

July 6, 1937.

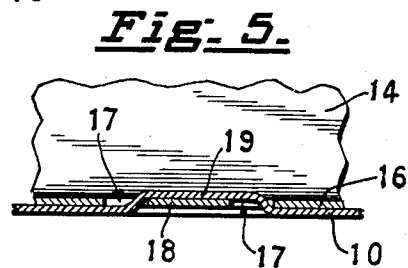
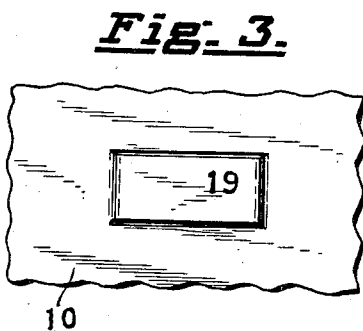
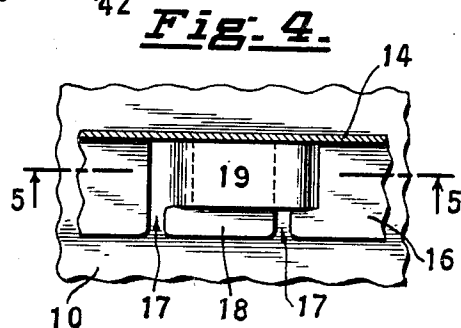
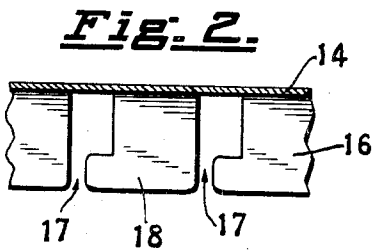
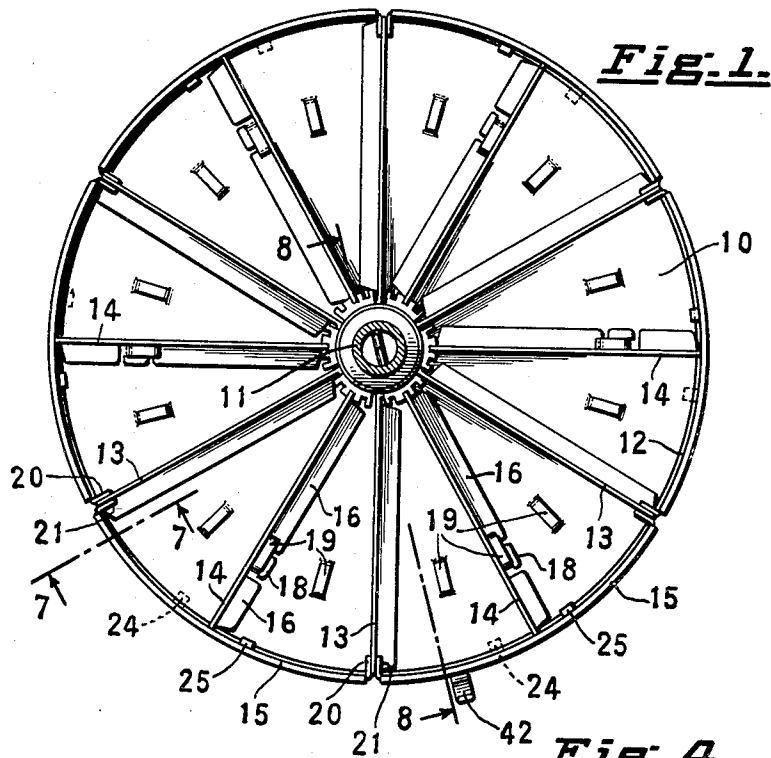
A. W. MUELLER

2,086,508

ROTATABLE BIN

Filed Jan. 8, 1936

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 6.

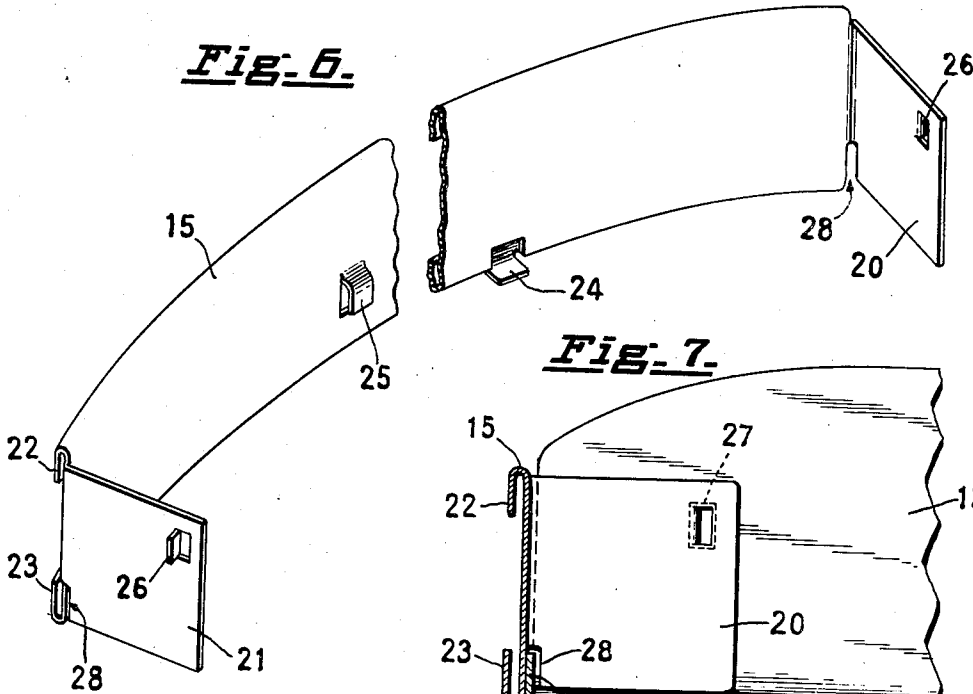


Fig. 7.

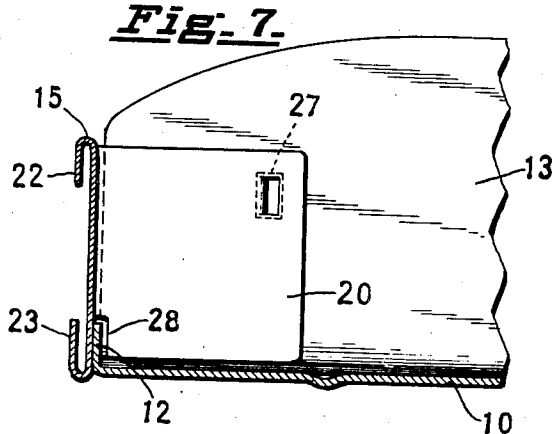


Fig. 8.

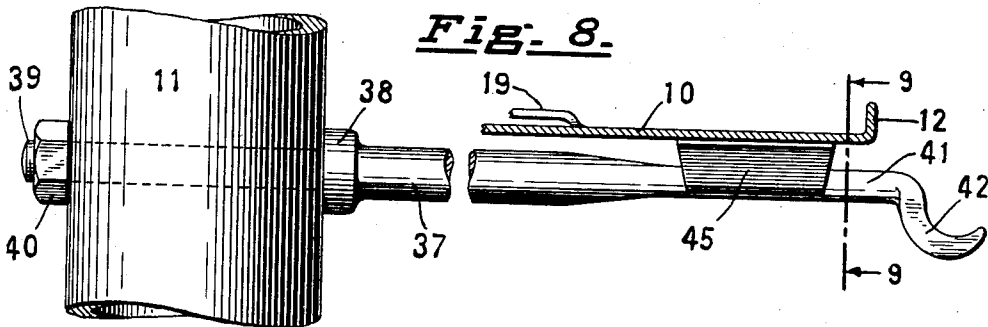
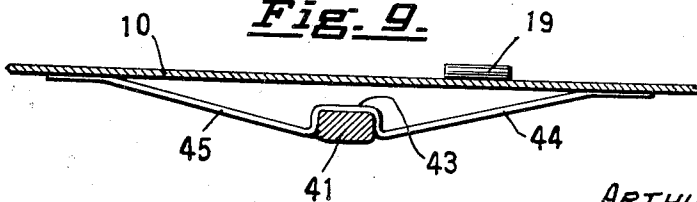
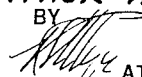


Fig. 9.



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3 Sheets-Sheet 3

Fig. 10.

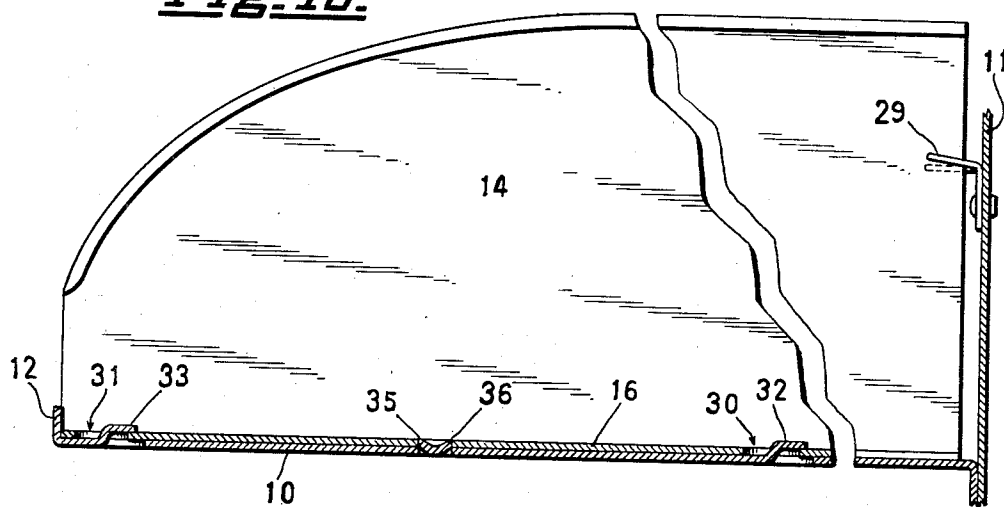


Fig. 11.

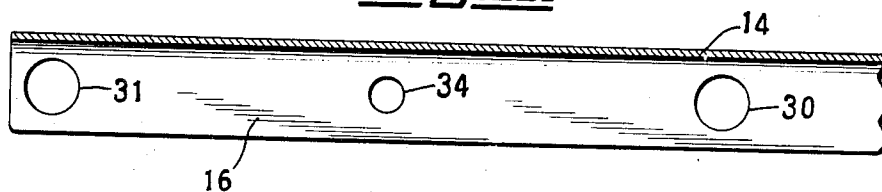
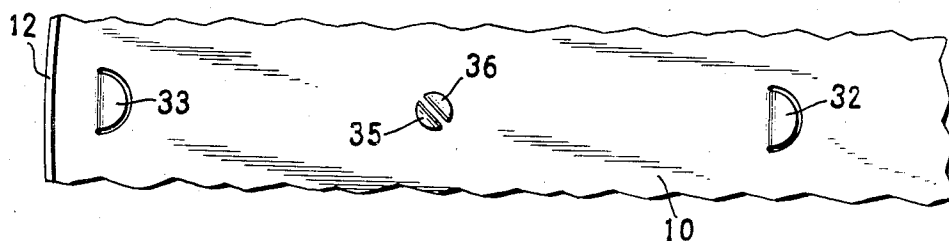


Fig. 12.



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UNITED STATES PATENT OFFICE

2,086,508

ROTATABLE BIN

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a corporation of Ohio

Application January 8, 1936, Serial No. 58,071

15 Claims. (Cl. 211-131)

This invention relates to bins especially of the rotatable type and has for its object to simplify their construction and lessen the time and expense necessary in their assembly.

5 Another object is to provide a removable divider which is not in danger of being accidentally disconnected and not in danger of having any longitudinal or transverse movement of the divider with respect to the bin section or shelf
10 floor.

Another object is to provide a removable bin front which is flexible and adapted to be sprung into place and which is also in contact above and below and in front and in back of a low front
15 flange to the bin floor.

A further object is to provide a lock or latching device for a rotatable bin which is effective, slightly yieldable, and adapted to function near the periphery of the bin without the necessity of
20 having a separate support for the latch or its cooperative recess.

Fig. 1 is a top plan view of a bin section having a number of removable dividers.

Fig. 2 is a detail showing the configuration of
25 stamped out portions on the flange of a removable divider.

Fig. 3 illustrates a strap portion stamped up from the floor of a bin section.

Fig. 4 is a top plan view of the flange projection fully engaged within the strap on the bin
30 floor.

Fig. 5 is a section on the line 5-5 of Fig. 4.

Fig. 6 is a perspective of a removable bin front.

Fig. 7 is a section on the line 7-7 of Fig. 1.

35 Fig. 8 is a section on the line 8-8 of Fig. 1.

Fig. 9 is a section on the line 9-9 of Fig. 8.

Fig. 10 is a longitudinal section through a part of a bin section showing a removable divider in
40 said elevation.

Fig. 11 shows perforations in the flange of the divider of Fig. 10.

Fig. 12 shows stamped up projections on the base of the bin section shown in Fig. 10 and adapted to cooperate with the flange of Fig. 11.

45 A rotatable bin section 10 is mounted on an axial supporting post 11 and provided with an integral front flange 12 such as has been described in the copending application of Paul H. Frick, Serial Number 749,366, filed October 22,
50 1934, for Rotatable bin.

A number of permanent dividers 13 have their bottom flanges welded or otherwise secured to the floor of the bin section and such dividers may be
55 six in number as illustrated or any other con-

venient number desired. Between a pair of permanent dividers 13 is shown a removable divider 14 having its front edge lying closely adjacent a removable bin front 15, the bottom flange 16 on said removable dividers 14 being provided with
5 quick detachable connecting means for cooperation with a complementary portion 19 of said quick detachable connection attached to the floor of said bin section. As shown in Fig. 2 a pair of
10 recesses 17 of the shape illustrated are stamped out of the flange 16 to form a tongue 18 therebetween, said tongue 18 being adapted to engage under the strap 19 on transverse movement of the divider with respect to the bin floor.

After the tongue has been pushed through the
15 strap 19 the removable divider 14 is then given a slight longitudinal radially outward movement in order for the strap 19 to have one of its end portions engaged by the enlarged head portion of the projection 18 as illustrated in Figs. 4 and
20 5 to prevent lateral movement of the divider. The inner upstanding edges of the dividers are placed within guides secured to the supporting post and adapted to hold these inner edges of the
25 dividers against transverse movement.

As shown in Fig. 1 the bin section illustrated is provided with enough straps 19 on its floor to enable additional removable dividers to be used or to enable one removable divider to be placed in
30 different angular positions.

It will be understood that each removable divider 14 is secured in position by first engaging its inner edge within one of the guide notches shown, then swinging the divider in a counter-
35 clockwise direction as shown in Fig. 1 in order to move the tongue or projection 18 through the strap or recess 19 in the floor of the bin. The divider is then moved radially outward as illustrated in Fig. 4 until the divider is then locked
40 against lateral movement. In the same way to disengage or remove a divider 14 it is first moved radially inward and then given a transverse movement sufficient to disengage the tongue 18 from
45 under the strap 19.

The removable bin front shown in Fig. 6 has end flanges 20 and 21 and front flanges 22 and 23 bent over as illustrated to provide suitable means for holding labels or index cards or other means
50 for identification of the contents of the bin section. The bin front 15 is also provided intermediate the end flanges with a flange 24 extending radially inward and adapted to engage the underside of a bin section. As shown in Fig. 6
55

the flange 24 extends inwardly from the lower front flange 23.

Another intermediate flange 25 on the bin front is so shaped and positioned that it is adapted to fit over and in back of the integral front flange 12 of the bin section. Stamped out of the end flanges 20 and 21 are projections 26 adapted to engage a cooperative recess 27 in the permanent dividers 13. The portion of the end flanges 20 and 21 adjacent the bin front are cut away at 28 to provide clearance for the integral front flange 12.

In order to secure one of the removable bin fronts in position, with the bin front swung above the front flange 12, the end flanges 20 and 21 are flexed sufficiently toward each other to enable them to be inserted contiguous the permanent dividers and with the projections 26 engaging the recesses 27. From Fig. 7 it will be seen that the recess 27 is sufficiently larger than the projection 26 and larger than two projections 26, so as to enable the bin front to have the projections 26 engage the recesses 27 and then be swung about the projections 26 as pivots until the flange 24 slides under the bin section, and the flange 25 over and in back of the front flange 12.

This attachment requires the bin front flanges to be flexed sufficiently to be sprung into place. It is removed in a reverse manner to that just described. The recesses 27 in the permanent dividers are large enough so as to receive the projection 26 from the opposite side from that containing the first projection 26, so that each perforation 27 receives two projections, one extending from one side and the other from the opposite side.

In Figs. 10 to 12 is shown the preferred embodiment of a removable divider whose rear edge is received within a guide 29 and whose bottom flange 16 is provided with recesses 30 and 31 of the shape illustrated and of a size sufficient to receive the stamped projections 32 and 33 which extend up from the floor of a bin section. Intermediate the recesses 30 and 31 is a smaller recess 34 for cooperation with the two smaller projections 35 and 36 which are also stamped up from the floor of the bin section. After the inner edge of the removable bin section 14 has been engaged in the guide 29, the holes 30 and 31 are adapted to receive the projections 32 and 33 respectively. On slight radially outward movement the stamped up portions 32 and 33 serve as headed projections to overlie a portion of the bottom flange 16 and hold the divider against transverse movement. During this slight radial outward movement the flange 16 adjacent the perforation 34 is flexed upwardly until the recess 34 fits over and receives the small unheaded projections 35 and 36.

As shown in Fig. 10 these small projections are formed by bending up portions of the floor 10 so as to constitute with the perforation 34 a yieldable unheaded projection and recess connection intermediate the headed projection and recess connections 30 and 32, 31 and 33. This intermediate connection serves to hold the removable divider 14 against being moved even accidentally radially inwardly an amount such that the headed projections might be disengaged from their recesses.

To disengage the divider of Figs. 10 to 12 it is sufficient to grasp the upper edge portion of the divider above the yieldable projection and recess connection and flex it in a clockwise direction sufficient to cause the flange 16 to be sprung

upwardly intermediate the headed projection and recess connections until the recess 34 is raised clear of the walls of the projections 35 and 36 when a slight radially inward movement of the divider will then serve to disengage the headed projections 32 and 33 from their recesses 30 and 31.

In Figs. 8 and 9 is shown an improved latching or locking device for a bin section which includes a bar 37 provided with an enlarged portion 38 adapted to abut the supporting post 11 on which the bin sections are mounted. A portion of the bar 37 extends through the post and out the other side where at 39 it is threaded to receive a nut 40 for holding the bar securely anchored to the post. The bar 37 then projects radially outward as a cantilever to adjacent the peripheral edge of its bin section. The outer end portion of the bar is made of rectangular shape 41 so as to be received within a notch or recess portion 43 formed in a member of strap material whose ends are spot welded to the underside of the bin floor. The outer end portion of the bar 37 is given a convenient shape 42 to receive a thumb or finger enabling it to be flexed downwardly sufficient to be disengaged from said recess 43 to unlock the bin section and enable it to be rotated about the supporting post 11.

The sides of the member containing the recess 43 are inclined as shown at 44 and 45, the purpose of such inclination being to exert an automatic wedging of the bar 37 downward so that as the bin section rotates from either direction to bring the recess 43 in alignment with the bar, said bar may be automatically engaged without the necessity of an operator having to manually flex the bar downward in order to engage its recess and lock the bin against rotation.

The bar 37 is also slightly yieldable laterally so that when a weighted bin is being swung into position to engage its recess 43 with the bar 37, the instant the bar snaps into the recess 43 the bin is not forced to suddenly stop, but the yieldability or flexibility of the bar 37 acts as a yieldable abutment to stop the rotation of the bin. If desired, the bar 37 may be either more flexible in a horizontal than a vertical plane or vice versa and more flexible in a vertical than in a horizontal plane, or substantially equally flexible in both directions.

Among the advantages of this invention may be mentioned the increased convenience and saving in time and labor of assembling additional dividers and bin fronts on to rotatable bin sections. Instead of having bolts to hold the removable bin fronts and dividers in place it is now possible to quickly and easily attach and remove either a divider or a bin front.

The connecting means for quickly detaching and attaching the dividers and bin fronts are all formed by stamping operations which makes for economy in production. By making the divider detachable by a longitudinal inward movement the removable divider may be mounted substantially contiguous a removable bin front. If desired, the front edge of the removable divider may be notched to receive the front flange 12 and enable the forward edge of the divider to be substantially contiguous the removable divider 15. After the divider has been moved longitudinally it is locked against any lateral movement which might cause it to be disengaged.

The intermediate and unheaded projection and recess connection shown in Figs. 11 and 12 functions in the nature of a snap fastener or yieldable

connection to hold the divider against longitudinal movement and accidental disconnection, and yet enables the divider to be removed only by the desired lateral flexure of its upper edge portion enough to raise the flange 16 clear of the walls of the projections 35 and 36.

Another advantage of this invention is the absence of any headed securing means such as bolts or rivets which might extend below the floor of the bin section. The quick detachability of the dividers and bin fronts enables the use of drawers and the like in part of a bin section. The fact that the removable bin front is sprung into position assists in holding it securely in place when attached.

I claim:

1. A rotary bin section having a curved peripheral portion, a pair of dividers for said bin, a curved front wall for the bin removably connected to the dividers, end flanges on said wall adapted to lie contiguous said dividers, a projection and recess connection between each divider and end flange, said end flanges being at least slightly flexible to permit engagement and disengagement of said projections and recesses.

2. A rotary bin section, a pair of dividers for said bin section, a front wall for the bin removably connected to the dividers, end flanges on said wall adapted to lie contiguous said dividers, a projection and recess connection between each divider and end flange, said end flanges being at least slightly flexible to permit engagement and disengagement of said projections and recesses, a divider connected to the floor of said bin between said pair of dividers and having its front end adjacent said front wall, said last mentioned divider being removable from the bin without removal of said front by sliding said removable divider radially inward.

3. A rotary bin section, a pair of dividers for said bin section, a front wall for the bin removably connected to the dividers, end flanges on said wall adapted to lie contiguous said dividers, a projection and recess connection between each divider and end flange, said end flanges being at least slightly flexible to permit engagement and disengagement of said projections and recesses, a divider connected to the floor of said bin between said pair of dividers and having its front end adjacent said front wall, said last mentioned divider being removable from the bin without removal of said front by sliding said removable divider radially inward, and a yieldable connection for holding the removable divider adjacent the front wall and against being pushed inward to disengage it from the rotatable bin floor.

4. A rotary bin section, a pair of dividers for said bin section, a front wall for the bin removably connected to the dividers, end flanges on said wall adapted to lie contiguous said dividers, a projection and recess connection between each divider and end flange, said end flanges being at least slightly flexible to permit engagement and disengagement of said projections and recesses, a divider connected to the floor of said bin between said pair of dividers and having its front end adjacent said front wall, said last mentioned divider being removable from the bin without removal of said front by sliding said removable divider radially inward, and a yieldable connection for holding the removable divider adjacent the front wall and against being pushed inward to disengage it from the rotatable bin floor, said yieldable connection being adapted to be dis-

engaged by lateral flexure of the top of said removable divider.

5. A rotary bin section, a pair of dividers for said bin section, a front wall for the bin removably connected to the dividers, end flanges on said wall adapted to lie contiguous said dividers, a projection and recess connection between each divider and end flange, said end flanges being at least slightly flexible to permit engagement and disengagement of said projections and recesses, said front wall being provided intermediate said end flanges with a flange adapted to lie substantially contiguous the floor of said bin and the projection and recess connections between said end flanges and dividers being loose enough to permit the front wall to have a limited swinging movement about said divider connections in moving said front wall into position, the periphery of the bin floor being provided with an integral flange, and another flange on said removable front adapted to fit around an edge and in back of said floor flange.

6. A rotary bin section having a peripheral flange bent up from and integral with the floor of said bin section, substantially radial dividers permanently secured to the floor of said bin section, a quick detachable arcuate front adapted to be held in place between said dividers and comprising flanges intermediate its ends at least one of which is adapted to fit under the floor of said bin section and another of which is adapted to fit over the top edge and in back of said peripheral flange to position said front, and flexible end flanges each adapted to lie contiguous the dividers at one end of said front and to engage said dividers, a lateral projection and recess type connection between each flexible end flange and divider and adapted to be sprung into place before said intermediate flanges have been engaged.

7. A metal shelf having an upstanding divider, the divider having a flange contiguous the shelf and a quick detachable connection between said flange and shelf comprising a headed projection on one part for operative engagement with a recess on the other part on relative movement between said divider and shelf longitudinally of the divider and a second projection and recess connection fixedly positioned between said shelf and flange and adapted for engagement only after the first projection and recess connection is fully and operatively engaged, said second projection and recess connection causing flexure between said flange and shelf prior to its engagement and after the first projection and recess connection has been engaged.

8. A bin section provided with a removable divider, an interlocking connection between said divider and bin section for holding the divider in position on the bin section without the aid of any bolts or rivets or the like, said interlocking connection being formed by stamping operations on the divider and floor of said bin section and being secured or released by limited longitudinal and lateral movements of said divider with respect to said bin, said divider having a bottom flange provided with a pair of lateral recesses therein, the bin floor being provided with a stamped up strap in which a tongue formed between said recesses is adapted to project, said recesses being shaped in such manner that on longitudinal shifting said divider the end portions of said strap are contiguous portions of the divider on each side thereof to prevent the divider being accidentally displaced laterally from its engagement with said strap.

9. The combination with a metal shelf, of a removable divider having a flange contiguous the shelf, means fixed with respect to said shelf and cooperating with an end edge portion of the divider above said shelf for holding that edge portion of the divider against transverse movement on the shelf leaving the top of the divider free of such holding means, the divider flange and shelf being provided with a quick detachable connection comprising longitudinally spaced headed projections on one part and recesses in the other part adapted to engage and hold the divider flange locked against transverse movement after it has been moved longitudinally, and a yieldable projection and recess connection intermediate the first mentioned projections and recesses and adapted to be engaged and disengaged after said first mentioned recesses and projections are in engagement.

10. The combination with a metal shelf, of a removable divider having a flange contiguous the shelf, means fixed with respect to said shelf and cooperating with an end edge portion of the divider above said shelf for holding that edge portion of the divider against transverse movement on the shelf leaving the top of the divider free of such holding means, the divider flange and shelf being provided with a quick detachable connection comprising longitudinally spaced headed projections on one part and recesses in the other part adapted to engage and hold the divider flange locked against transverse movement after it has been moved longitudinally, and a yieldable projection and recess connection intermediate the first mentioned projections and recesses, said divider being removable by flexing the top of the divider laterally to raise the portion of the flange adjacent said yieldable connection a sufficient amount to disconnect said second mentioned projection and recess and then longitudinally slide the divider to disconnect the first mentioned projection and recess connections.

11. The combination with a shelf, of a removable partition therefor and a quick detachable connection between said partition and shelf requiring lateral flexure of a part of said partition to effect a partial disengagement of said connection followed by a longitudinal movement of the partition to complete the disengagement of said connection, said detachable connection being yieldable and including a projection and recess connection between said partition and shelf, and a pair of projection and recess connections between said partition and shelf and between which the yieldable connection is located.

12. The combination with a shelf, of a removable partition therefor and a quick detachable connection between said partition and shelf requiring lateral flexure of a part of said partition to effect a partial disengagement of said connection followed by a longitudinal movement of the

partition to complete the disengagement of said connection, said detachable connection being yieldable and including a projection and recess connection between said partition and shelf, and a pair of projection and recess connections between said partition and shelf and between which the yieldable connection is located, the first mentioned connection being disengaged before the pair of connections and causing flexure of at least a portion of said partition or shelf before the pair of connections is disengaged.

13. 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 the outer portion of a pair of dividers, means cooperating with said pair of dividers adjacent their outer ends for holding said end flanges against radial outward movement, a third divider between a pair of the first mentioned dividers and having a flange along its lower edge to which said bottom is adapted to be fastened with the top edge of said divider unsupported, a support extending at least in part above said bottom but fixed with respect thereto, a notched guide for the rear edge of said second mentioned divider and fastened to said support, said divider being longitudinally movable away from said guide and support to engage the divider to said bottom, the divider being yieldably held in its outward position.

14. 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 the outer portion of a pair of dividers, means cooperating with said pair of dividers adjacent their outer ends for holding said end flanges against radial outward movement, said bin section front having stamped out portions adapted to engage the top and bottom of the peripheral edge of said bottom.

15. A bin section supported by a central post about the axis of which said section is rotatable, a bottom for said bin section, a pair of dividers permanently secured to said bottom and along their inner edge portions above the bottom being secured relatively thereto, at least one removable divider located between said pair of permanent dividers, and adapted to be secured to said bottom by a connection engaged on relative radial movement between said removable divider and bottom, said three dividers being unsupported along their top edges, and a notched guide for the inner edge of said removable divider fixed with respect to and above said bottom for bracing said removable divider against lateral movement or flexure.

ARTHUR W. MUELLER.

DISCLAIMER

2,086,508.—*Arthur W. Mueller*, Cincinnati, Ohio. ROTATABLE BIN. Patent dated July 6, 1937. Disclaimer filed May 28, 1940, by the assignee, *The Frick-Gallagher Manufacturing Company*.

Hereby enters this disclaimer as to that part of the specification which is expressed in claim 15 of said Letters Patent.
[*Official Gazette June 25, 1940.*]