June 24, 1941. B. D. GOLDBERG 2,247,232

CONTAINER AND SUPPORT THEREFOR

Filed Aug. 15, 1940 2 Sheets-Sheet 1

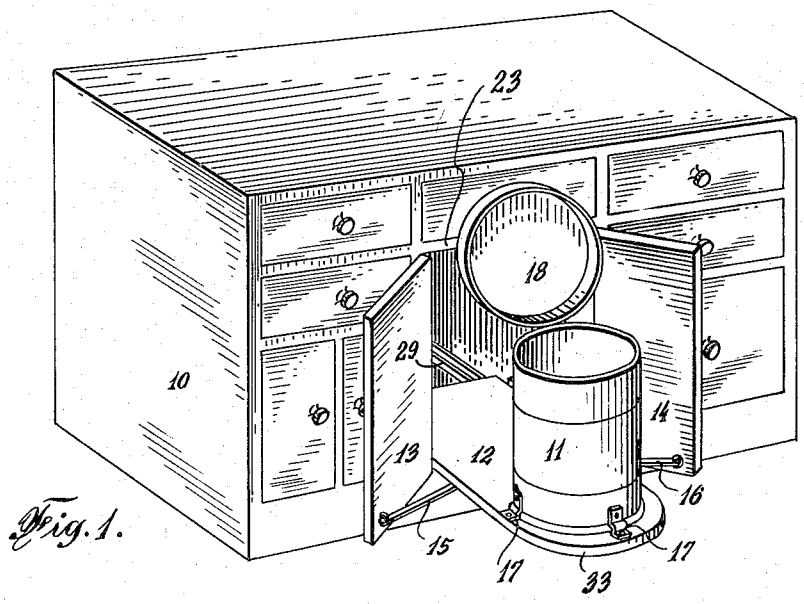

Fig. 1.

Fig. 2.

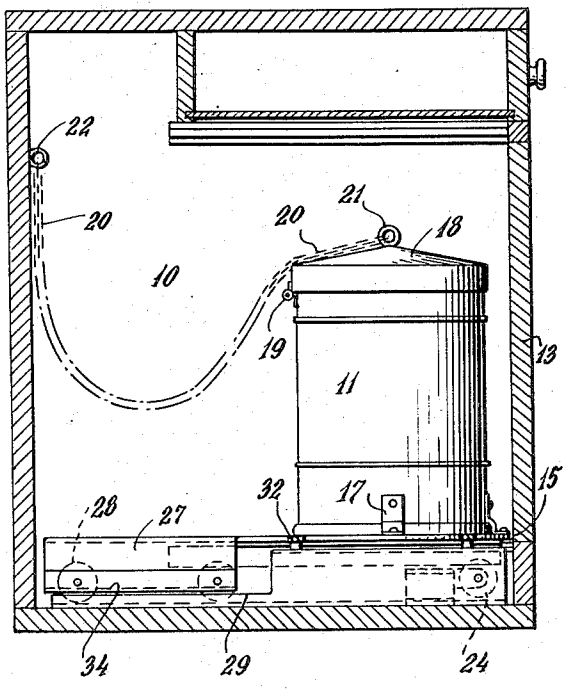

Fig. 3.

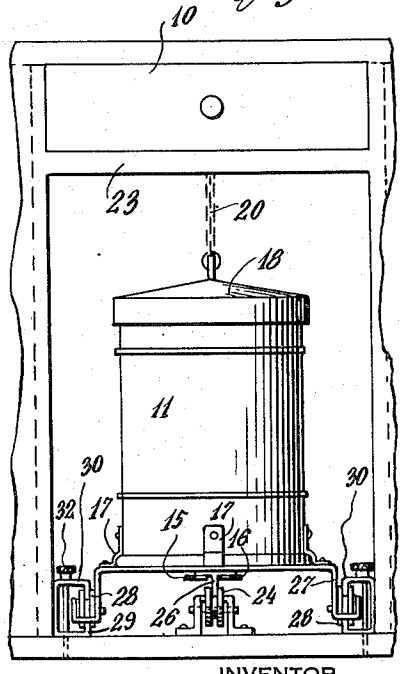

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Fig. 4.

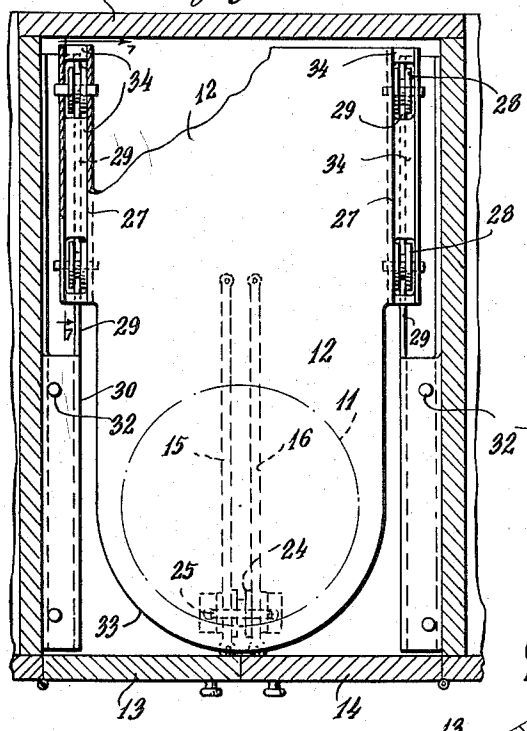
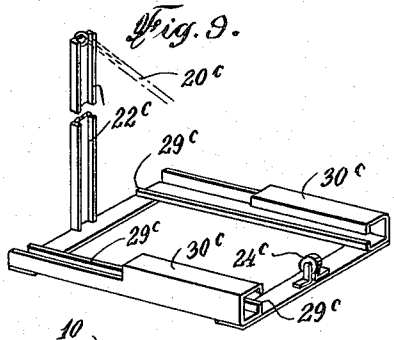


Fig. 9.



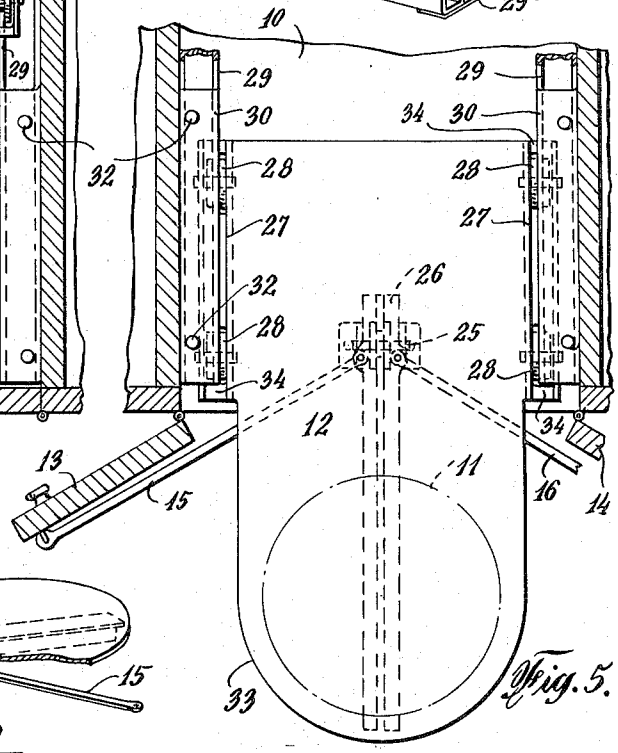


Fig. 5.

Fig. 6.

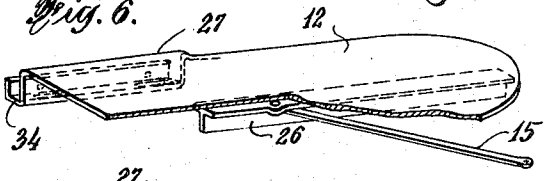


Fig. 7.

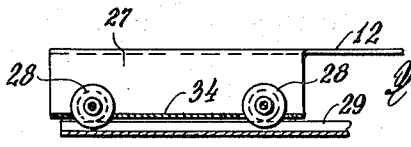
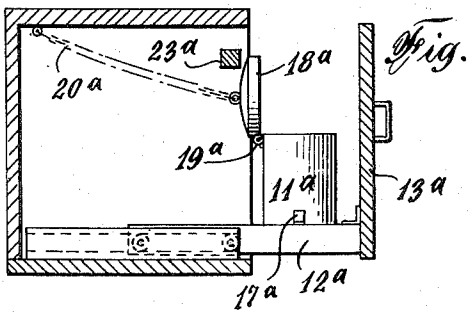


Fig. 8.



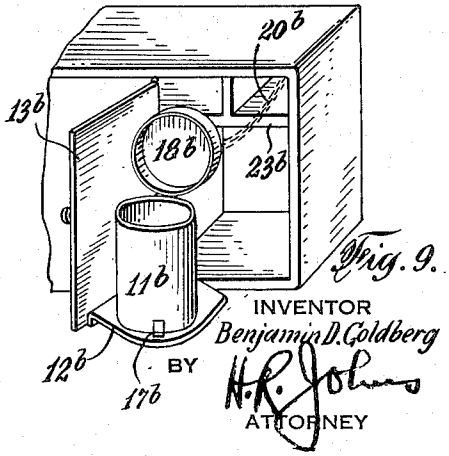


Fig. 9.

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CONTAINER AND SUPPORT THEREFOR

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Application August 15, 1940, Serial No. 352,736

4 Claims. (Cl. 312—192)

This invention relates to containers carried on a movable support or platform and has for an object to provide mechanism for automatically opening a cover for such a container in response to movement of the container in a given, generally horizontal, direction. Another object is to provide means for automatically closing such a cover in response to movement of the container in an opposite direction. A further object is to provide an improved holder for refuse or garbage, which is sanitary, concealed from sight when not in use and covered, yet automatically moved out of its place of concealment and its lid uncovered all in response to opening the closure behind which it is concealed.

Referring to the drawings, Fig. 1 illustrates one embodiment of this invention in a kitchen cabinet.

Fig. 2 is a section through the container and cabinet with the closure in closed position.

Fig. 3 is a front view of the device of Fig. 2 with the closure or doors removed.

Fig. 4 is a top plan view of the platform shown in the position of Fig. 2.

Fig. 5 is a view similar to Fig. 4 but with the platform in its extreme outward position.

Fig. 6 is a perspective of the platform alone with part broken away to show its construction.

Fig. 7 is a section on the line 7—7 of Fig. 4.

Fig. 8 illustrates another embodiment of this invention having an outwardly sliding door or closure.

Fig. 9 shows a perspective of the platform guide rails.

Some convenient type of kitchen cabinet 10 is illustrated in Fig. 1 as being provided with a garbage can or other container 11 mounted on a platform 12 which is adapted to slide out from the cabinet and back into it. The wall opening across the space occupied by the container 11 and the platform is covered by one or more closures or doors 13 and 14, those illustrated being pivotally attached to the cabinet in a usual manner. Rods 15 and 16 are pivotally secured to the under side of a rear end portion of the platform and at their outer ends are pivotally secured to the doors 13 and 14 so that on opening the doors the platform 12 is automatically slid outwardly so that all or at least a substantial and preferably a major part of the container 11 has moved through the opening. To prevent the container from sliding around on the surface of the platform it is secured in place by means of angle brackets 17 which are soldered, riveted or welded to the metal container 11 and screwed or otherwise secured to the platform 12 when the same is of wood. Where the platform is of metal it may be secured in a similar manner as the brackets 17 are secured to the container 11.

A cover 18 is hinged at 19 to the container body part and a flexible tension member, cord or small chain 20, is attached to the top of the container cover, for example at 21, while its other end is secured to a stationary support 22 located in the rear of the enclosure or chamber in which the container is kept.

This flexible member 20 acts as a retarder to hold a portion of the cover 18 against outward movement as the container moves outwardly so that the cover is automatically opened. The length of this flexible member 20 should be such that a substantial part of the container 11 should have moved out of the wall opening before the member 20 is drawn taut and the cover 18 begins to open. Preferably the member 20 is of such length as to allow the cover to be opened to substantially an upright position by the time outward movement of the platform terminates. To insure the platform always moving out the desired amount and no further, a stationary abutment or stop not shown in the drawings is adapted to engage a projection on the under side of the platform to preclude any outward movement of the platform after the abutment and projection have become engaged. If the flexible member 20 is of length such that the cover 18 is not raised to its full vertical position, then on return of the platform and container within the cabinet wall opening the cover 18 will automatically fall by gravity into its closed position. On the other hand, should the length of the flexible member 20 be such as to open the cover 18 to or beyond its vertical position, then on return of the platform a stationary abutment is desired for cooperation with the cover to prevent it falling back onto the container 11 where it would be difficult to automatically close the cover. Such an abutment is constituted by the frame member which extends across the top of the wall opening as shown by the numeral 23. If the wall opening is higher than the container and its cover when in vertical position an additional abutment, located lower down, is desirable for the same purpose.

The platform 12 may be of wood or metal and mounted in a variety of ways, a preferred way being shown in the drawings, to include a central roller 24 mounted on a fixed axis 25 for engagement with the transverse central portion of the platform. Instead of engaging directly with the underside of the platform, the roller 24 may engage a bar 26 of T or other cross-section. When

made of metal the rear side portions of the platform 12 are bent down at 27 to provide a channel-shaped construction 34 on each side, a plurality of rollers 28 being mounted within holes in the bottom of the channel portions 34 for supporting the platform 12 on guide rails 29. In the position of the platform shown in Fig. 2, the weight of the platform and container 11 cause the rollers to rest on the lower guide rails 29. As the container and platform move outwardly and the rollers 28 move forwardly, there may be a tendency for the platform to tilt about the roller 24 as a fulcrum, and to prevent such tilting upper guide rails 30 are provided. These may be as long as the lower guide rails 29, but since they are needed only in the forward portion of the cabinet it is not necessary to provide such upper guide rails over the rear part of the lower rails 29. As shown in Figs. 2 and 3, both the upper and lower guide rails are formed integrally by channel-shaped members which are heavy enough to support the weight of the platform and container yet light enough to be flexed by screws 32 for the purpose of bringing the upper and lower guide rails 29 and 30 close enough together to prevent any objectionable looseness or play between the rollers 28 and either rail. Of course, where desired, the rear end portion of the upper guide rail may be rearwardly bevelled a slight amount to insure easy entrance of the rollers under the upper rails 30.

As shown in the drawings, the front edge of the platform is rounded at 33 when two doors are used, though of course when only one door is used only about a 90 degree curve is needed though it should be made on a larger radius.

In operation, opening either door 13 or 14 suffices to slide the platform 12 outwardly, motion being transmitted from the door being moved through one of the connecting links 15 or 16 to the platform and through the other link to the other door, so that both doors open simultaneously on movement of either one. The container 11 being fixed to the platform 12 moves outwardly with the platform. In the embodiment illustrated in Figs. 1 to 3, the flexible member 20 becomes taut at about the time the eyelet 21 on the container cover passes directly under the frame member 23 over the wall opening. Continued outward movement of the container causes the cover 18 to begin to open, the opening movement of the cover being completed and the outward movement of the platform being stopped at about the time the hinge 19 is in the general plane of the wall opening so that the cover contacts the frame member 23 to prevent it from falling back against the container. As either door is closed the platform begins to move inwardly and so does the container, the cover being closed by cooperation between the cover and the frame member 23, and also with the aid of gravity. The flexible member 20 need not be exactly of the length described but may be found satisfactory when longer or shorter. The stationary supporting eyelet 22 to which the rear end of the member 20 is secured may be located at any convenient position in the rear of the cabinet recess.

The embodiment illustrated in Fig. 8 is substantially similar in construction and operation to that illustrated in the previous embodiment except that the closure or door 13*a* is not hinged but is fixedly secured to the platform 12*a* and moves directly outwardly with it, just as would the front of a drawer. The container 11*a* is secured to platform 12*a* and its cover 18*a* actuated by means of a flexible tension member 20*a*. To prevent the cover 18*a* falling backward an objectionable amount from its open position, a frame member 23*a* extends across the top of the wall opening for cooperation with the cover 18*a*. When the cover has been opened to the amount indicated and the platform slid out as shown in Fig. 8 it will be an easy matter to pour refuse or garbage into the container 11*a*.

The abutment for limiting outward movement of the platform is preferably used with each of the embodiments illustrated. The container cover may be stopped in its opening movement either by cooperation of a rearwardly extending projection on the cover, with a side or other portion of the container body, or by cooperation of the cover with an overhead frame member as illustrated, or by stoppage of the outward movement of the platform before the cover has reached its vertical position so that gravity acting on the cover will maintain the flexible tension member held taut. Adjustment in the amount of opening movement of the cover may be obtained by controlling the length of the flexible tension member, or by adjustment of the position of the container on the platform, or by a change in forward or backward location of the frame member against which the cover cooperates, or by adjustment of the position of the stops between the cover and container should such be used. Instead of being hinged in the manner illustrated in Figs. 1 to 5 the doors 13 and 14 may be mounted in other ways so long as their opening movement is outward to effect an outward movement of the platform 12. The container illustrated may have an inner and removable container within the outer one as is customary, or this container may be of other shapes so long as automatic opening of the cover is permitted. The closure or door for concealing the container and platform when in retracted position is preferred although when not included in the appended claims the door or closure may be omitted and the platform or container grasped for directly drawing it out of the cabinet recess. In the embodiment illustrated in Fig. 1 the forward edge of the platform is rounded on a curvature of radius equal to about half the width of the platform. Rigid connecting links are necessarily in the first embodiment illustrated in order to cause two-way movement of the platform in response to door movement. The rods 15 and 16 being pivotally secured at each end, are removable, so that the container and platform may be removed. When three of more equally spaced brackets 17 or their equivalent are used it is not necessary for them to be secured to the container 11, but such container may rest within them and be freely removable by lifting upward.

No centering brackets 17 are necessary if the platform is provided with a recess in which the container may be set, the recess being deep enough to prevent the container sliding out of place on the platform.

In Fig. 9 the guide rail channels 29*c* are connected at the front and back by cross strips enabling them to be easily inserted in a cabinet where they may or may not be secured to the floor. If not so secured, the screws or bolts 32 need not pass into the floor but may serve their purpose of controlling the spacing of the upper and lower guide rails, without doing so. The front cross strip has a roller 24*c* on which the platform rests. The platform, container and cover are not illustrated in Fig. 9 but are of the

construction shown in Figs. 1 to 7. The rear cross strip in Fig. 9 has a vertically extending post secured thereto so that the flexible tension member **20c** may be secured thereto. The provision of this upstanding post eliminates the necessity for any stationary support or eyelet being secured to a rear wall of the cabinet. With the device of Fig. 9, the cover and container are preferably provided with cooperating stops or abutments to prevent the cover opening more than a desired amount. Inasmuch as such stops are an old expedient, they have not been illustrated since many well known types of such stops are suitable. Should such stops not be present between the cover and container, the upstanding post in Fig. 9 to which the member **20c** is connected, may be provided with a forwardly extending projection at a height sufficient to function as a stop for the cover in place of the abutment **23** in Figs. 1 to 7, or any other suitable type of stationary abutment for the cover may be used. The front cross piece in Fig. 9 may have a small upstanding projection bolted or otherwise secured and adapted to engage a downward projection of the platform to act as a stop for limiting outward movement of the platform. The superposed guide rail prevents the platform tilting under the weight of the container when drawn out. Though not shown in Fig. 9, this construction may have bolts for controlling the spacing of the upper and lower guide rails. Having the rear part of the guide rails free of upper rails as shown in Fig. 9 enables the platform shown in Figs. 1 to 7 to be easily initially lowered into position on these rails and yet when the platform is moved forward the upper rails prevent it tilting.

In each of the embodiments illustrated the platform need not be imperforate as shown but may be of skeleton form sufficient for supporting the container. It is not necessary that some positioning means be necessary for the container where its weight and the friction of the platform surface is sufficient to hold the container in place. While a door or closure is preferred, such may not be necessary as for example where the container is located under a sink or shelf that is not enclosed below it. In this last event the container and platform or support may be moved outwardly in any convenient manner to effect the automatic opening of the container cover. Instead of having to stoop down and open the door or manually move the container outward, it is contemplated to use some well known type of pedal actuated mechanism for moving the platform and container outward. No such pedal mechanism has been illustrated because a number of such are well known in the art.

I claim:

1. The combination with a wall having an opening, of a support, a container carried by said support and movable therewith in a generally horizontal direction through said wall opening with its axis substantially vertical during movement thereof, a cover for the container, a pivotal connection between the cover and container, a second support fixed with respect to said wall, a tension member between said second support and said cover, said tension member, its support, the top of the wall opening, and the attachment of the tension member to the cover being so proportioned and located that the cover is raised substantially and gradually in response to outward movement of the container before it has moved entirely through said wall opening, a closure means for the wall opening, and mechanism connecting said closure means with said container support for moving the container in and out of said wall opening in response to movement of said closure means

2. The combination with a wall having an opening, of a support, a container carried by said support and movable therewith in a generally horizontal direction through said wall opening with its axis substantially vertical during movement thereof, a cover for the container, a pivotal connection between the cover and container, a second support fixed with respect to and behind said wall a distance at least equal to the radius of said cover, a tension member between said second support and said cover, an abutment for limiting opening movement of said cover when the cover has been raised past a substantially vertical position in front of said wall opening and adjacent thereto, said tension member and its support being so located and proportioned as to be capable of raising the cover gradually in advance of movement of said container entirely through said wall opening and in response to outward movement of the container.

3. The combination with a wall having an opening, of a support, a container carried by said support and movable generally horizontally therewith from behind the wall through said opening to a position substantially in front of said wall with the axis of the container being substantially parallel in any position to the axis in every other position, a cover for the container, a pivotal connection between the cover and container, a second support fixed with respect to said wall, a tension member between said second support and said cover, there being substantial head room behind said wall and above said cover, whereby the cover may be raised substantially by said tension member in response to outward movement of the container in advance of its movement entirely through said opening, the distance between the top of said wall opening, and the second support being at least substantially equal to the distance between the said second support and the place of attachment of the tension member to said cover, a door for said wall opening, and a connecting link between said door and container support for moving the container in and out of said wall opening in response to movement of said door.

4. The combination with a wall having an opening, of a support, a container carried by said support and movable therewith through said wall opening with its axis substantially vertical during movement thereof, a cover for the container, a pivotal connection between the cover and container, a second support fixed with respect to said wall, a tension member between said second support and said cover, said tension member, its support, the top of the wall opening, and the attachment of the tension member to the cover being so proportioned and located that the cover is raised substantially and gradually in response to outward movement of the container before it has moved entirely through said wall opening, a closure means for the wall opening, and mechanism connecting said closure means with said container support for moving the container in and out of said wall opening in response to movement of said closure means.

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