Jan. 17, 1928. 1,656,868

A. DAVIS ET AL

METALLIC SHELVING

Filed June 20, 1921 2 Sheets-Sheet 1

Fig. 1

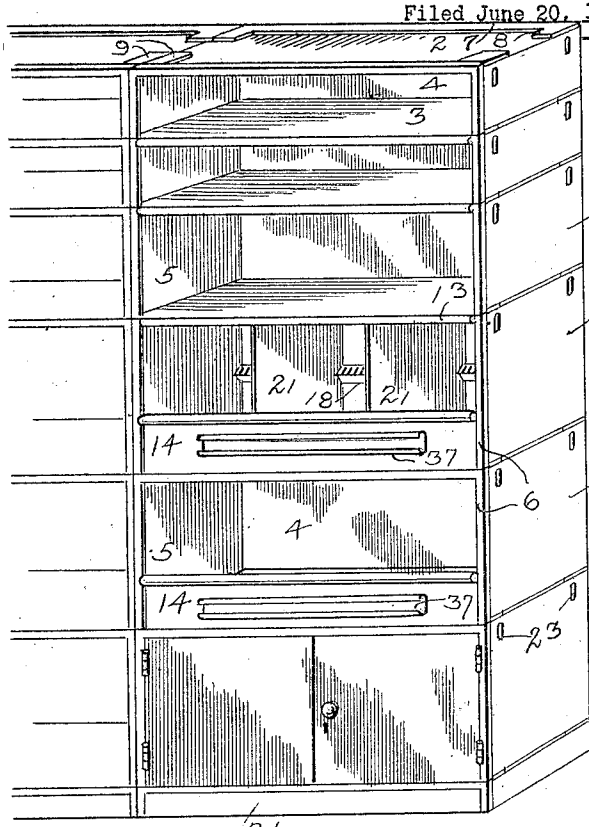


Fig. 2

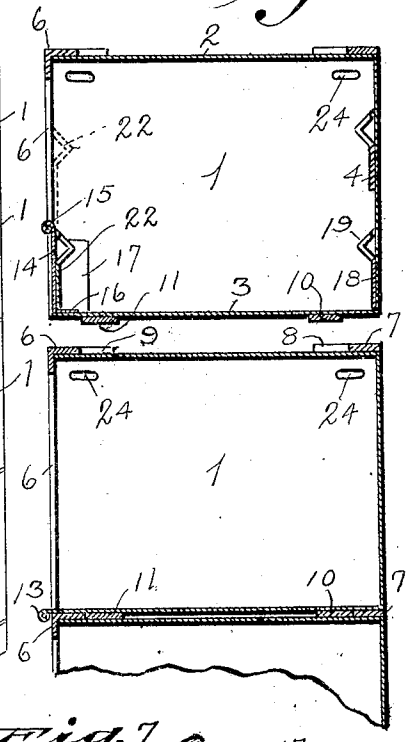


Fig. 3

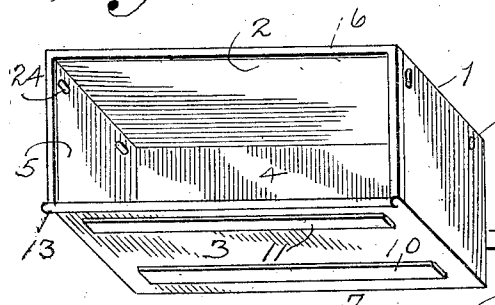


Fig. 7

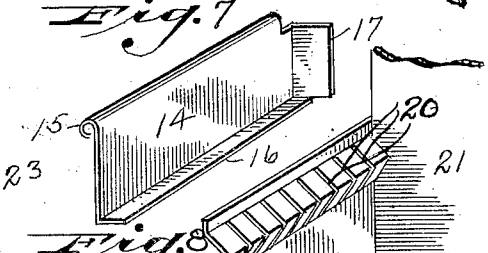


Fig. 8



Fig. 5

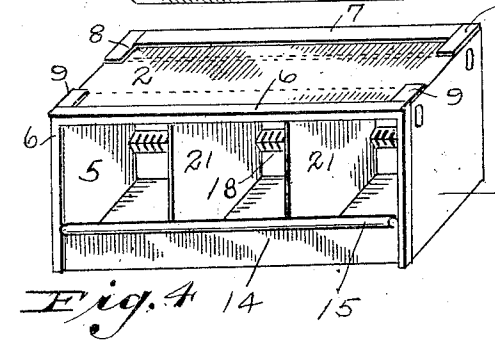


Fig. 6

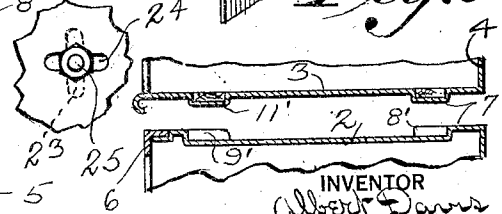


Fig. 4

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Fig. 9.

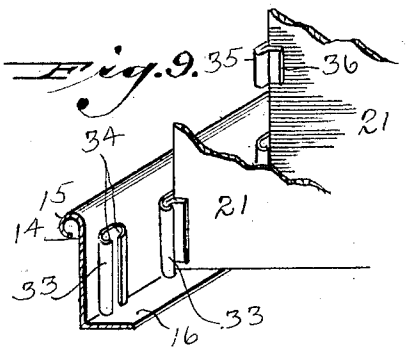


Fig. 11.

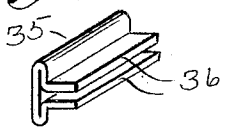
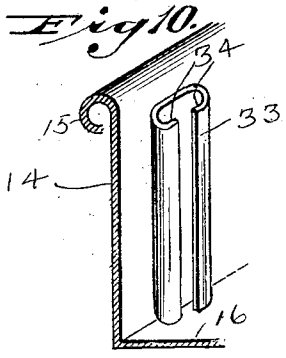


Fig 10.



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Patented Jan. 17, 1928. 1,656,868

UNITED STATES PATENT OFFICE.

ALBERT DAVIS AND ARCHIE A. SHERER, OF DAYTON, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO SAID ARCHIE A. SHERER.

METALLIC SHELVING.

Application filed June 20, 1921. Serial No. 478,979.

Our invention relates to metallic shelving and storage bins for factories, warehouses, stores and supply depots.

The bins forming the subject matter hereof are adapted to be arranged in stacks by superposing the bins one upon the other, or in combination with shelving or other storage units. The bin units are preferably formed from sheet metal and have integrally united bottom, back, side and top walls which afford no crevices or openings for the loss of small parts. Such bin units have front walls extending to a mid-height point. It is frequently desirable for storage of small parts to divide the bin into a plurality of compartments. To this end means is provided for removably mounting within the bin units partitions which extend from the top to the bottom and interlocking such partitions against displacement.

The object of the present invention is to simplify the structure as well as the means and mode of manufacture of storage bin units and the manner of dividing such units into separate compartments whereby they will not only be cheapened in construction, but the partitions may be more conveniently, easily and quickly installed and securely held against displacement.

A further object of the invention is to provide bin units complete in themselves affording containers for small parts and to further provide relatively adjustable partitions dividing such bins into compartments.

A further object of the invention is to provide improved means for engaging and holding removable partitions in fixed spaced relation one with the other within the bin unit.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents, as hereinafter described and set forth in the claims.

In the drawings, wherein is shown the preferred but obviously not necessarily the only embodiment of the invention, Fig. 1 represents a stack of the units or sections, part of which are bin units and the remainder of which are shelving units. Fig. 2 is a vertical sectional view through several units forming the subject matter hereof. Figs. 3 and 4 are perspective views of two disconnected units showing the interengaging top and bottom surfaces thereof. Fig. 5 is a detail view showing the relation of the slotted openings for the interconnecting bolts engaging units side by side. Fig. 6 is a detail sectional view of a modification involving embossed top and bottom walls. Fig. 7 is a detail perspective view of a portion of the front wall of a bin unit disconnected therefrom. Fig. 8 is a detail perspective view of one of the spacer members for a series of bin partitions. Fig. 9 is a detail perspective view illustrating a modification of the mode of engaging the removable partition with the unit. Figs. 10 and 11 are detail perspective views of the separated engaging means for the partition shown in Fig. 9.

Like parts are indicated by similar characters of reference throughout the several views.

The sheet metal units or sections 1—1 each comprise a complete box-like enclosure having integrally united top wall 2, bottom 3, back 4, and end walls 5, the unit being open on its front or vertical side. Such box like unit may be formed from a single sheet metal blank folded and bent to the proper shape and proportion or it may be formed from several blanks or pieces united one with the other by electric welding, brazing, soldering or other means. Each unit is provided about its open forward side with an angle bar frame 6, comprising a transverse portion united by electric welding or otherwise to the top 2, and dependent leg portions at either end overlapping and electric welded or otherwise fixedly attached to the end walls 5. This reinforcement angle bar frame thus forms an archlike structure enclosing the forward face of the unit, with one flange overlapping the walls 2 and 5 of the unit, while the other flange overhangs the opening giving a finished appearance as well as strength and stability, to the unit. As a further reinforcement and to provide an interlock for the next succeeding unit, each unit is provided on its top surface adjacent to the rear end with a longitudinally disposed flat bar 7, having inturned ends 8, coincident with the ends of the unit or section. These inturned ends 8 may be integral with the reinforcement bars 7, but for economy and convenience of manufacture,

they are preferably separate sections or short bars attached to the top surface of the unit by electric welding between which the longitudinally disposed flat bar 7 is secured likewise by electric welding or other suitable means. Similar stop blocks 9 are secured to the top surface of the unit adjacent to the angle bar frame 6 and coincident with the end of the unit, such stop extending rearwardly from the frame 6.

In order to interengage each superposed unit with the one beneath, to prevent side slip and insure the vertical alinement of the sections, each unit or section is provided on its botom surface with two parallel spaced bars 10 and 11. These bars 10 and 11 are somewhat shorter than the length of the unit, being of such length as to be capable of being seated between the end stops 8 and 9 on the top of the preceding unit and also being spaced inwardly from the front and rear edges of the unit a sufficient distance to clear the angle bar frame 6 and the reinforcement bar 7. In other words, the angle bar frame 6 together with the parallel bar 7 at the rear of the unit and the end stop 8 form on the top of each unit a marginal frame or seat within which the bars 10 and 11 on the bottom of the superposed unit engage.

It is obvious that in lieu of attaching separate bars and end stops as the bars 7, 10 and 11 and end stops 8 and 9, the top and bottom of the unit may be embossed or pressed to afford interlocking shoulders on the interengaging units or sections, as shown at 7′, 8′, 9′ and 11′ in Fig. 6.

The unit or section when used as a storage bin for articles which will not conveniently retain their place upon the shelf, or which are to be stored in considerable quantity the bottom portion 3 is extended upwardly to partially close the open face of the unit or section and form a partial front wall for the unit, as is shown at 14. In such case the top edge of this front wall is likewise finished with a roll or bead 15 which protects against the raw edge of the metal and affords a neat, pleasing and finished appearance as well as strengthens the front wall. In lieu of extending the bottom section upwardly and thus forming the front wall 14 and bottom 3 integrally the front wall 14 may be a separate section having a flanged lower edge 16 insertable beneath the bottom 3 and inturned ends or ears 17 insertable within the end walls 5 of the unit. The separate front wall section is then secured by electric welding the ears or inturned ends 17 to the end 5 of the unit and the under turned flange 16 to the bottom 3.

Inasmuch as it is frequently desired to divide the bin units into a number of compartments by means of spaced partitions, there is permanently secured to the rear wall 4 a spacer bar comprising a strip of sheet metal 18, having therein a crimp or channel 19. The crimp or channel of this spacer bar is intersected by a plurality of spaced slots 20, for the engagement therein of removable partition walls 21, also of sheet metal. At the front of the unit just within the partial front wall 14 is provided a second spacer bar 22, similar in form and construction to the spaced bar 18, having therein a like crimp or channel intersected by cuts or slots with the difference, however, that the spaced bar 22 at the front of the unit is loose or independent and removable therefrom. In assembling the partition walls 21 they are inserted within the unit and engaged in the proper spaced relation with corresponding slots 20 in the rear spacer bar 18. After being alined one with the other in proper spaced relation, the removable spacer bar 22 is engaged with the partition walls by applying it thereto with the wall engaging the proper notches or slots at points above the front wall 14 of the bin unit. When properly engaged, the front removable spacer bar 22 is then pressed downward within the front partial wall 14 where the resiliency of the spacer member due to its crimped or channel form enables it to firmly engage the front wall under tension. Inasmuch as this spacer bar is of a length which is substantially equivalent to that of the unit, the partition walls are firmly supported against displacement.

To interlock the sections side by side each unit is provided in one end wall 5 with a vertically disposed slot 23 and in the opposite end wall 5 is a horizontally disposed slot 24. When two sections are placed end to end, these slots 23 and 24 extend transversely one across the other, and the units are interengaged by tie bolts passed thru the registering portions of the slots.

In assembling the structure, the units are placed one upon the other to form a stack of the desired height and a succession of such stacks are built side by each, the corresponding units being interconnected by such tie bolts 25.

Each stack of units is preferably mounted upon a base unit 26. This unit comprises a suitable frame or low box like structure, having on the top surface thereof, locking bars and stops similar to those of the unit or section, that is to say, the bar 7 and end stops 8 and 9 and at the front end a member corresponding to the frame bar 6, within which the bars 10 and 11 of the lowermost unit seat.

While the units or sections shown in Fig. 1, are all of the same depth from front to back, it is obvious that these units may be made of different depth as well as of different heights. Each unit being complete in

itself and forming a complete tight closure, permits the storage of small parts without danger of intermixing or losing them.

In Figs. 9, 10, and 11 there is shown a modification of the partition spacers by which the removable partitions are supported in the bin. In this construction, there are secured to the inner face of the front partial wall 14 of the bin vertically disposed channels 33 having inturned or overhanging lateral flanges 34. Slidingly adjustable within these channel members 33 and engageable beneath the inturned overhanging flanges 34 are T-shaped retainers 35 the medially projecting portions 36 of which are bifurcated or split longitudinally to straddle the partition 21 to be engaged thereby. The members 33 being fixedly attached to the inside of the wall, the co-acting member 35 is applied to the edge of the partition 21 above the edge of the front wall 14 as shown in Fig. 9 and then slid downwardly behind the wall 14 where the laterally projecting flanges of the retainer 35 engaged beneath the inturned flanges 34 of the member 33, thus detachably holding the partition 21 in upright spaced position. This construction enables any one of the partitions to be removed without disturbing other partitions of the same unit or bin. Label holders 37 comprising strips of sheet metal having their longitudinal edges inturned one toward the other are attached to the forward faces of the bin or to the ledges 27 of the shelf. The identifying label is slipped within such holder beneath the inturned overhanding marginal flanges. At the bottom of Fig. 1 a unit has been shown provided with hinged doors thus illustrating that the units may be converted into cupboard or closet as well as shelves and bins. To improve the appearance of the stack or unit a top section 39 may be provided which rests upon the uppermost of the stack of units giving to the stack a finished appearance. This top section 39 interlocks with the preceeding unit in the same manner that one unit interlocks with another, as heretofore described.

The units heretofore described are complete in themselves, having continuous walls and forming tight compartments capable of retaining the smallest part without loss or leakage.

It will be understood that the front walls 14 of the bin will vary in height and proportion to the height of unit. It is found usually most convenient to make the front partial walls 14 approximately one third of the entire height of the unit. However, these proportions may be varied as may also the dimensions heretofore mentioned, which are given merely for illustrative purposes and not with the intent of prescribing or limiting the sizes of the units.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific details shown, but that the means and construction herein disclosed comprise but one of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described our invention, we claim:

1. In a storage unit, a metallic box like receptacle, complete in itself, having continuous top, bottom, back and end walls united one with another, and having an access opening in its front face, and upstanding flange at the bottom of said access opening, a spacer bar having a succession of spaced notches therein located against the rear wall of the receptacle, a series of removable and interchangeable partitions engageable in different notches of the series, and a separate removable spacer bar also having therein a series of spaced notches, said last mentioned spacer bar being engageable with said partitions by adjusting the notches thereover in the access opening of the unit and thereafter sliding the spacer bar downward behind the upstanding flange.

2. In a storage unit, metallic box like receptacle, complete in itself, having continuous top, bottom, back and end walls united one with another, and having an access opening in its front face, and upstanding flange at the bottom of said access opening, a series of adjustable partitions therein, spacer bars at the front and rear of the unit engageable with the partitions, one of said spacer bars being detachably engageable behind said upstanding flange.

3. In a storage unit, a bin having depth greater than its access opening, a separable partition insertable through the access opening, and a spacer bar having therein a vertical slot to receive the partition, and engageable with the partition within the access opening, and slidable thereon into engagement with the bin below the access opening.

4. In a storage unit, a container, a removable partition for the container, and a slotted spacer member independent of the partition slidable between the wall of the container and the marginal edge of the partition, the slot of which the partition has

engagement to prevent lateral displacement of the partition.

5. In a storage unit, a bin having an access opening and an upstanding wall below the access opening, a partition located within the bin, and projecting above the upstanding wall, and a slotted spacer bar in the slot of which the marginal edge of the partition is engageable within the access opening, said spacer bar being slidable behind the upstanding wall while engaged with the partition.

In testimony whereof, we have hereunto set our hands this 11th day of June, A. D. 1921.

ALBERT DAVIS.
ARCHIE A. SHERER.