P. W. GARDNER.

FLOUR BIN.

APPLICATION FILED OCT. 1, 1915.

1,225,797.

Patented May 15, 1917.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor

P. W. Gardner

By

H. A. Harvey, Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

P. W. GARDNER.

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4 SHEETS—SHEET 2.

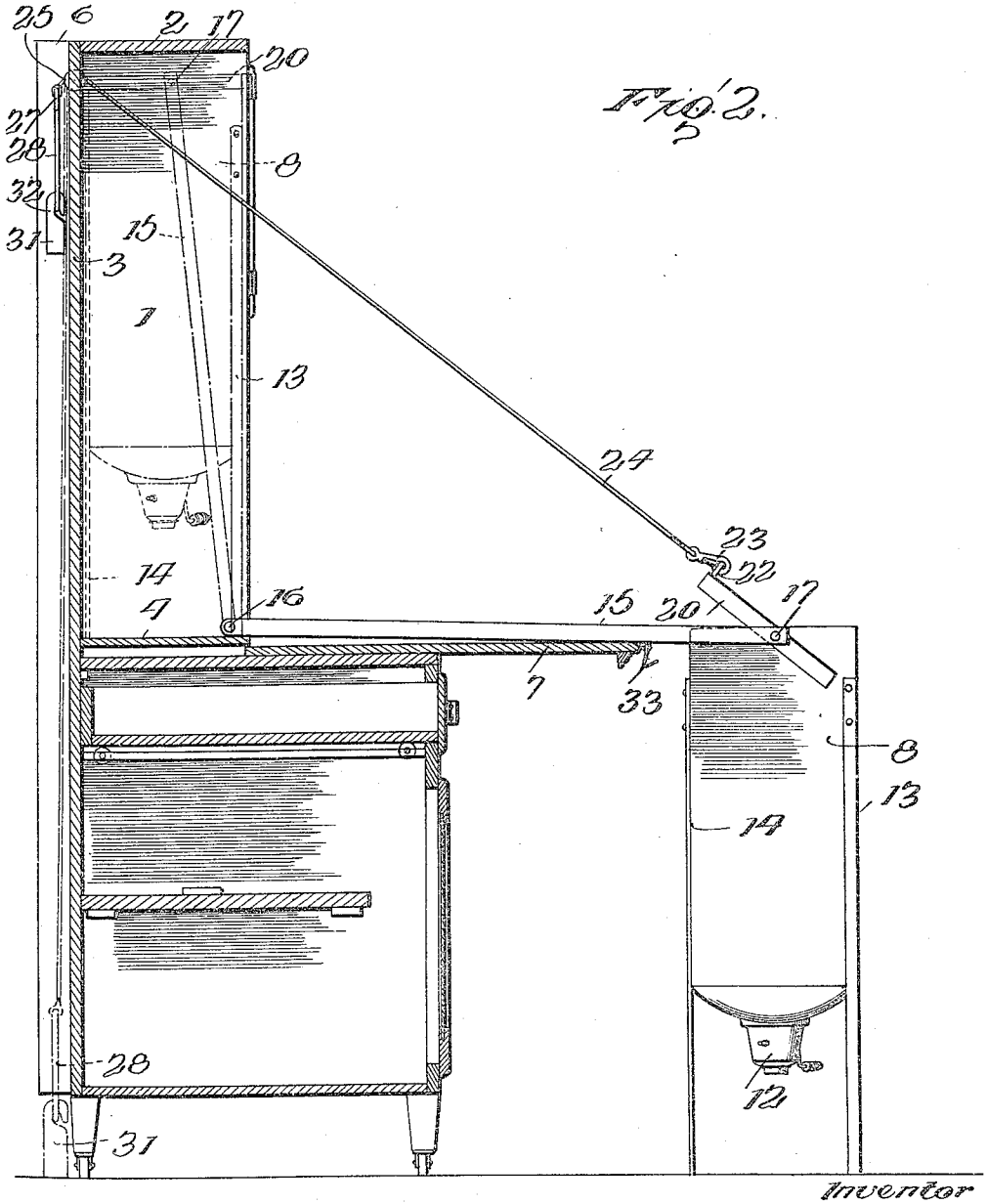


FIG. 2.

Inventor

P. W. Gardner

By

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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4 SHEETS—SHEET 3.

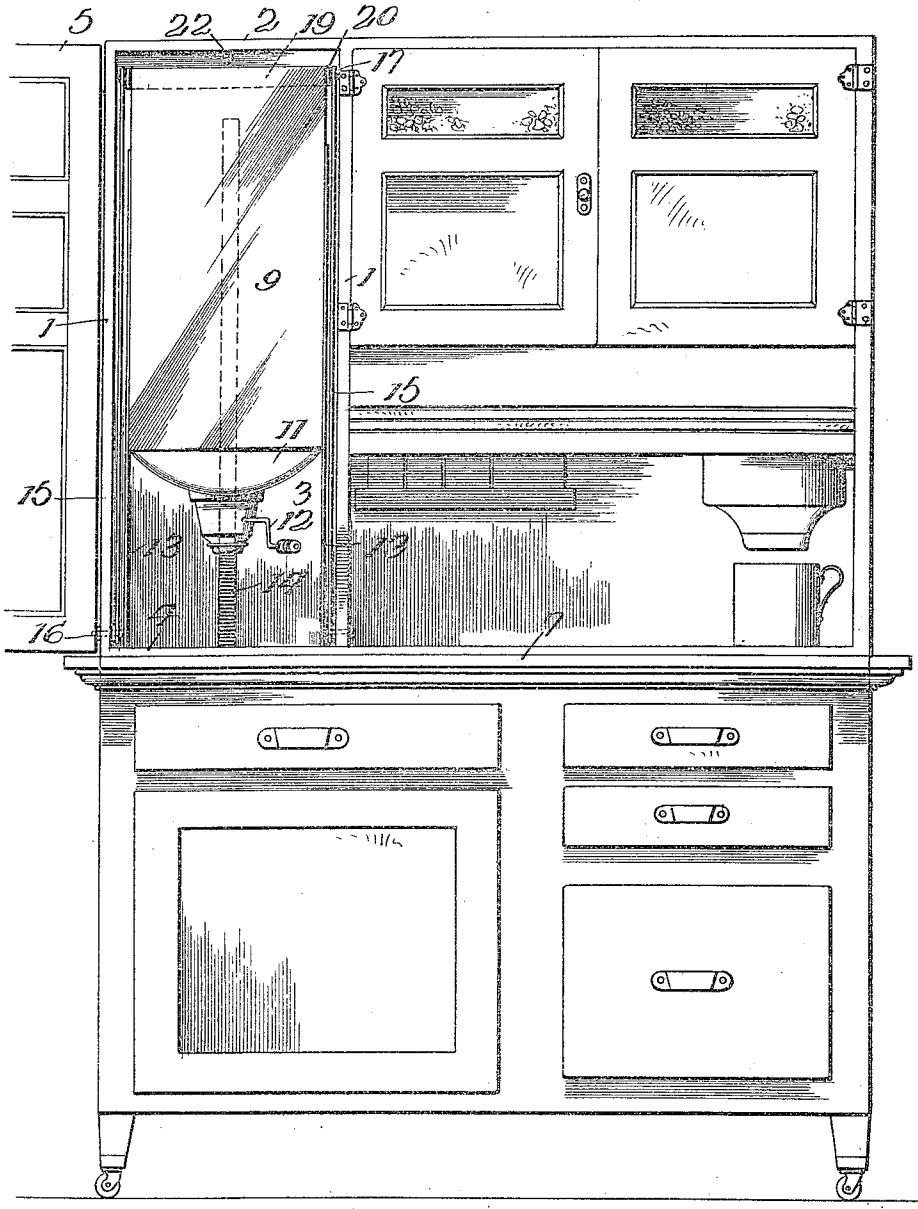


Fig. 3.

Inventor

P. W. Gardner.

By

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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4 SHEETS—SHEET 4.

FIG. 4.

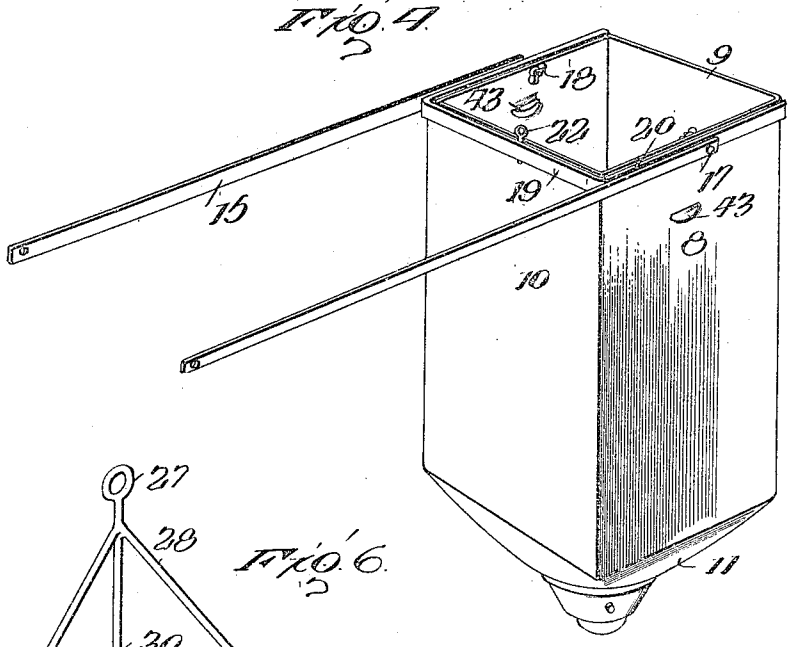


FIG. 6.

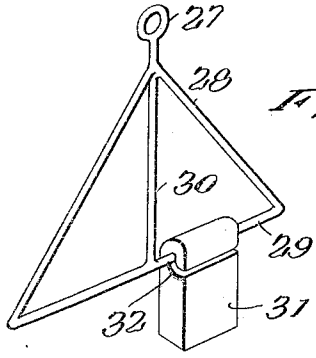


FIG. 5.

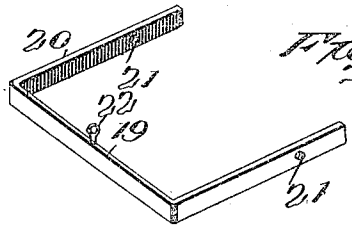
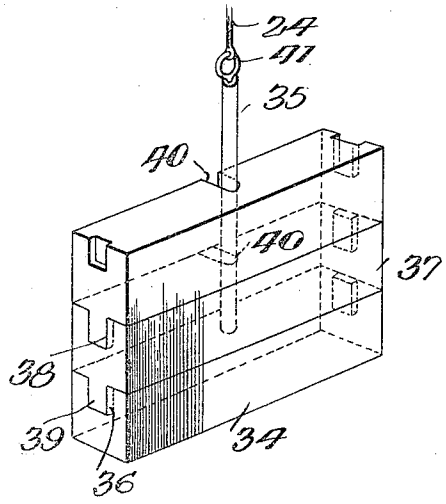


FIG. 7.



Inventor

P. W. Gardner

By

Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PERCY W. GARDNER, OF HOLDENVILLE, OKLAHOMA.

FLOUR-BIN.

1,225,797. Specification of Letters Patent. Patented May 15, 1917.

Application filed October 1, 1915. Serial No. 53,582.

To all whom it may concern:

Be it known that I, PERCY W. GARDNER, a citizen of the United States, residing at Holdenville, in the county of Hughes and State of Oklahoma, have invented certain new and useful Improvements in Flour-Bins, of which the following is a specification.

This invention relates to improvements in bins and like containers for flour, meal, and the like and more particularly to an improvement in the flour bins of kitchen cabinets of the movable as well as the built in type. The flour bins of kitchen cabinets are ordinarily mounted in various ways. In some instances the bin is removable from the cabinet and must be removed for filling and then lifted into place. In another type of mounting, the bin is so arranged that it may be tilted forwardly at an angle so that a sack of flour may be emptied into the bin after which the bin is to be swung back to its normal position. Such bins are mounted within a compartment in the top or upper portion of the cabinet and it, therefore, becomes necessary to either lift the bin and the weight of the flour contained therein when replacing the bin after it has been removed from its compartment and filled or to lift the sack of flour for the purpose of emptying the sack into the bin after it has been tilted forwardly as above explained and in either instance a hardship is imposed upon the housewife as ordinarily the flour is purchased in twenty-five or fifty pound sacks and this weight must be lifted in either of the instances mentioned above, to a point on a level with or above one's head and held in this position while flour flows from the sack into the bin. Furthermore, the ordinary tilting bin is not removable and it is, therefore, extremely difficult for one to clean the same or even if removable it is inconvenient to inspect the interior of the bin to ascertain its condition. For the same reason it is inconvenient for one to ascertain the quantity of flour contained within the bin. These inconveniences are in a sense overcome by locating the flour bin in the lower portion of the cabinet but for various reasons it is preferable that the bin be located in the upper portion of the cabinet.

In consideration of the foregoing the present invention aims to provide a means for mounting a flour bin within the upper portion of a kitchen cabinet in such manner that the bin may without any considerable exertion be readily filled and at any time inspected for the purpose of ascertaining the quantity of flour contained therein or the condition of the bin as regards cleanliness.

It is another aim of the invention to so mount the bin within the cabinet that the bin may without any considerable exertion be lowered to position for filling and after having been filled may be with little exertion returned to its normal position within the upper portion of the cabinet.

The invention also aims to so construct the mounting for the bin that the bin may be readily disconnected and removed from its mounting whenever it is desired to clean and air the bin.

The invention has as a further object to construct and arrange the mounting for the bin in such manner than when the bin is in normal position it will be free from accidental movement to lowered position regardless of the quantity of flour or the like contained therein and without any strain being normally imposed upon a counterbalancing means which is employed in connection with the supporting means.

The invention also contemplates the provision, in connection with the mounting for the bin, of means for assisting in returning the bin to its normal position within the upper portion of the cabinet after having been filled. This means is preferably in the nature of a flexible element which is connected to a portion of the supporting device and which is passed over a pulley or the like in the rear wall of the compartment for the bin and has connected to it one or more counter-balancing weights, and incidentally the invention aims to provide means whereby either the bin or the supporting device may be maintained in its lowered position either when the bin has been lowered to position for refilling or when the supporting device has been disconnected from the bin while it is in such refilling position for the purpose of cleaning the bin, so that in either event, neither the bin nor the supporting device will be violently swung upwardly into the bin compartment, through the action of the counterweight.

Another aim of the invention is to so arrange the counterbalancing means and so connect the same with the supporting struc-

ture that when the bin is in normal position the counter-balancing weight or weights will rest upon the floor surface upon which the cabinet is supported, thereby relieving the cable to which the weight is connected, of strain and yet the connecting means is so arranged as to increase the length of the connection between the supporting structure and the weight when the bin is swung downwardly for filling so that the weight or its supporting means will not strike against the pulley over which the flexible element is passed.

In the accompanying drawings:

Figure 1 is a perspective view illustrating the present invention embodied in a kitchen cabinet of the ordinary type and illustrating the manner in which the bin may be lowered to filling position.

Fig. 2 is a vertical front to rear sectional view through the cabinet illustrating the bin in full lines and in elevation in lowered position and in dotted lines in normal or raised position.

Fig. 3 is a front elevation of the cabinet illustrating the bin raised.

Fig. 4 is a perspective view of the bin and its supporting means removed from the cabinet.

Fig. 5 is a perspective view of one element of the connection between the supporting structure and the counterweight.

Fig. 6 is a perspective view of one of the counterweights and the supporting member therefor.

Fig. 7 is a perspective view illustrating a modification of the counterbalancing weight structure.

The flour bin and supporting structure therefor embodying the present invention are adapted for employment in connection with an ordinary movable kitchen cabinet or a cabinet which is permanently fixed or built into the wall of the kitchen or the same may find embodiment in various other structures wherein the advantages possessed by the device will be appreciated.

The cabinet illustrated in the drawings includes the usual compartment to receive the flour bin, which compartment is located within the upper portion of the cabinet and includes side walls 1, a top 2, a rear wall 3, and a bottom 4, and the compartment may be entirely open at its front or provided with a door 5 for closing the front thereof, as may be desired. The outer side wall 1 of the compartment as well as the opposite side wall of the upper portion of the cabinet as a whole, extend rearwardly a short distance beyond the plane of the rear wall 3 of the compartment as indicated by the numeral 6 so as to house the counterbalancing weight or weights which assist in elevating the bin to its normal position, as will be presently explained. The cabinet also includes the usual extension top 7 which is slidably mounted and may be withdrawn to the position shown in Fig. 2 and when not in use may be shoved back to a position out of the way. The flour bin in itself may be of any suitable construction and the body of the bin includes side walls 8, a front wall 9, a rear wall 10, and a discharge spout 11 in which may be located a sifter device indicated at 12. In the preferred form of the invention a supporting leg 13 is secured in any suitable manner to each of the side walls 8 of the bin body at the front of the said body and these legs project at their lower ends a suitable distance below the lower end of the discharge spout 11. The numeral 14 indicates a third leg which is secured to the rear wall 10 of the body of the bin and at its lower end extends below the discharge spout in the same manner as do the legs 13, the lower extremities of the said legs 13 and 14 being designed to rest upon the floor surface when the bin is in lowered position and being designed to rest upon the bottom 4 of the bin compartment when the bin is in normal or raised position. The body of the bin may be of any desired dimensions and of any desired capacity and if desired the legs 13 and 14 may be increased or decreased in number or arranged in some other manner than that shown in the drawings.

The bin at its upper end is mounted between a pair of supporting arms which are indicated by the numeral 15, these arms preferably being of bar metal and being pivotally mounted at their lower or inner ends upon screws or other suitable pivot elements 16 secured in the side walls 1 of the bin compartment immediately above the bottom 4 thereof. The outer ends of the arms 15 extend beside the side walls 8 of the bin body and pivot bolts 17 are fitted through the extremities of the arms and through the side walls 8 of the bin body and wing nuts 18 are threaded onto the said bolts and lie within the upper end of the bin. In order that the bin may be so pivotally supported between the arms that it will maintain a substantially vertical position while being raised or lowered, the pivot bolts 17 are located substantially midway between the front and rear walls of the bin body and for a purpose which will now be explained the pivot elements 16 for the inner ends of the arms 15 are located near the forward edges of the side walls 1 of the bin compartment.

Referring now particularly to Fig. 2 of the drawings, it will be observed that when the bin is in upright or normal position it will be housed within the compartment provided for its reception and the legs 13 and 14 will rest at their lower extremities upon the bottom 4 of the said compartment. In this position of the bin the arms 15 will be inclined upwardly and rearwardly as shown

in dotted lines in the said Fig. 2 and as in this position the pivot bolts 17 are located rearwardly of a vertical line passing through the pivot elements 16, the arms 15 will have passed such line and the bin will rest firmly against the rear wall of the compartment and will have no tendency whatsoever to swing forwardly and downwardly. When the bin is lowered to filling position or, in other words, to the position shown in Figs. 1 and 2, the arms 15 will rest upon the extension top 7 of the cabinet and the legs 13 and 14 will rest upon the floor surface, the bin being in this manner firmly supported in upright position. If desired, however, the legs 13 and 14 may be dispensed with and the bin may be supported solely by the arms 15 or, on the other hand, the arms may be so connected with the bin that they will not rest upon the extension top, the bin being in this instance supported solely by the legs 13 and 14.

For a purpose to be presently explained, a yoke of the form shown in Fig. 5 of the drawings, is connected with the upper end of the bin and this yoke preferably is formed from a suitable length of bar metal bent to form a connecting portion 19 and spaced arms 20 which extend at right angles from the connecting portion and consequently parallel to each other. The yoke is disposed to straddle the upper end of the bin with the arms 20 extending opposite the upper edges of the side walls 8 of the bin and the connecting portion 19 extending transversely of the upper end of the rear wall 10 of the bin, the said arms 20 being provided with openings 21 to receive the pivot bolts 17, the yoke being in this manner arranged for pivotal movement upon the said bolts 17 both with relation to the supporting arms 15 and the said bin. The forward ends of the arms 20 preferably terminate at the plane of the front wall of the bin. The connecting portion 19 of the yoke is provided between its ends with an eye or other similar connecting element 22 and detachably engaging with the same is a snap hook or like connection 23 carried at one end of a cable or chain 24. The cable 24 is passed over a pulley 25 mounted in a suitable bearing 26 in the rear wall 3 of the bin receiving compartment and the said cable is connected at its other end to an eye 27 at the apex of a substantially triangular frame the inclined side portions of which are indicated by the numeral 28. The lower portion or base of this frame is indicated by the numeral 29 and is braced by means of a central portion 30 integral at its upper end with the apex of the frame and at its lower end with the said portion 29. The portion 29 of the frame is designed to support one or more weights each of which in this form of the invention comprises a body 31 formed with a reëntrant groove 32 which opens through one face of the body and extends inwardly and thence toward the upper end of the said body, the portion 29 of the frame being engaged in this groove in the manner shown in Fig. 6 of the drawings so as to support the said weight. Any number of the weights may be employed and the weights may be of various sizes, all depending upon the weight of the bin and the quantity of flour which is ordinarily to be placed in the bin. When the bin is in normal or raised position as shown in dotted lines in Fig. 2 of the drawings, the yoke shown in Fig. 5 will occupy a position with the upper edges of its connecting and side portions or arms registering with the upper edges of the rear and side walls respectively of the bin body and in this position of the parts the weight or weights 31 will rest upon the floor surface as shown in the said Fig. 2. When the bin is lowered to filling position, however, the weights will be drawn upwardly to the position shown in full lines in the said figure and as the bin moves downwardly the yoke will be tilted to the position shown in the said figure and in Fig. 1, thereby adding to the length of the connection between the bin and the weight supporting frame shown in Fig. 6 and insuring against contact of the frame with the pulley 25. Thus, when the bin is in normal position and the weights are resting upon the floor surface, the cable 24 will be relieved of all strain and yet the bin will be supported securely and firmly in upright position and against accidental downward movement. When it is desired to detach the bin from its supporting structure so that the bin may be cleaned and aired, the wing nuts 18 are to be removed from the pivot bolts 17 and the arms 15 are to be slightly moved apart so as to disengage the bolts from the side walls of the bin. Prior to removal of the bin, however, hooks or other suitable elements 33 arranged upon the extension top 7 or upon the front wall of the lower portion of the cabinet, are moved into engagement over the upper edges of the arms 15 so that when the bin has been disconnected from the supporting structure the arms will remain in lowered position and consequently will not be violently swung upwardly through the action of the weight or weights 31. Similarly, the elements 33 should always be moved into engagement over the upper edges of the arms 15 immediately after the bin has been lowered to refilling position, so as to prevent likelihood of the bin being violently swung upwardly through the action of the counterweight at a time when the person doing the refilling has unguardedly lost control of the bin either before commencing, or during the operation of refilling.

In that form of the invention shown in Fig. 7 of the drawings the weight comprises a fixed weight member and weight members which may be added thereto and to each other for the purpose of properly counterbalancing the bin and its contents and the fixed weight comprises a preferably oblong body 34 provided with a stem 35 which extends upwardly therefrom at a point midway between the ends of the said body and this body is formed in its ends with recesses 36 which open at the said ends of the body and at the upper surface thereof. Removably disposed upon the weight 34 is an auxiliary weight 37 provided in its ends with recesses 38 corresponding to the recesses 36 and also provided at its ends with lugs 39 which project below the under side of said weight and are adapted to engage with the recesses 36 in the manner shown in the said Fig. 7. The weight 37, and such other auxiliary weights of counterpart structure as may be employed, is provided with an open slot 40 to receive the stem 35, the auxiliary weight or weights being first engaged with the stem and then slid downwardly to cause their lugs 39 to seat in the recesses 36 or 38 as the case may be. The stem 35 is provided at its upper end with an eye 41 for the connection therewith of the cable 24.

In order that the sack of flour to be emptied into the bin may be properly disposed with relation to the top or mouth of the bin it is preferable that a shelf or bridge member 42 be provided, this member consisting preferably of a substantially triangular board or plate adapted to be disposed to rest upon the top of the cabinet with one edge portion resting upon the upper edge of the adjacent side wall of the bin in the manner clearly shown in Fig. 1 of the drawings. After the bin has been lowered to the position shown in Fig. 1 and the bridge member 42 has been placed in position, a sack of flour may be disposed upon the table top of the cabinet in the position shown in the said Fig. 1 and with the mouth portion of the sack resting upon the said bridge member. The mouth of the sack is then untied or opened in any other proper manner and the contents of the sack allowed to flow into the bin. The bridge member 42 may be stored in any convenient place within the cabinet when not in use or may be hung on the outside of the cabinet.

While the drawings illustrate two forms of counterweight devices it will be understood that any desired counterweight arrangement may be employed and that the rearwardly extended portions 6 of the wall 1 of the bin compartment and the opposite side wall of the upper portion of the cabinet serve to house and hide the counterbalancing weights.

While it is preferable that the weights rest upon the floor when the bin is in upright or normal position, it will be understood that this is not absolutely essential to the successful operation of the device.

Having thus described the invention, what is claimed as new is:

1. The combination with a structure having a compartment, of supporting arms pivotally mounted for swinging movement to position within the compartment and to position extending exteriorly of the compartment, a bin supported between the said arms, and supplemental means carried by the bin for supporting the same both when in position within the compartment and when in position for filling exteriorly of the compartment.

2. The combination with a structure having a compartment, of supporting arms pivotally mounted for swinging movement to position within the compartment and to position extending exteriorly of the compartment, a bin supported between the arms, a yoke pivotally connected to the bin, a flexible element connected to the yoke, a pulley about which the said element is passed, and a counterweight connected with the said element.

3. The combination with a structure having a compartment, of supporting arms pivotally mounted for swinging movement to position within the compartment and to position extending exteriorly of the compartment, a bin supported between the said arms, and supporting legs carried by the bin and constituting a supplemental means for supporting the bin, both when in position within the compartment, and when in position for filling exteriorly of the compartment.

4. The combination with a structure having a compartment, of supporting arms pivotally mounted for swinging movement to position within the compartment and to position extending exteriorly of the compartment, a bin supported between the arms, a yoke including spaced arms and a connecting portion, the said yoke being arranged with its arms extending at opposite sides of the bin and pivotally connected therewith by the pivots which connect the bin and the first-mentioned arms, a flexible element connected to the connecting portion of the yoke, a pulley about which the said element is passed, and a counterweight connected with the said element.

In testimony whereof I affix my signature.

PERCY W. GARDNER. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."