

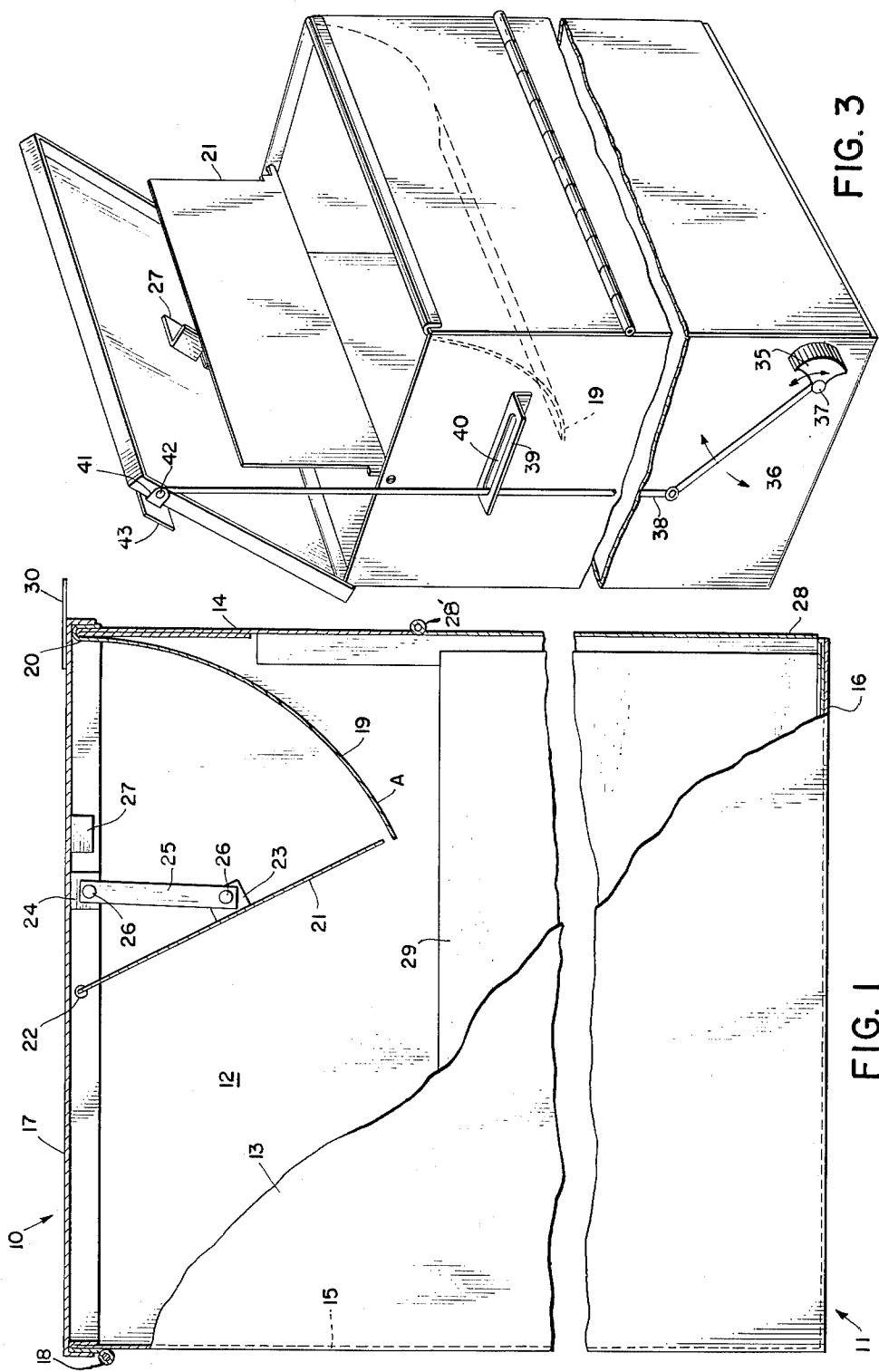
Aug. 24, 1965

P. F. JACOBS
RECEPTACLE

3,202,346

Filed Oct. 11, 1963

2 Sheets-Sheet 1



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Filed Oct. 11, 1963

2 Sheets-Sheet 2

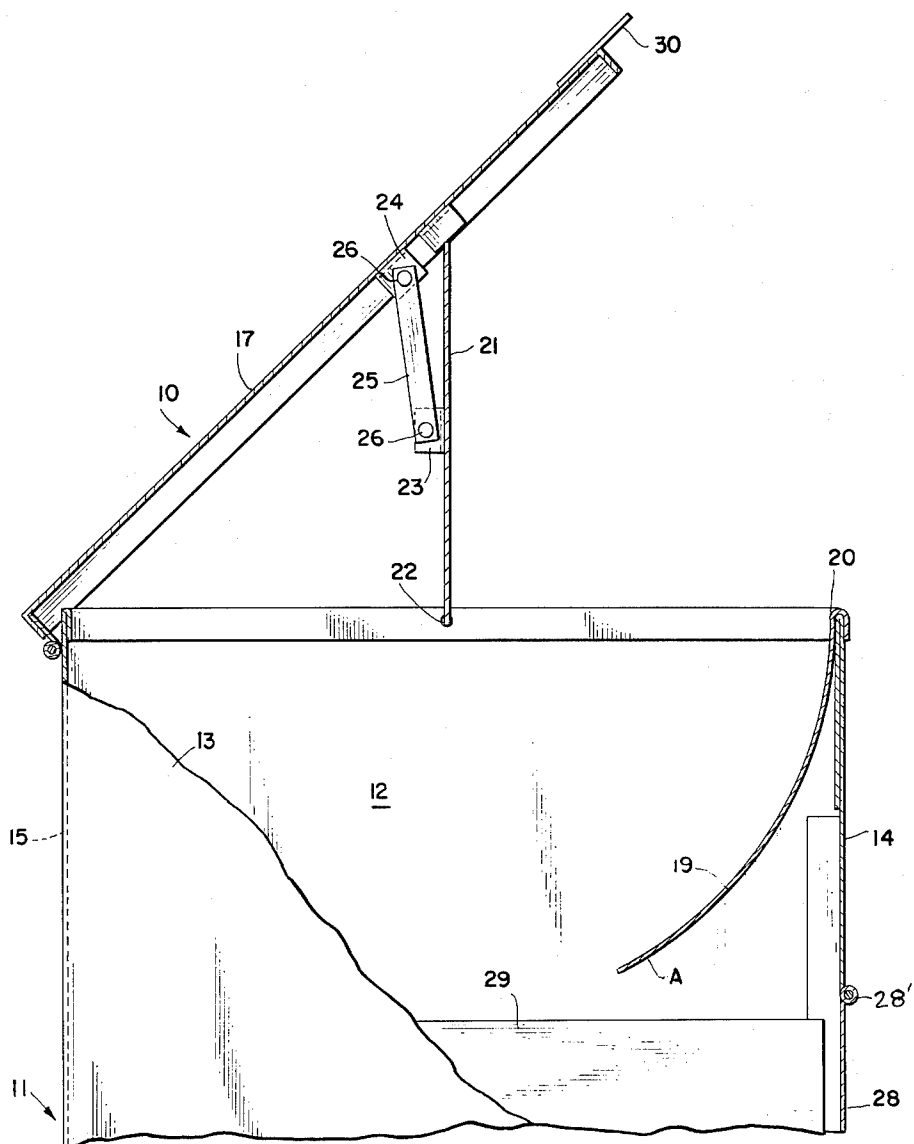


FIG. 2

1

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RECEPTACLE

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Filed Oct. 11, 1963, Ser. No. 315,484

5 Claims. (Cl. 232-43.3)

This invention relates to a receptacle and more particularly to a self-tamping receptacle especially well suited for receiving more or less readily compactable material such as spent paper towels and other materials.

Waste receptacles have long been provided for receiving and confining quantities of such materials as paper, textile fabric and plastic. One form of such containers is commonly seen along public roads and corridors of buildings for receiving waste, and in public washrooms for receiving used paper or cloth towels. Unless the material deposited in such receptacles is regularly tamped or compacted, the receptacle usually overflows and spills its contents when only a small quantity by weight of material has been deposited therein as compared to the actual weight capacity of the unit. While considerable effort has been expended in designing and making receptacles which would increase the capacity of such receptacles and eliminate the unsightly or unsanitary condition usually associated with such receptacles, they have left much to be desired.

It is, therefore, a principal object of the present invention to provide an improved receptacle having an exceedingly simple and compact construction and which receives and confines in a given volume a much larger quantity of material than could be retained without overflowing by much larger receptacles.

Another object is to provide such a receptacle in which the material deposited therein is tamped and compacted automatically as more and more material is introduced during normal use.

A more specific object is to provide such a receptacle, which is especially well suited for use in washrooms for receiving spent paper towels, in which the normal opening and closing of the receptacle incidental to the insertion of material results in the application of a direct and positive tamping and compacting force upon the material in the receptacle thereby ensuring ready acceptance and retention in the receptacle of a much larger quantity of material than could hitherto be attained with much larger units.

The foregoing as well as additional objects and advantages of the present invention will be apparent from the accompanying drawings, in which:

FIGURE 1 is a side elevational view of a receptacle constructed in accordance with the present invention with a portion of the external casing cut away to expose the interior;

FIGURE 2 is a similar view but with the cover and tamping flap shown in their fully open position for the insertion of material into the receptacle;

FIGURE 3 is a perspective view of a further embodiment of a receptacle constructed in accordance with the present invention.

A receptacle constructed in accordance with the present invention comprises a casing having a closure member which is preferably in the form of a cover hingedly connected to the casing at the rear thereof so that the casing may be opened by raising the front end of the cover. Guiding and retaining means are provided preferably in the form of an arcuate member mounted in the opening of the casing and extending downwardly and rearwardly therefrom. An important feature of the receptacle resides in the provision of means for compacting the material introduced into the receptacle, preferably in the

2

form of a flap pivotally connected to the casing and connected to the cover for coaction therewith.

The arrangement is such that when the cover is raised to introduce material into the receptacle, the compacting flap is rotated about its pivot through a large enough arc so that the opening and guideway into the receptacle is freely accessible for the introduction of material. When the cover is dropped or closed, the compacting flap is forced to travel through its arc and sweep the surface of the arcuate guide member. Material is forced by the flap downwardly and rearwardly into the receptacle. As more and more material is introduced into the receptacle, the compacting flap acts to compact the material which is now forced under and behind the guide member, the latter preventing the compacted material from rising to block the opening of the receptacle. Also, as will be more fully brought out, the guideway being fixed, coacts with the flap in the compacting of the material.

Turning now to the drawings in detail, receptacle 10 is illustrative of a preferred embodiment of the present invention and comprises a generally rectangular casing 11 having opposite side walls 12 and 13, a front wall 14, and a rear wall 15, all connected to each other and to a base 16. Casing 11 also comprises a closure member 17, having a peripheral flange, for closing the upwardly presented end of the casing. Closure member 17 is hingedly connected, as indicated at 18, along its rearwardly presented edge to the upper end of rear wall 15.

Guiding and retaining means are preferably provided in the form of an arcuate guide member 19 extending between side walls 12 and 13 and extending downwardly and rearwardly from the upper end of wall 14. The upper end portion 20 of guide member 19 is turned over so as to have a generally U-shaped configuration in cross-section to facilitate securing the guide member 19, as by spot welding, to the front wall 14.

Means for compacting the material introduced into the receptacle 10 are preferably provided in the form of a rectangular flap 21 pivotally connected at 22 to the opposite side walls 12 and 13. It will be noted that the pivots 22 of the flap 21 are generally centrally located on the side walls 12 and 13 adjacent to the top edges thereof. The flap 21 carries an L-shaped tab 23 which is generally centrally located on and fixed to the upwardly presented surface of the flap. A similar L-shaped tab 24 is fixed to the under-surface of the closure member 17. It will be noted that the second tab 24 is connected to the closure member 17 at a point such that when the closure member 17 is seated in its closed position on the casing 11, FIGURE 1, the tab 24 is located on the side of pivots 22 toward the front of the receptacle. A lever 25, pivotally connected at its opposite ends to the tabs 23 and 24, as indicated at 26, interconnects closure member 17 with the flap 21. An operating handle is conveniently provided for the closure member 17 in the form of a tab 30 fixed to the closure member 17 and projecting beyond the front edge thereof. Between the tab 24, which pivotally connects lever 25 to the closure member 17, and the front edge of the closure member 17, there is fixed to the latter a stop 27 which depends from the under-surface of the closure member for a purpose yet to be described.

If desired, material may be introduced directly into the casing 11. More conveniently, casing 11 is provided with an opening in the front wall 14 closed by a door 28 joined to the front wall 14 by means of a hinge 28'. Seated within the casing 11 is a container 29 open at its top to receive and to facilitate removal of material from the casing 11.

In operation, the closure member 17 is raised manually or otherwise by engaging tab 30 and rotating the cover

3

about its hinge 18. As closure member 17 is opened, the flap 21 being linked thereto by lever 25, rotates about its pivots 22. The linkage is such that the flap 21 necessarily rotates faster than the closure member. Thus, as shown in FIGURE 2, when the closure member 17 has been rotated approximately 45° about its hinge, the flap 21 is simultaneously rotated through an angle of about 180° to engage the stop 27 and arrest further motion of the cover. Material may now be introduced into the receptacle through the opening formed by the closure member 17 and the flap 21. The closure member may be released to fall by its own weight or may be urged shut. In any case, the closure member forces the flap to rotate clockwise as viewed in FIGURES 1 and 2 to the closed position shown in FIGURE 1. Any material remaining on the guide member 19 is swept off the same by the flap 21. In this connection, it is to be noted that the curvature of the guide member 19 conforms to the arc swept out by the free edge of the flap 21 and preferably the dimensions of the flap 21 and the curvature of guide member 19 are such as to provide the minimum clearance therebetween to ensure free operation. As more and more material is introduced into the receptacle and the container 29 fills with loosely compacted material, the addition of further material results in the flap 21 exerting a compacting action upon the material to force the same rearwardly and downwardly into the container 29. As filling of the container 29 continues, the compacting action of the flap 21 results in a generally counterclockwise motion of the material and material near the front of the container 29 below the guide member 19, rises against the guide member 19. Upon the introduction of yet more material, the material becomes more and more compacted between the flap 21 and the under-surface A of the guide member 19. Repeated tests have shown that a surprisingly great compacting action is attained with the result that much more material can be fed into and contained within the receptacle 11 than could be introduced into much larger, hitherto available receptacles during normal use.

Referring now to FIGURE 3, the embodiment there shown is essentially similar to that shown in FIGURES 1 and 2 and, to avoid unnecessary repetition, corresponding parts have been identified by the same reference characters throughout the drawings. In the embodiment shown in FIGURE 3, operation of the closure member 17 is by means of a foot operated pedal 35 fixed to the lower arm 36 of an L-shaped lever. The pedal 35 and the arm 36 are pivotally connected to the side wall 13 as indicated at 37. The upwardly extending arm 38 of the L-shaped lever passes through an elongated slot 40 formed in a bracket 39 also fixed to the side wall 13. The upper end of lever arm 38 is pivotally connected at 42 to an L-shaped tab 41 carried by a tab 43 connected to and projecting from the side of the closure member 17.

When pedal 35 is actuated by the foot of an operator, it is rotated clockwise, as viewed in FIGURE 3, causing the arms 36 and 38 of the L-shaped lever to rotate about the pivot 37 and raise the closure member 17. Operation of the closure member and the flap 21 as well as co-action of the latter with the guide member 19 is the same as was described in connection with the embodiment shown in FIGURES 1 and 2.

The receptacle of the present invention in addition to being especially well suited for use as a receptacle for receiving spent paper towels, is also well suited for receiving a wide variety of other materials particularly such materials which, like paper, unless compacted result in a considerable wastage of space. It is also to be noted that the receptacle of the present invention is susceptible of a wide degree of modification without departing from the scope and spirit of the present invention. For example, it is contemplated that the receptacle, though shown as being fabricated from sheet metal may be made from other materials such as woven or mesh metal, fibrous

4

or plastic sheet, and woven or mesh material or combinations thereof. The receptacle is preferably made rectangular as shown but other configurations, such as cylindrical, may also be used with the flap 21 generally semi-circular in shape.

The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention, in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

I claim:

1. A receptacle, comprising a casing having an opening, a closure member for said opening pivotally connected adjacent to the rear thereof to said casing, a tamping flap extending across said opening and pivotally connected adjacent to the rear thereof to said casing for movement through a predetermined arc, said tamping flap from the rear to the front thereof being substantially shorter than said closure member, an arcuate guide member connected to said casing adjacent to said opening and extending in said casing along and adjacent to a portion of said arc swept by the free end of said tamping flap, and means connecting said tamping flap to said closure member for moving said tamping flap through said arc along said guide member when said closure member is moved through a substantially smaller arc as it is opened and closed.

2. A receptacle, comprising a casing having oppositely disposed side walls connected by front and back walls with the upper ends thereof defining an opening, a closure member for said opening pivotally connected along the rearward edge portion thereof to the upper edge portion of said rear wall, a tamping flap extending across said opening and pivotally connected to said side walls adjacent to the upper ends thereof for movement through a predetermined arc, an arcuate guide member connected to said front wall adjacent to the upper end thereof and extending downwardly and rearwardly in said casing along a portion of said arc, and means connecting said tamping flap to said closure member for moving said tamping flap through said arc when said closure member is pivoted through a substantially smaller arc.

3. A receptacle, comprising a casing having oppositely disposed side walls connected by back and front walls with the upper ends thereof defining an opening, a closure member for said opening pivotally connected along the rearward portion thereof to the upper edge portion of said wall, a tamping flap extending across said opening between and pivotally connected to said side walls adjacent to the upper ends thereof for movement through a predetermined arc, said tamping flap from the rear to the front thereof being substantially shorter than said closure member, an arcuate guide member connected to said front wall adjacent to the upper end thereof and extending downwardly and rearwardly in said casing along a portion of said arc, means including a lever connecting said tamping flap to said closure member for moving said tamping flap through said arc when said closure member is moved through a substantially smaller arc as it is opened and closed, and stop means for limiting to a predetermined angle the extent to which said closure member can be opened and thereby limiting the corresponding movement of said tamping flap.

4. A receptacle, comprising a casing having oppositely disposed side walls connected by back and front walls with the upper ends thereof defining an opening, a closure member for said opening pivotally connected along the rearward portion thereof to the upper edge portion of said wall, a tamping flap extending across said opening between and pivotally connected to said side walls adjacent to the upper ends thereof for movement through a predetermined arc, said tamping flap from the rear to the front thereof being substantially shorter than said closure

5

member, an arcuate guide member connected to said front wall adjacent to the upper end thereof and extending downwardly and rearwardly in said casing along a portion of said arc, means including a lever connecting said tamping flap to said closure member for moving said tamping flap through said arc when said closure member is moved through a substantially smaller arc as it is opened and closed, means including a foot pedal connected to said casing and to said closure member for operating the latter, and stop means for limiting to a predetermined angle the extent to which said closure member can be opened and thereby limiting the corresponding movement of said tamping flap.

5. A receptacle, comprising a casing having upstanding walls and an opening formed therein, a closure member for said opening pivotally connected to said casing, a tamping flap within said casing and extending across and below said opening, said tamping flap being pivotally connected to said casing at portions of said tamping flap remote from said opening for movement through a predetermined arc, an arcuate guide member connected to said casing adjacent to said opening and extending down-

6

wardly and rearwardly in said casing along a portion of said arc, said guide member having a surface presented in the direction away from said opening, and means connecting said tamping flap to said closure member for moving said tamping flap through said arc and forcing material introduced into said casing past said guide member and against its said surface when said closure member is pivoted through a substantially smaller arc.

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