms to take the place of the sleeve.



Beginning at the headed or left hand end of the pin 22, as seen in Figure 6, the pin supports successively a washer 25, the left arm of the first latch 23, the first spacer sleeve 24, and the right arm of the first latch 23. These parts are located to the left of the divider 11*a*. To the right of the divider 11*a* the pin supports the left arm of the second latch 23, the second spacer sleeve 24, the right arm of the second latch 23, and a second washer 25. All of the parts referred to, including the divider 11*a*, are clamped together by upsetting the pin to provide a second head 26.

With the arrangement described the latches 23 are caused to bear frictionally against the divider 11*a* so that they will be held against accidental dislodgment from their assigned positions when exposed to vibration. The washers 25 bear extensively against the latches 23, and the latches 23 bear extensively against the divider 11*a*. As a consequence, the pin 22 is stably supported against tilting, notwithstanding the limited extent of its engagement with the supporting divider 11*a*.

In Figure 3 the right hand latch 23 is shown in the position which it occupies prior to the application of a bin front member 13 to the compartment in which the latch is situated. When the bin front member is to be applied, the groove 19 is fitted down over the lip or flange 12 and the slots 21 of the ears 20 are fitted down over the spacing sleeves 24. The latches 23 are then turned to an upright position, as illustrated in the case of the left hand latch 23 of Figure 3, to overlie the ears 20 and hold them down securely in place.

When the bin front member 13 has had both of its ears secured in place in the manner described, it is further interlocked with the floor member 10 by means of a hold-down latch 27 which is pivotally supported upon the inner face of the body portion 16 by means of a rivet 28. The hold-down latch 27 has its upper end disposed in frictional engagement with the body portion 16 and its lower end rearwardly displaced to clear the body portion 18. The lower end of the latch is bent rearwardly to form a rearwardly projecting latching finger 29. The finger 29 is adapted to pass through a slot 30 formed in the floor member 10 when the latch is turned to one side of the vertical, as illustrated in broken lines at 27*a* in Figure 5. In order to admit the finger 29 the slot 30 includes a wide portion 31 which is of greater width than the length of the finger. When the latch is turned to a vertical position, however, as illustrated in Figures 4 and 5, the body of the latch passes into a narrow portion 32 of the slot 30 so that the finger bears against the lower side of the floor member and serves to hold the bin front firmly down in its assigned position. The hold-down latch 27 is particularly effective for the reason that it is disposed out of alignment with the pivot pins 22 through which the ears are attached to the dividers. This desirable disalignment occurs because of the arcuate formation of the bin front member, and because the ears 20 are inturned.

In Figures 9 to 11, inclusive, the pin and latch construction is the same as that disclosed in and described in connection with Figures 1, 3 and 6 to 8, inclusive, but the bin front members 13 are

omitted and cabinets 33 are shown installed. The cabinets, except for one detail which will be specifically referred to, may be the same in all respects as the cabinet disclosed and claimed in Letters Patent of the United States No. 2,354,835, granted to me on August 1, 1944.

Each cabinet comprises a sector-like casing which includes upper, intermediate and lower horizontal wall sections 34, 35 and 36 as well as vertical radial walls 37. Upper and lower drawers 38 and 39 are mounted and guided in the casing for radial movement by means of guides 40, the drawers being provided with pull handles 41. The present invention, however, is concerned solely with the mounting and securement of the casing 33 in a bin compartment.

The casing is adapted to be set upon the floor member 10 between two of the permanent dividers and behind the lip 12. An offset tongue 42 which is affixed to the bottom horizontal floor member 36 is inserted beneath the lower end of the sleeve 7 to prevent the casing from tilting when the drawers are pulled out. In order to further anchor the casing in place the vertical walls 37 are provided with latching brackets 43. Each bracket includes a body portion which is suitably secured to the vertical wall 37, as by welding, and an offset, outwardly extending tongue portion 44 at its lower end which is adapted to be received in one of the latches 23 and held down by the latch.

In Figure 11 two of the cabinet casings 33 are shown secured in place and held down by associated latches 23. The construction and mounting of the latches 23 is precisely the same as that shown and described in connection with Figures 3, and 6 to 8, inclusive, the same latches being usable in connection with the cabinet casings 33 or with the bin front members 13. When a bin front member is to be put into place, however, the latch is rotated to extend inward or rearward and is then rotated in an upward and forward direction after the bin front ear has been put into place. When the cabinet section is applied, however, the latch is first set in an outwardly or forwardly extending horizontal attitude and is then rotated upwardly and rearwardly after the cabinet casing has been set in place. It will be evident that the inner end of the cabinet casing is held down by the tongue 42 while the outer corners of the casing are held down by the tongues 44 and the latches 23. At the same time the casing, so held down, is confined against shifting horizontally by the lip or flange 12 and the dividers, so that the structure is securely and stably retained in its assigned position.

In Figure 13 a tray is shown which may be mounted in one of the bin sectors or compartments, and in Figure 12 the tray is shown in place. The tray 45 is of substantially the same external dimensions as the casing 33 of Figures 9 and 10. It comprises a bottom horizontal wall 46, an outer arcuate wall 47, vertical radial side walls 48, and an inner vertical end wall 49. The bottom wall 46 has secured to it an offset hold-down tongue 50 corresponding to the tongue 42 of Figures 9 and 10 and adapted similarly to be inserted beneath the lower end of the sleeve 7. The tray is adapted to rest upon the floor member 10 with the arcuate wall 47 behind the flange or lip 12. The vertical radial walls 48 of the tray are provided with latching brackets 51 which include offset, forwardly extending tongues 52, the brackets being similar in construction, arrangement and operation to the brackets 43 of Figures 10 and 11. In Figure 12 one of the



latches 23 is shown engaged with the tongue 52 for holding the tray 45 in its assigned position. The position in which the latch is set during the placing of the tray in the compartment is illustrated in broken lines 23b in Figure 12. It will be evident that the tray 45 is held in place by the same means and in the same manner described for the cabinet casing 33.

I have described what I believe to be the best embodiment of my invention. I do not wish, however, to be confined to the embodiment shown, but what I desire to cover by Letters Patent is set forth in the appended claims.

What I claim is:

1. In a bin having a floor member having an upstanding, peripherally extending flange at its forward extremity and rearwardly extending thin, sheet metal dividers for separating the bin into a plurality of compartments, the combination with the thin, sheet metal dividers of pivot pins mounted upon the respective dividers near the forward ends thereof, each pin extending through the divider upon which it is mounted, U-shaped latches of thin sheet metal having parallel arms rotatively mounted upon each pin at opposite sides of the supporting divider, and spacer sleeves interposed on the pivot pin between the arms of the respective latches, each pin having heads on its opposite ends for clamping the assembly of latch arms, spacers and divider firmly together, the latches being pressed forcibly against the divider to cause the latches to bear frictionally against the divider and to provide solid and stable support for maintaining the pivot pin in a fixed attitude on the thin divider.

2. A structure as set forth in claim 1 which further includes a wall member forming the outer wall of the compartment, such wall member being co-extensive in length with the front boundary of the compartment, formed to fit upon the peripherally extending flange of the floor member, and including at each end thereof an inturned ear having a latch engaging portion adapted to be held down in place by rotation of the latch into position to overlie it.

3. A structure as set forth in claim 1 which further includes a wall member forming the outer wall of the compartment, such wall member being co-extensive in length with the other boundary of the compartment, formed to fit upon the peripherally extending flange of the floor member, and including at each end thereof an inturned ear having a downwardly facing slot for receiving the associated latch pivot, a portion behind the slot adapted to be inserted in the latch, and a portion above the slot adapted to be covered and held down by the latch when the latch is turned to an upright position.

4. A structure as set forth in claim 1 which further includes a wall member forming the outer wall of at least one of the compartments, such wall member being co-extensive in length with the outer boundary of the compartment and formed to fit upon the peripherally extending flange of the floor member, such wall member including at each end thereof an inturned ear having a downwardly facing slot for receiving an associated pivot pin, a portion behind the slot adapted to be inserted in the latch, and a portion above the slot adapted to be covered and held down by the latch when the latch is turned to an upright position.

5. In a structure as set forth in claim 1 the further structure which includes an article con-

fining element having at each end thereof an ear, each latch adapted to overlie one of said ears when said latch is turned to an upright position to thereby removably retain said article confining element in place on the bin.

6. In a bin which includes a floor member having an arcuate upstanding forward flange and rearwardly extending dividers for separating the bin into a plurality of compartments, an arcuate wall member being provided to form the forward wall of the compartment, such wall member being co-extensive in length with the forward boundary of the compartment and having a downwardly facing channel fitted on the flange, means for anchoring the ends of said wall member to the dividers, and a hold-down latch pivoted on said front wall member, intermediate the ends thereof, said hold-down latch having a rearwardly extending finger at its free end and said floor member having a slot which is wide enough in one portion to permit the finger to be swung through it but narrow enough in another portion to trap and retain the finger against lifting.

7. In a bin which includes a floor member having an upstanding forward flange and rearwardly extending dividers for separating the bin into a plurality of compartments, the novel structure in which at least one of the compartments includes latches pivotally mounted on the compartment bounding dividers near the forward ends thereof for movement in planes parallel to the dividers on which they are mounted, a wall member forming the forward wall of the compartment, such wall member being co-extensive in length with the forward boundary of the compartment and having a downwardly facing channel fitted onto the flange, inturned ears at its opposite ends having portions engaged by the adjacent latches and held down in place by rotation of the latches into position to overlie them, and a hold-down latch pivoted on the front wall member intermediate the ends thereof, said hold-down latch having a rearwardly extending finger at its free end and said floor member having a slot which is wide enough in one portion to pass the finger but narrow enough in another portion to trap and retain the finger against lifting.

8. In a bin which includes a floor member having an upstanding peripherally extending flange at its forward extremity, and vertically disposed thin, sheet metal dividers that extend rearwardly toward a common center for separating the bin into a plurality of sector-like compartments, the combination with the thin, sheet metal dividers of pivot pins mounted upon the respective dividers near the forward ends thereof, each pin extending through the divider upon which it is mounted, U-shaped latches of thin sheet metal having parallel arms rotatively mounted upon each pin at opposite sides of the supporting divider, and spacer sleeves interposed on the pivot pin between the arms of the respective latches, each pin having heads on its opposite ends for clamping the assembly of latch arms, spacers and divider firmly together, the latches being pressed forcibly against the divider to cause the latches to bear frictionally against the divider and to provide solid and stable support for maintaining the pivot pin in a fixed attitude on the thin divider, and a sector-like drawer guiding housing fitted behind the peripherally extending flange of the floor member and having radial walls that extend alongside the respective compartment bounding dividers, each radial wall including an externally disposed horizontally extending tongue onto which the latch may be turned for holding the housing down in place upon the floor member.

9. In a bin which includes a floor member having an upstanding peripherally extending flange at its forward extremity and rearwardly extending thin, sheet metal dividers for separating the bin into a plurality of compartments, the combination with the thin, sheet metal dividers of pivot pins mounted upon the respective dividers near the forward ends thereof, each pin extending through the divider upon which it is mounted U-shaped latches of thin sheet metal having parallel arms rotatively mounted upon each pin at opposite sides of the supporting divider, and spacer sleeves interposed on the pivot pin between the arms of the respective latches, each pin having heads on its opposite ends for clamping the assembly of latch arms, spacers and divider firmly together, the latches being pressed forcibly against the divider to cause the latches to bear frictionally against the divider and to provide solid and stable support for maintaining the pivot pin in a fixed attitude on the thin divider, a drawer receiving cabinet housing fitted behind the peripherally extending flange of the floor member and having lateral walls that extend alongside the respective compartment bounding dividers, each lateral wall including an externally disposed horizontally extending tongue onto which the latch may be turned for holding the housing down in place on the floor member.

10. In a bin which includes a floor member having an upstanding peripherally extending flange at its forward extremity and rearwardly extending thin, sheet metal dividers for separating the bin into a plurality of compartments, the combination with the thin, sheet metal dividers of pivot pins mounted upon the respective dividers near the forward ends thereof, each pin extending through the divider upon which it is mounted, U-shaped latches of thin sheet metal having parallel arms rotatively mounted upon each pin at opposite sides of the supporting divider, and spacer sleeves interposed on the pivot pin between the arms of the respective latches, each pin having heads on its opposite ends for clamping the assembly of latch arms, spacers and divider firmly together, the latches being pressed forcibly against the divider to cause the latches to bear frictionally against the divider and to provide solid and stable support for maintaining the pivot pin in a fixed attitude on the thin divider, a tray set on the floor member behind the peripherally extending flange of the floor member and having lateral walls that extend alongside the respective compartment bounding dividers, each lateral wall including an externally disposed horizontally extending tongue onto which the latch may be turned for holding the tray down in place on the floor member.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 28,241 | Richards | May 8, 1860 |
| 562,137 | MacDonald | June 16, 1896 |
| 622,202 | Brink | Apr. 4, 1899 |
| 637,160 | Richter | Nov. 14, 1899 |
| 1,290,982 | Haigh | Jan. 14, 1919 |
| 2,311,130 | Rosenberg | Feb. 16, 1943 |
| 2,327,742 | Rosenberg | Aug. 24, 1943 |
| 2,354,835 | Rosenberg | Aug. 1, 1944 |