July 28, 1931. M. P. DUKE 1,816,213

BIN

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Fig. 1.

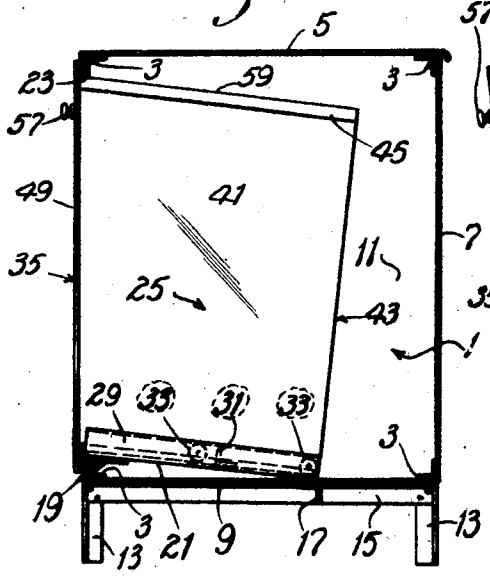


Fig. 2.

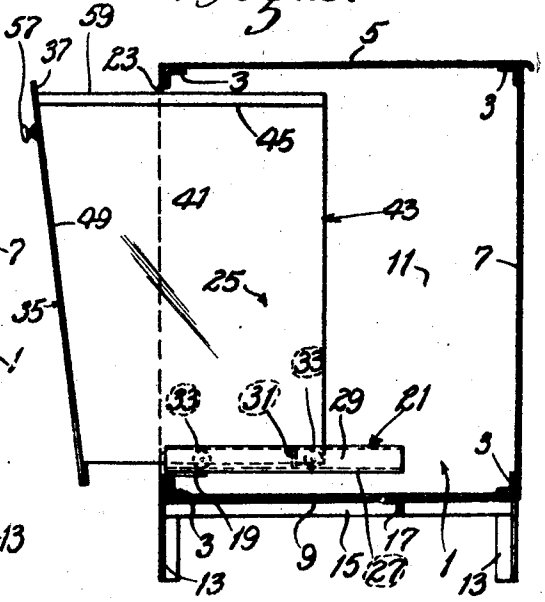


Fig. 3.

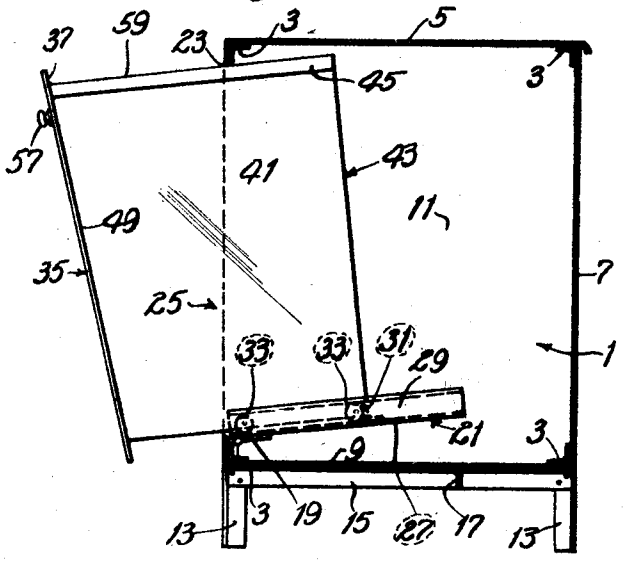
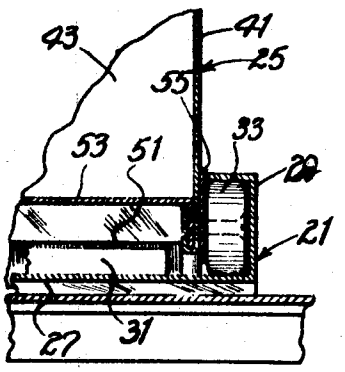


Fig. 4.



Marsh P. Duke,
Inventor.
Dean & Haynes
Attorneys

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Fig. 5.

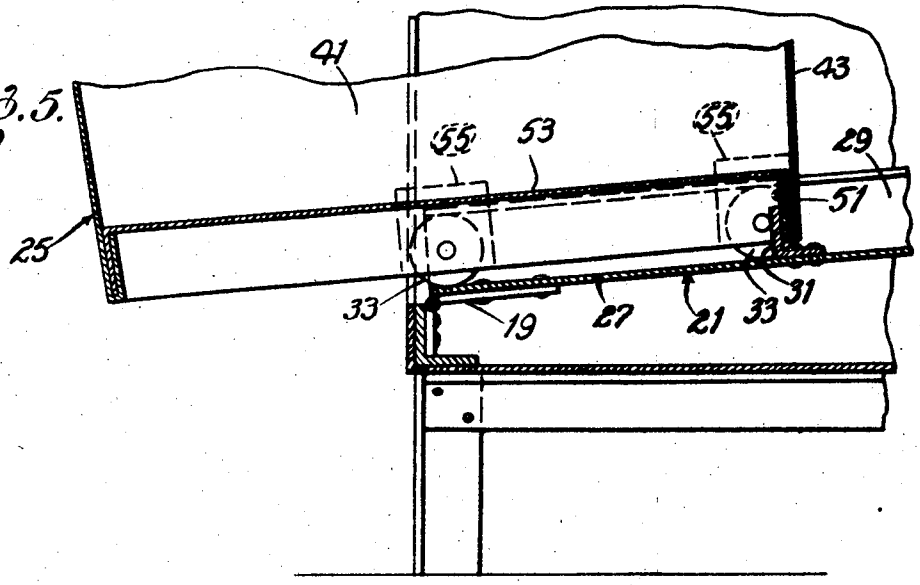
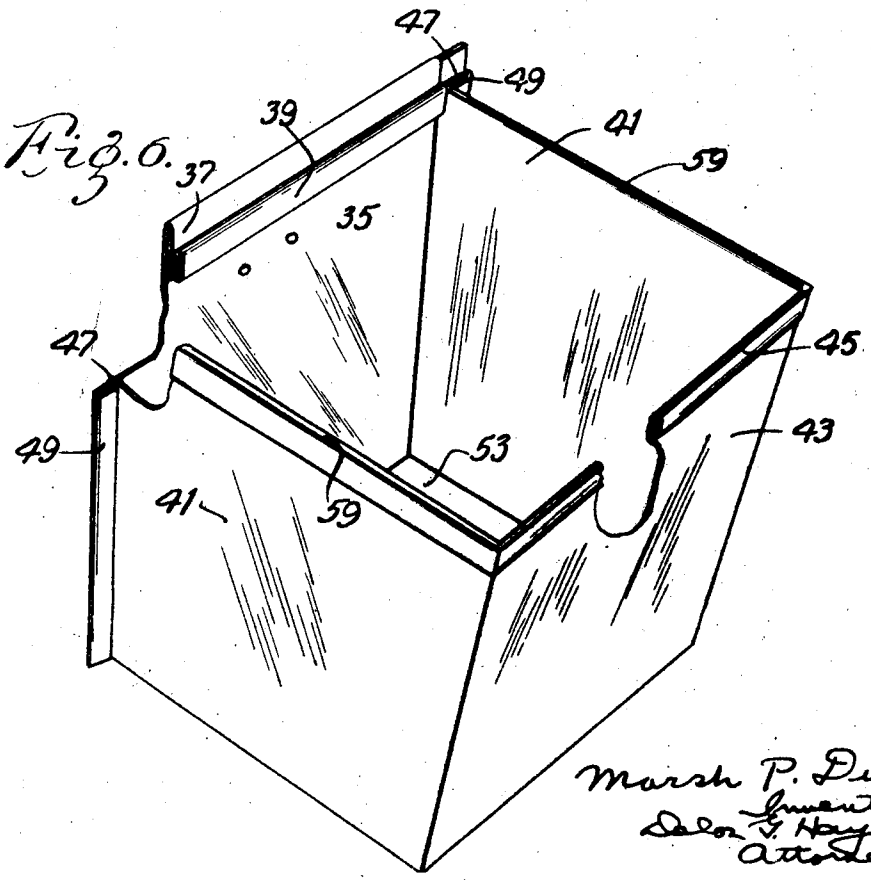


Fig. 6.



Marsh P. Duke,
Inventor.
Dalon G. Haynes
Attorney

Patented July 28, 1931 1,816,213

UNITED STATES PATENT OFFICE

MARSH P. DUKE, OF UNIVERSITY CITY, MISSOURI, ASSIGNOR TO DUKE MANUFACTURING CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI

BIN

Application filed January 22, 1930. Serial No. 422,650.

This invention relates to bins, and with regard to certain more specific features, to slidable storage bins for preparation tables, counters and the like.

Among the several objects of the invention may be noted the provision of a ruggedly constructed bin of the class described having a minimum number of parts so joined as to eliminate undesirable projections within the bin and having a minimum number of joints; the provision of a bin of the class described which may be opened and tilted with less effort and attention than heretofore; and the provision of a device of the class described which can be manufactured with greater economy. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structure hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is illustrated one of various possible embodiments of the invention,

Fig. 1 is a cross section of a preparation table showing the application of the bin thereto, the bin being in closed position;

Fig. 2 is a view similar to Fig. 1, showing the bin in a partially opened position;

Fig. 3 is a view similar to Fig. 1, showing the bin in fully opened position;

Fig. 4 is a fragmentary, detail section showing certain elements;

Fig. 5 is an enlarged longitudinal section of the bin showing details; and,

Fig. 6 is a perspective view of the bin, portions being broken away to show its construction.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now more particularly to Fig. 1, there is illustrated at numeral 1 a preparation table or counter or support comprising longitudinal angle irons 3 forming a framework for supporting a top 5, a back 7, a bottom 9 and suitable ends, one of which is shown at numeral 11. The whole structure is supported on feet or the like braced by cross braces 15. A longitudinal angle iron brace 17 is used beneath the bottom 9 for purposes to be described.

Swingingly mounted on the lower forward brace 3 is a platen 21. Hinges 19 are used for this purpose. It will be understood that a plurality of platens and associated parts is to be used, but that only one will be described herein, each of them being the same. Each platen 21 is hinged directly behind an opening 23 in the table 1, said opening 23 accommodating the passage of a bin 25.

Each platen 21 comprises a relatively flat bottom 27 having sideward, upwardly formed channels 29 and a lateral stop 31. The sideward channels 29 embrace rollers 33, a pair of which rollers 33 is affixed to each side of said bin 25. Thus it will be seen that the bin may be caused to roll backward and forward in the channels 29 of the platen 21 and, because the latter is hinged at 19, may also swing in a vertical plane.

The bin 25 per se comprises a front 35 which has a rearwardly turned down upper edge 37, the turned down portion ending in a double turned bead 39, which serves strengthening purposes for the front 35 and also as a spacer between the sides 41 of the bin 25 (see Fig. 6).

The sides 41 with the back 43 of the bin are made integral being bent to shape as a unit and are provided with a top bead 45 which, as shown in Fig. 6, is rolled for stiffening purposes. The front edges 47 of the sides 41 are flanged for engagement between turned over portions 49 of said front 35. The bottom edges of the sides 41 and back 43 are turned under and envelop sideward and downwardly extending flanges 51 of a false bottom 53 (Fig. 5).

Thus it will be seen that the bin 25, per se, comprises a rugged and rigid structure in which there are used only three pieces of material, namely, the front 35, the integrally formed sides and back 41, 43 and the bottom 53. This construction lends itself to economical and easy manufacture, as well as pro-

viding a sanitary receptacle having few recesses into which material may work.

It will be seen that the rolled portion 39 (Fig. 6) function, not only as a brace for making more rigid the front 35, but also act as a longitudinal brace or spacer between the sides 41.

It will also be noted from Fig. 5 that the false bottom 53 is of such a shape, when taken in connection with the back 43 of the bin 25, that there is engagement with the angle iron 31 when the bin is in a predetermined forward position. This position is predetermined by the point at whch an overhang of the load in the bin will tilt the platen 21 upwardly automatically, that is, when the bin is pulled forwardly up the incline of the platen.

It will be appreciated that the rollers or wheels 33 are positioned so that the forward ones of the same do not run off of the platen 21 in the limiting forward position of the bin. The rearward set of rollers 33 are positioned with this same consideration in mind for the rearward limiting positioning of the bin. Figs. 4 and 5 show how square pieces of material 55 are used between the bin and the rollers 33 for making the mounting of the rollers more rigid.

The operation is as follows:

The platen 21 rests against the bottom 9 of the counter or table 1. This positioning gives the platen a back slope and the bin 25 consequently rests in its rearward position shown in Fig. 1 with the flanges 37, 49 thereof resting against the sides of the opening 23. Thus the rearward positioning of the bin is limited and the opening 23 at the same time substantially sealed against entry of foreign material.

To open the bin, the handle 57 thereof is grasped and drawn forwardly. This causes the bin to ascend the incline formed by the platen 21, until the center of gravity of the material in the bin causes it to overcenter and lift the platen as shown in Fig. 2. Thereafter the lower flange of the back 43 strikes the stop 31 (see Fig. 5) and the bin tilts upwardly. The platen continues to tilt upwardly until the upper edge 59 of the bin strikes one of the longitudinal angle irons 3 or other suitable part on the table 1. Thus the positioning of the bin is limited to that shown in Fig. 3 for purposes of taking material therefrom and placing material therein.

When it is desired again to close the bin, it is only necessary to push the handle 57, whereupon the platen 21 rotates clockwise to the Fig. 2 position. A slight further pressure causes the bin 25 to slide inwardly on the platen and causes gravity to throw the platen down into the Fig. 1 position. Thus it will be seen that during each event, part of the motion is effected automatically. During opening, the latter half of the movement is effected automatically by the overcentering action; and during closing the latter half of the movement is effected by the action of the weight of the bin sliding down the incline of the platen.

Reference to Figs. 1 to 3 shows that the bracing angle iron 17 is so positioned longitudinally that it is directly beneath the point of contact of the rear end of the platen 21 with the bottom 9 of the table 1. Thus the load of the bin is properly supported.

One of the advantages of the present invention is that the rollers 33 are attached to the bin itself and thus the rolling or coasting action of the bin always take places along the same line in respect to the platen. Also, the platen always moves in a predetermined manner with respect to the table 1. Thus the action which will be effected in view of the load within the bin is about the same every time that the bin is opened. In constructions wherein a bin has a pivoting action at any one of various points, depending upon the load therein, the action is awkward to the operator, because he does not known just what action will occur, the action being variable to an extreme degree.

Furthermore, the separation of the coasting action from the turning action, that is, separating the hinge 19 from the rollers 33 effects a much easier method for swinging the bin. The fact that the hinging point is not movable is advantageous in effecting a rigid and dependably operable structure.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a device of the class described, a support having an opening, a bin slidable in said opening to assume open and closed positions relative to said opening and said support, a swingable platen, a pivot for said platen, said pivot being positioned nearer said opening than the center of gravity of said bin when in closed position relative to said opening, means slidably joining the bin to the platen, whereby the bin may be moved between open and closed position, and the center of gravity thereof thereby shifted from one side of said pivot to the other.

2. In a device of the class described, a support having an opening, a fixed hinge behind said opening, a platen swingably supported at its forward end by said hinge and resting with a slope normally directed downwardly and rearwardly from the opening, a bin, means for slidably supporting the bin on

said platen, said bin being adapted to be withdrawn from the opening over said hinge, said platen being then automatically tilted to slope downwardly toward the opening for permitting descent of the bin thereover.

3. In a device of the class described, a support having an opening, a fixed hinge behind said opening, a platen swingably supported at its forward end by said hinge and resting with a slope normally directed downwardly and away from the opening, a bin, means for slidably supporting the bin on said platen, said bin being adapted to be withdrawn from the opening over said hinge, said platen being swingable to slope downwardly toward the opening for permitting said bin to be moved further therefrom, said slidable means comprising a plurality of rollers fastened to the bin and channels on the platen surrounding a plurality of said rollers.

4. In a device of the class described, a support including an opening, a bin slidable through said opening, a hinge back of the opening, said hinge being fixed, a platen swingable on said hinge, rollers fastened to said bin movable on said platen, means engageable with the edge of said opening for limiting the rearward movement of the bin on the platen, means on the platen limiting the forward movement of the bin thereon, the swinging movement of the bin and platen provided by the said pivot being limited by engagement of the top of the bin with the upper part of said support.

5. In a device of the class described, a support, a platen hinged to the support, a bin, rollers on the bin rolling on said platen, a bottom for the bin, a downwardly extending flange formed by the sides of said bin and said bottom, and a stop on the platen adapted to interiorly engage said flange below said bottom for limiting the forward movement of the bin on the platen.

In testimony whereof, I have signed my name to this specification this 20th day of January, 1930.

MARSH P. DUKE.