

May 25, 1937.

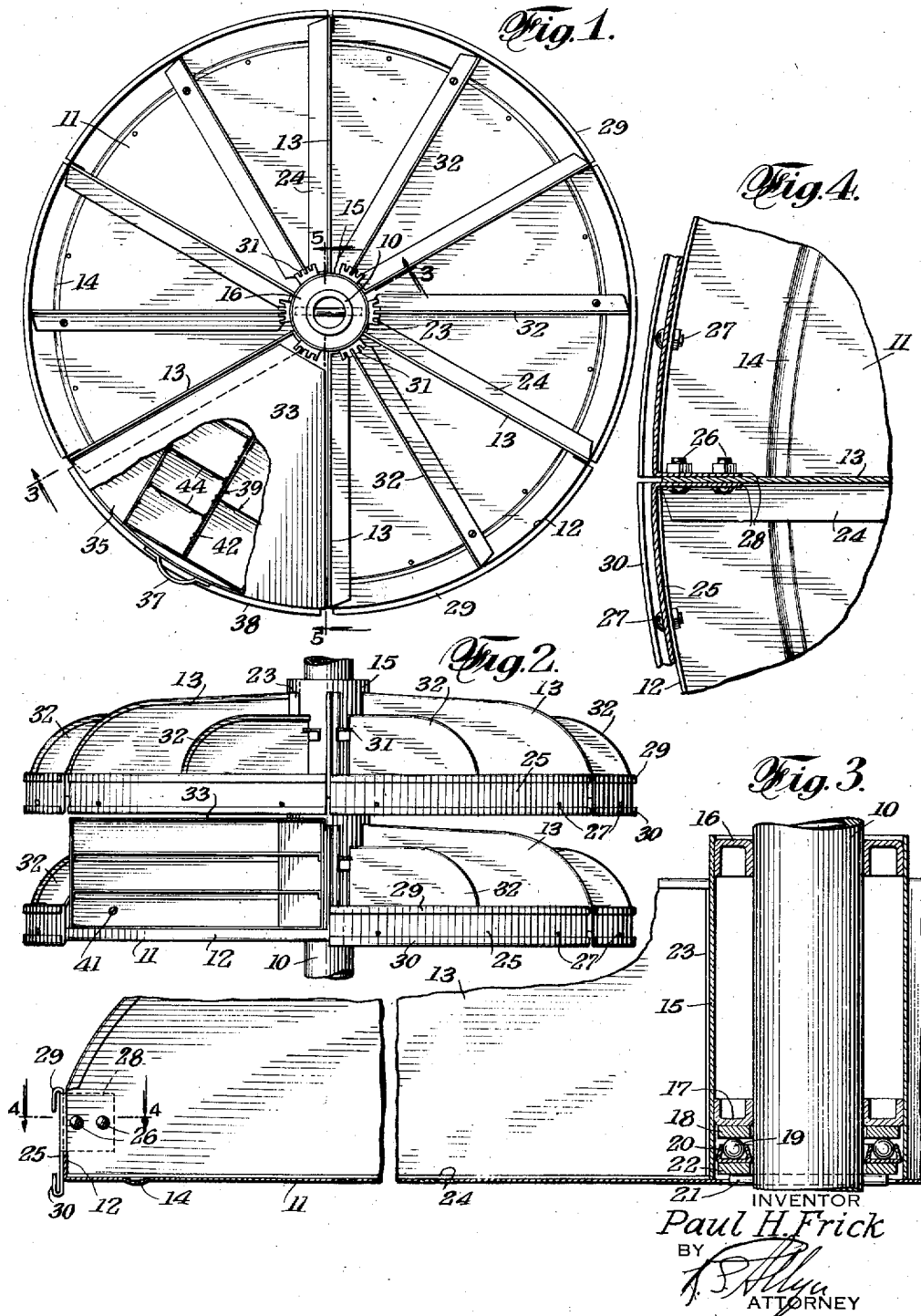
P. H. FRICK

2,081,856

ROTATABLE BIN

Filed Oct. 22, 1934

2 Sheets-Sheet 1



May 25, 1937.

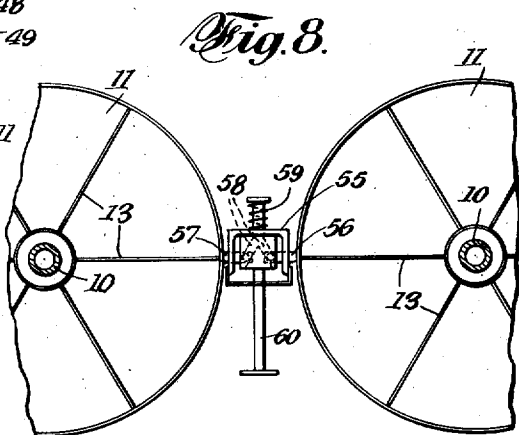
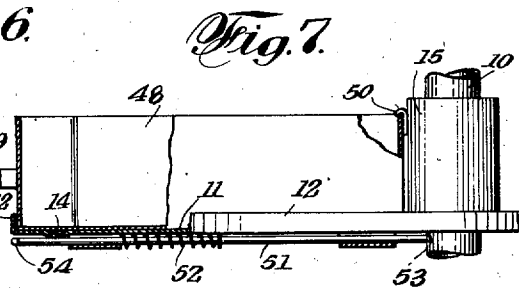
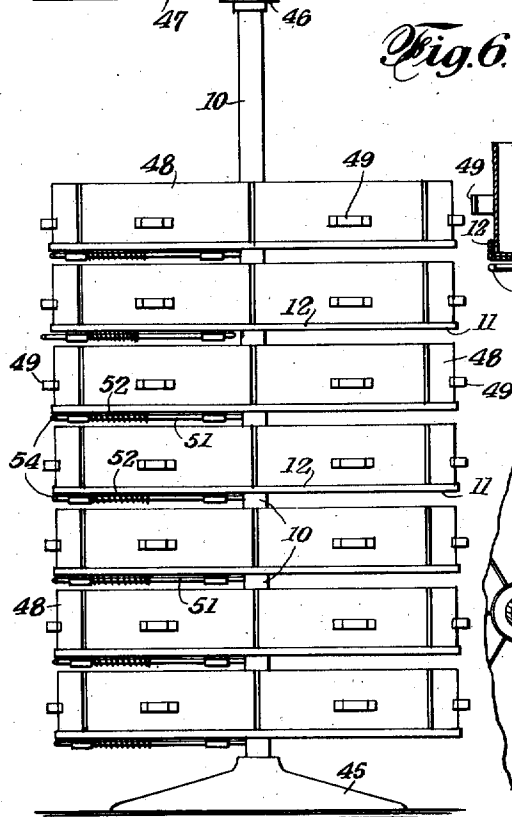
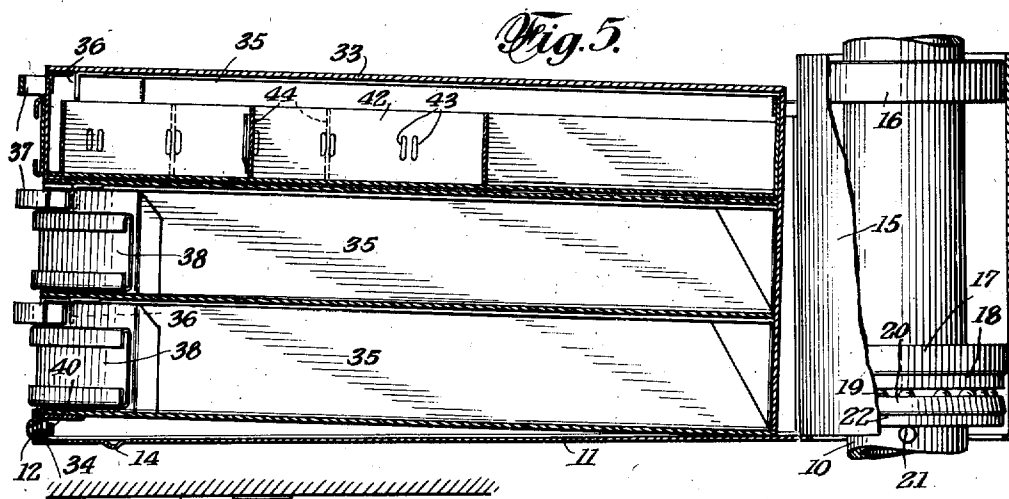
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2 Sheets-Sheet 2



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2,081,856

ROTATABLE BIN

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Application October 22, 1934, Serial No. 749,366

7 Claims. (Cl. 211—131)

This invention relates to rotatable bins of the sort used in tool rooms and store rooms and retail stores for storage and display purposes, and has for its object to increase the strength, space economy, and field of usefulness of such bins, without a corresponding increase in size or weight of the bin.

Another object is to provide a rotatable bin section which is especially adapted for use on ship-board or on field service trucks and the like, where the bins are subjected to considerable jarring or swaying.

Heretofore rotatable bins have been designed in a manner which has not been as economical of space as is the present bin. One rotatable bin section formerly on the market has had a front flange that was applied under tension to the circular bottom portion, sometimes resulting in a buckling of the bottom out of shape due to the tension of this front flange and irrespective of the load on the bottom. This prior bin section had dividers which were not secured to the front flange. Under this invention these disadvantages have been eliminated and the bottom of the bin section strengthened without recourse to the tensioned front flange but having the bottom portion not only provided with a strengthening rib but also supported between the dividers by means of a removable front flange which is secured to the dividers.

Additional improvements have made this bin adapted to the rigid requirement for space economy aboard a ship and also provided each of the rotatable bin sections with latching means to retain it against swinging or swaying with the ship or vehicle on which it is carried.

Referring to the drawings:

Fig. 1 is a top plan view of a preferred embodiment of this invention, with parts broken away to show one of the drawer units in place.

Fig. 2 is a side or elevation view showing two of the rotatable bin sections of this invention.

Fig. 3 is an enlarged section on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged section on the line 4—4 of Fig. 3.

Fig. 5 is a section on the line 5—5 of Fig. 1.

Fig. 6 shows a rotatable bin of this invention adapted for use on a ship or truck.

Fig. 7 is a side view partially in section of one of the bin sections in Fig. 6.

Fig. 8 is a top plan view of a pair of juxtaposed bins for marine or truck use.

A number of rotatable bin sections are separately supported on an upstanding post 10 so

that each bin section may be rotatable without having any of the weight of superposed bin sections carried by it. Each bin section comprises a bottom portion 11 provided with a small peripheral flange 12 extending all around the bottom portion. Dividers or partitions 13 are secured to the bottom portion 11 by a laterally bent flange, and these dividers are also secured to the sleeve 15 in a similar manner. A strengthening rib 14 adjacent the periphery of the bottom portion is generally arranged to extend downward or in an opposite direction to the way the flange 12 extends.

Within the sleeve 15 are spaced bushings 16 and 17, each spot welded to the sleeve and serving as guides or bearings for contact with the post 10. The lower bushing 17 is arranged above the bottom of the bin in order to provide a recess within which antifriction bearings are mounted, these bearings comprising an upper race ring 18, balls or rollers 19 held within a cage 20, and a lower supporting and race ring 22. A pin 21 extending through the post 10 supports the lower ring 22 and the part which encloses the antifriction bearing means.

Instead of the bin section front being a tensioned and non-removable band, the bin section fronts of this invention are removable between pairs of dividers 13 and also adapted to assist in supporting the peripheral bottom portion between such dividers.

The bin section front in this invention is in parts or sections, each section 25 constituting a removable front flange which is secured at each end to a divider 13 by means of the bolts 26, and also secured to the flange 12 by means of bolts 27. As shown in Fig. 4, each front for a bin section is provided with a flange 28 by means of which it is removably secured to one of the dividers. The height of the front 25 depends on the nature of the contents for which the bin section is adapted, and where the space between the pair of dividers 13 carries a drawer section the front 25 is removed. As shown in Fig. 3, bent-over flanges 29 and 30 provide means by which cards or other appropriate markers or identification means may be attached for each bin section. Where the space between the pair of dividers 13 is larger than is needed, the sector may be found subdivided by an additional partition or removable divider 32, which is braced to the sleeve 15 by the intermediate divider supports 31 illustrated. The partitions 32 have bottom flanges similar to the bottom flanges 24 on the dividers 13 but generally the partitions 55

32 are only bolted to the bottom portion 11 as illustrated, instead of being spot welded thereto as are the flanges 24 of the permanent dividers. Where desirable the dividers 13 may also be bolted to the bottom 11 instead of having their lower flange 24 spot welded to the bottom but the spot welding is preferable in order that these dividers 13 may constitute a supporting means for the bottom portion 11 at all times.

Fig. 3 shows how the lateral flange 23 at the rear of each divider is also preferably spot welded to the sleeve, though here again bolts may be used where it is necessary to obtain wider storage space than is available between a pair of the dividers 13, as illustrated in Fig. 1.

A housing 33, shown in Figs. 1, 2 and 5, is shaped for insertion between a pair of dividers 13 to support a plurality of drawers 35. The drawer housing 33 is provided with a front depending flange 34 of a height sufficient to enable the bottom drawer of the unit to be opened over the top of the front flange 12. In order that the drawer housings may also assist in supporting bottom portion 11, the lateral walls of these housings may be secured to the dividers 13 by bolts 41, and also the flanges 12 and 34 may be fastened by bolts 40. To the top of each drawer compartment adjacent the front is secured an angle piece 36 for the purpose of engaging the rear wall of a drawer in order to prevent the drawer being pulled all the way out and the contents becoming spilled. Each drawer is preferably provided with handles 37 below which is mounted a card or label holder 38, as shown in Figs. 1 and 5. A drawer may have partitions 39 subdividing its contents in almost any manner desired. Ease of adjustment in the partition arrangement may be obtained by having the longitudinal partitions 42 provided with stamped lugs 43 between which transverse partitions 44 may be slidable.

The bin sections in Fig. 6 are preferably similar to those in the preceding figures except that a number of drawer units are used between the dividers, each rotatable bin section being provided with a latching means to hold it against rotation. Since the supporting post 10 may be subjected to substantial flexural stresses when supporting a number of heavily loaded bins on a vehicle or vessel encountering rough travel, it is desirable to have the post base 45 secured to the floor and at the top have the post provided with a cap 46 secured to a ceiling beam 47 or other convenient and substantially rigid portion. The bottom portion 11 of each rotatable bin section is still provided with a strengthening rib 14 and front flange 12. Each drawer 48 has a handle 49 by means of which it may be lifted over the front flange 12. To anchor the drawer against thrusts upon the front flange 12 a hook 50 secured to the sleeve 15 is bent over the rear wall of the drawer, and in order to disengage the rear wall from the hook 50 it is necessary to raise the front of the drawer section by the aforementioned amount sufficient to clear the front flange 12. Below the bottom portion 11 each rotatable bin section is provided with a latch 51 engaging a recess 53 in the post 10, a spring 52 cooperating with the bottom 11 and a collar on the latch 51 continually urges the latch inwardly toward the post 10. Ordinarily the post is provided with but one recess 53 for each bin section so that it will only be latched with the handle 54 at the front.

The latch does not substantially oppose rota-

tion of the bin section yet the spring 52 is strong enough to cause the latch to be held in the recess 53 to keep the bin section from rotating with the motion of the ship in case the bin section should be more heavily loaded on one side than another. To unlatch the bin section the handle 54 is pulled out against the action of the spring 52 and the bin section rotated to obtain access to the desired drawer 48. Fig. 6 shows how the latch handles 54 of each bin are preferably aligned.

A modified form of latching means is illustrated in Fig. 8 where the spring pressed latch engages a recess in the peripheral flange 12 instead of engaging the post 10. In Fig. 8 the peripheries of two rotatable bin sections are adjacent one another, the intermediate space containing a supporting column 55, in which are mounted latches 56 and 57 shaped to engage a recess or perforation in the flange 12. Each of these latches engages an inclined groove 58 in a block on the control rod 60 so that when the rod is pulled forward the grooves 58 cause the latches 56 and 57 to be retracted to permit rotation of either or both bin sections. Upon release of the control rod the spring 59 acting upon the flange at the end of the spring pushes the rod back to the position shown in Fig. 8 so that the latches may both engage their perforations simultaneously. Instead of having both engage simultaneously it will be understood that other embodiments may be used in which each latch may separately engage its perforation irrespective of the position of the other latch.

Among the advantages of this invention may be enumerated the greater strength and weight carrying capacity of a rotatable bin section without corresponding increase in weight, due to the bottom portion being stiffened by means of the strengthening rib 14 and the peripheral flange 12. There is no danger of the bottom portion becoming distorted out of shape by the tension of any front flange. Instead of a non-removable front flange, the removable bin front also assists in supporting the bottom portion inasmuch as it is bolted to the dividers 13 and to the peripheral flange 12. The sleeve 15 supports the bottom portion 11 through the dividers 13. The intermediate dividers or partitions 32 are substantially rigid since they are secured to the bottom portion and also secured against bending by means of the divider supporting members 31 which are spot welded onto the sleeve 15. With the removable front for a bin section the space between a pair of dividers may be substantially open or closed to the height desired. The bin sections intended for carrying drawer units do not have to be constructed differently from those carrying the fronts 25. The front flange 12 is generally made small, only about three-eighths of an inch or less in height. The latching means illustrated in Figs. 6, 7 and 8 adapt the rotatable bins of any type illustrated for use on vehicles. The embodiment shown in Fig. 8 latches the bin sections at the front and avoids any substantial bending moment in case the bins of Figs. 6 and 7 are of large diameter and heavily loaded. Fig. 8 differs from Figs. 6 and 7 only in respect to the latch construction, location and operation. The individual bin sections are separately mounted on antifriction rollers so that no one bin section has to carry the weight of a superposed section in turning.

If desired it will be understood that the drawers shown in Fig. 5 need not be inclined rearwardly as illustrated but may be placed flat by doing away with the bottom supporting flange 34 and

allowing the drawer housing to rest in back of the front flange 12. In removing the bottom drawer this would necessitate raising the drawer housing as well as the drawer to clear the front flange 12.

5 The hook 50 in Fig. 7 is preferably of the size and shape so that substantially more tilting or raising of the front of the drawer is necessary to free the drawer from the hook than is necessary to clear the front flange 12. In this way if 10 the drawer 48 should be lightly loaded and subjected to shocks which might cause it to bounce high enough to clear the flange 12, the hook 50 will still retain it from coming out. In other 15 words, the hook 50 is disengaged only when the front of the drawer is lifted more than high enough to clear the flange 12 so that this hook may be the functional equivalent of a much higher flange 12. In Fig. 6 it may be desirable to use 20 an angle stop on the underside of the revolving bin just above the drawer, for the purpose analogous to that of the stop 36 in Fig. 5. Such a stop need only be placed at the front or adjacent the latch handle 54, since any drawer, when with- 25 drawn is pulled out only after the bin section has been rotated to bring it to the front. In such a case the use of a stop near the front will engage the rear of the drawer to prevent its falling out.

30 The drawers 48 instead of being of solid sheet metal are generally provided with perforations of a size to enable the contents to be visible and yet small enough to prevent any of the contents falling out, or a suitable mesh or screen may be 35 used for the sides of these drawers.

I claim:

1. A rotatable bin comprising a bin section bottom adapted to rotate about a supporting post axis, at least one stamped strengthening rib extending around said post and in said bin section bottom adjacent but inward of the periphery thereof, and a peripheral integral strengthening flange on said section bottom extending in the opposite direction to said rib, a sleeve surrounding said post axis and to which the bottom is attached, and divider positioning and supporting means secured to said sleeve for engaging the opposite faces of a divider above said section bottom.

50 2. A rotatable bin comprising a bin section bottom adapted to rotate about a supporting post, a stamped strengthening rib formed in said section bottom adjacent but inward of the periphery thereof, a peripheral, integral flange on said section bottom extending in the opposite 55 direction to said rib, a sleeve surrounding said post and to which the bottom is attached, divider positioning means secured to said sleeve, dividers secured to said sleeve and bottom, and a removable bottom supporting bin section front of less than 180 degrees in extent, secured adjacent 60 each end to dividers which are secured to the sleeve, and said bin section front being also secured to the peripheral flange on the bottom.

3. A rotatable bin section comprising a bottom, a sleeve to which the bottom is secured to be rotatable about a post axis, dividers each separately secured to said sleeve and bottom, a plurality of bin section fronts removable with 5 respect to said dividers and each of which is removably secured to a divider adjacent each end of the front and also removably secured to the bottom whereby the dividers and bin section fronts assist in supporting the bottom at more 10 than two angularly spaced portions.

4. The combination with a pair of spaced posts about each of which a plurality of rotatable bin sections are mounted, of a third post fixedly secured about midway between said pair of posts, 15 means adjacent the top and bottom of each of said pair of posts for positioning them, a spring pressed detent means carried by the third post for latching each rotatable bin section against rotation, and means for unlatching a pair of rotatable bin sections on about the same level, from a position back of the front of said bin 20 sections.

5. A bin section adapted to be mounted on a post for rotation about the post axis, said bin section comprising a bottom portion, a sleeve through which the post axis passes and to which the bottom is secured, dividers having flanges secured to said sleeve and bottom for supporting 25 said bottom portion, the radially outer upper edge portion of said dividers being out of contact and unsupported against flexing, means adjacent the periphery of the bottom portion for stiffening the bottom between said dividers, and means for removably securing another divider 30 to said bottom portion intermediate said first mentioned dividers, and for bracing the inner end of said last mentioned divider against flexing of the upper portion of the divider.

6. A rotatable bin section comprising a bottom adapted to rotate about a central supporting post axis, a central sleeve about said post axis, dividers each angularly spaced and held by said sleeve and bottom, the top edge of said dividers being unsupported, and a removable bin section front having end flanges bent to lie contiguous the outer portion of said dividers, fasten- 45 ing means holding said flanges against radially outward movement and means for securing said bin section front to said bottom between said end flanges and dividers.

7. A rotatable bin section comprising a bottom adapted to rotate about a central supporting post axis, dividers each angularly spaced 55 from the others and held by said bottom, a removable bin section front having end flanges bent to lie contiguous only the outer portion of a pair of dividers, and means cooperating with said pair of dividers adjacent their outer ends for holding said end flanges against radial outward movement and for supporting said front at least in part independently of said bottom.

PAUL H. FRICK.

DISCLAIMER

2,081,856.—Paul H. Frick, Narberth, Pa. ROTATABLE BIN. Patent dated May 25, 1937. Disclaimer filed September 10, 1941, by the assignee, The Frick-Gallagher Manufacturing Company.

Hereby enters this disclaimer to claims 1, 2, 3, 5, 6, and 7 of said Letters Patent.

[Official Gazette September 30, 1941.]

allowing the drawer housing to rest in back of the front flange 12. In removing the bottom drawer this would necessitate raising the drawer housing as well as the drawer to clear the front flange 12.

The hook 50 in Fig. 7 is preferably of the size and shape so that substantially more tilting or raising of the front of the drawer is necessary to free the drawer from the hook than is necessary to clear the front flange 12. In this way if the drawer 48 should be lightly loaded and subjected to shocks which might cause it to bounce high enough to clear the flange 12, the hook 50 will still retain it from coming out. In other words, the hook 50 is disengaged only when the front of the drawer is lifted more than high enough to clear the flange 12 so that this hook may be the functional equivalent of a much higher flange 12. In Fig. 6 it may be desirable to use an angle stop on the underside of the revolving bin just above the drawer, for the purpose analogous to that of the stop 36 in Fig. 5. Such a stop need only be placed at the front or adjacent the latch handle 54, since any drawer, when withdrawn is pulled out only after the bin section has been rotated to bring it to the front. In such a case the use of a stop near the front will engage the rear of the drawer to prevent its falling out.

The drawers 48 instead of being of solid sheet metal are generally provided with perforations of a size to enable the contents to be visible and yet small enough to prevent any of the contents falling out, or a suitable mesh or screen may be used for the sides of these drawers.

I claim:

1. A rotatable bin comprising a bin section bottom adapted to rotate about a supporting post axis, at least one stamped strengthening rib extending around said post and in said bin section bottom adjacent but inward of the periphery thereof, and a peripheral integral strengthening flange on said section bottom extending in the opposite direction to said rib, a sleeve surrounding said post axis and to which the bottom is attached, and divider positioning and supporting means secured to said sleeve for engaging the opposite faces of a divider above said section bottom.

2. A rotatable bin comprising a bin section bottom adapted to rotate about a supporting post, a stamped strengthening rib formed in said section bottom adjacent but inward of the periphery thereof, a peripheral, integral flange on said section bottom extending in the opposite direction to said rib, a sleeve surrounding said post and to which the bottom is attached, divider positioning means secured to said sleeve, dividers secured to said sleeve and bottom, and a removable bottom supporting bin section front of less than 180 degrees in extent, secured adjacent each end to dividers which are secured to the sleeve, and said bin section front being also secured to the peripheral flange on the bottom.

3. A rotatable bin section comprising a bottom, a sleeve to which the bottom is secured to be rotatable about a post axis, dividers each separately secured to said sleeve and bottom, a plurality of bin section fronts removable with respect to said dividers and each of which is removably secured to a divider adjacent each end of the front and also removably secured to the bottom whereby the dividers and bin section fronts assist in supporting the bottom at more than two angularly spaced portions.

4. The combination with a pair of spaced posts about each of which a plurality of rotatable bin sections are mounted, of a third post fixedly secured about midway between said pair of posts, means adjacent the top and bottom of each of said pair of posts for positioning them, a spring pressed detent means carried by the third post for latching each rotatable bin section against rotation, and means for unlatching a pair of rotatable bin sections on about the same level, from a position back of the front of said bin sections.

5. A bin section adapted to be mounted on a post for rotation about the post axis, said bin section comprising a bottom portion, a sleeve through which the post axis passes and to which the bottom is secured, dividers having flanges secured to said sleeve and bottom for supporting said bottom portion, the radially outer upper edge portion of said dividers being out of contact and unsupported against flexing, means adjacent the periphery of the bottom portion for stiffening the bottom between said dividers, and means for removably securing another divider to said bottom portion intermediate said first mentioned dividers, and for bracing the inner end of said last mentioned divider against flexing of the upper portion of the divider.

6. A rotatable bin section comprising a bottom adapted to rotate about a central supporting post axis, a central sleeve about said post axis, dividers each angularly spaced and held by said sleeve and bottom, the top edge of said dividers being unsupported, and a removable bin section front having end flanges bent to lie contiguous the outer portion of said dividers, fastening means holding said flanges against radially outward movement and means for securing said bin section front to said bottom between said end flanges and dividers.

7. A rotatable bin section comprising a bottom adapted to rotate about a central supporting post axis, dividers each angularly spaced from the others and held by said bottom, a removable bin section front having end flanges bent to lie contiguous only the outer portion of a pair of dividers, and means cooperating with said pair of dividers adjacent their outer ends for holding said end flanges against radial outward movement and for supporting said front at least in part independently of said bottom.

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