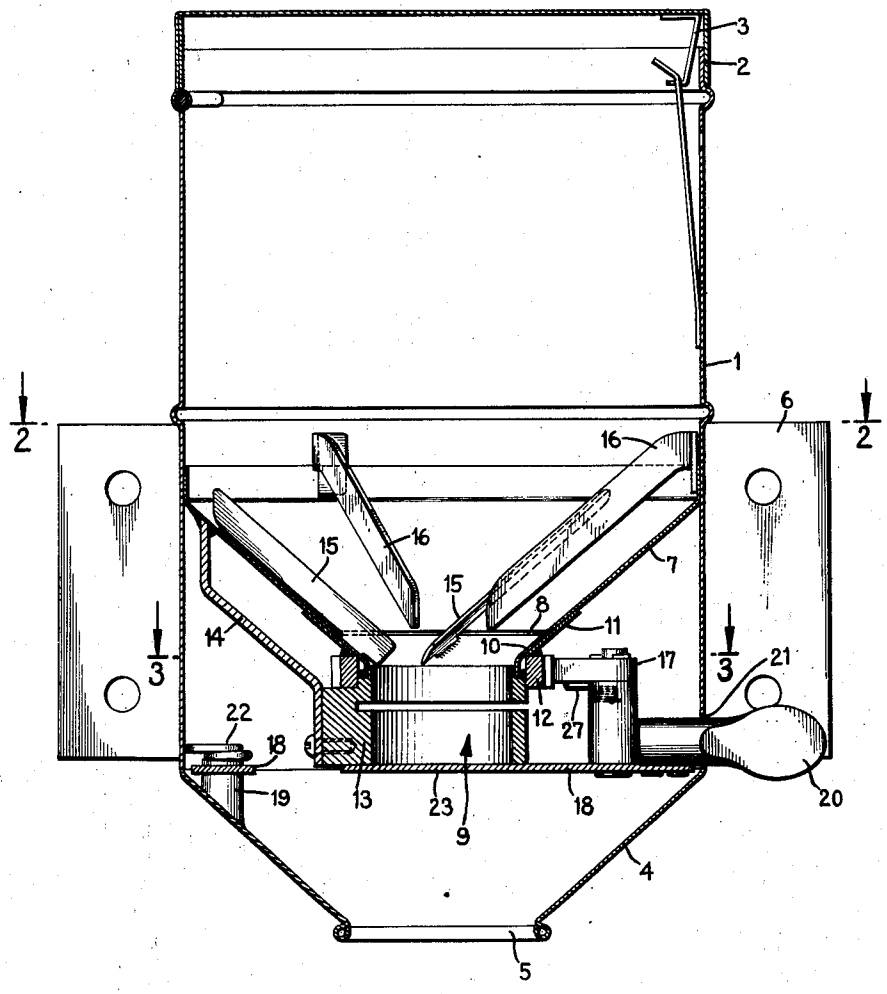
June 10, 1941. J. A. MARCUSE 2,245,488

DISPENSING DEVICE

Filed Feb. 9, 1940 2 Sheets-Sheet 1

FIG.1.



INVENTOR.
JOHN A. MARCUSE

BY E. F. Wenderoth

ATTORNEY.

June 10, 1941. J. A. MARCUSE 2,245,488

DISPENSING DEVICE

Filed Feb. 9, 1940 2 Sheets-Sheet 2

FIG. 2.

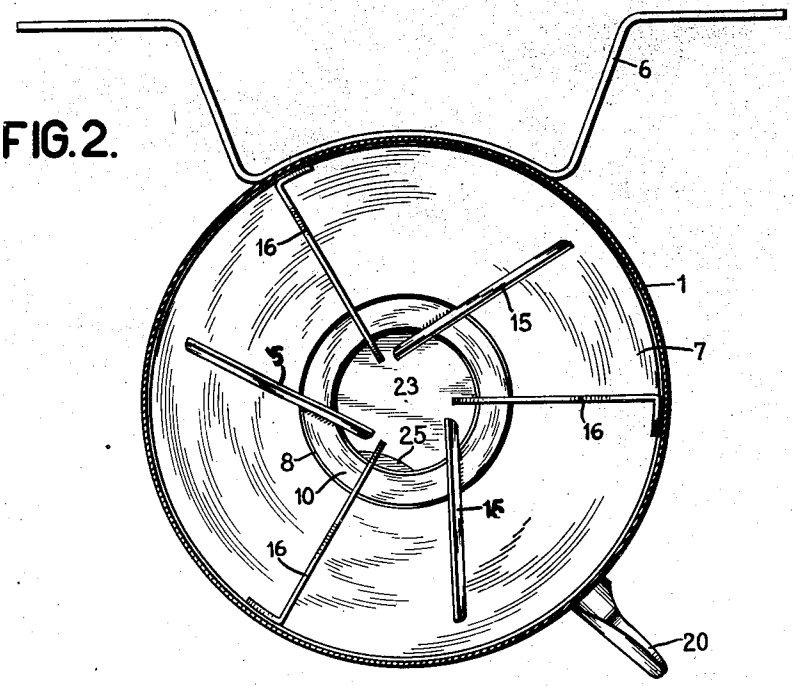


FIG. 4.

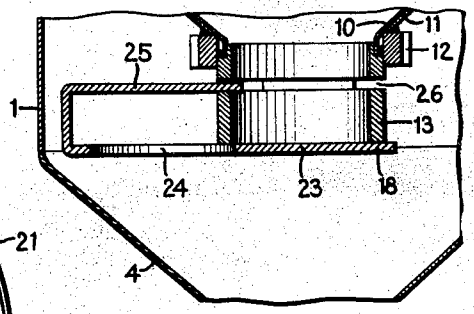
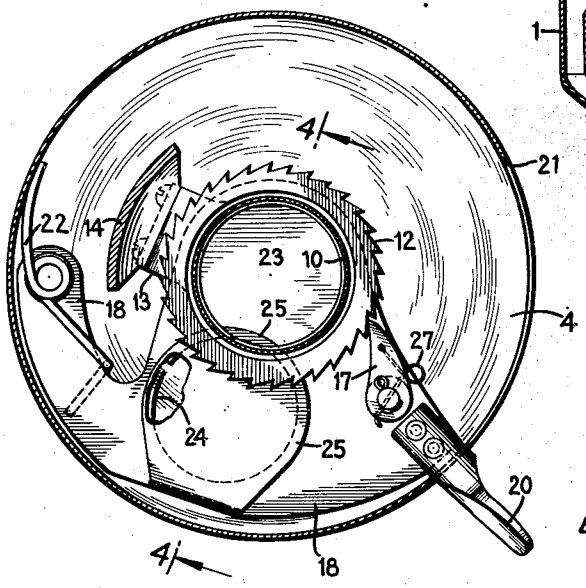


FIG. 3.



INVENTOR.
JOHN A. MARCUSE
BY E. F. Hendroth
ATTORNEY.

Patented June 10, 1941 2,245,488

UNITED STATES PATENT OFFICE

2,245,488

DISPENSING DEVICE

John A. Marcuse, Scarsdale, N. Y., assignor to West Disinfecting Company, Long Island City, N. Y.

Application February 9, 1940, Serial No. 318,142

6 Claims. (Cl. 221—114)

This invention relates to dispensers for solid material and particularly to a device for dispensing powdered soap such as is used in washrooms, lavatories, and the like.

In devices of the above type, it is desired to dispense a measured quantity of soap upon each actuation of the device, and various means of accomplishing this have been proposed, such as a ratchet-operated valve, or a rod which is pushed upwardly by the user's hand to open a valve.

In order to prevent caking of the soap within the dispenser, it has also been proposed to provide agitating means operated by the valve-opening means, but I have found that such agitating means as have heretofore been proposed have been ineffectual to secure efficient dispensing action when the dispenser is filled with soap powder of a relatively oily nature or when moisture has reached the powder within the dispenser.

The chief object of the present invention is to provide a dispenser which will be efficient in operation even when the material therein is of an oily nature or has become moist and tends to cake.

It is also an object of the invention to provide a dispenser in which agitating or scraping means are provided for positively scraping material from the inner surface of the dispenser in the neighborhood of the outlet therefrom.

Another object of the invention is to provide agitating means of sturdy construction, amply supported in operation and, therefore, not likely to get out of order.

It will be appreciated that the problem of providing an efficient dispenser is an important one because, with such a dispenser, soap powder of a more oily nature and consequently of a better quality can be used, thus increasing the field of use for such dispensers. Also the provision of a more efficient dispenser is advantageous even where less oily soaps are used since soap dispensers are usually mounted above wash basins where the amount of moisture is great and this moisture tends to enter the dispenser and cause caking of the soap powder therein regardless of what kind of soap powder is used.

In order that the invention may be clearly understood and readily carried into effect, the same will now be described more fully in conjunction with the accompanying drawings disclosing by way of example one embodiment of the invention. Although the drawings and following description refer to the use of the dispenser for powdered soap, it will be understood that the invention can also be used for dispensing other materials. In the drawings:

Fig. 1 is a central vertical section through a dispenser embodying the invention.

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal section taken along the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary vertical section taken on the line 4—4 of Fig. 3.

Referring to the drawings, the dispenser of the invention comprises a body 1 adapted to receive powdered soap or the like and having a hinged cover 2 with a suitable locking device 3. The body 1 has a frusto-conical discharge spout 4 with an opening 5 at the lowermost part thereof. The usual bracket 6 for attachment to a wall or the like may also be provided.

The body 1 is provided interiorly with a bottom 7 spaced from the frusto-conical discharge spout 4, the bottom 7 also being of frusto-conical form and terminating in a lower dispensing opening 8.

In accordance with the invention, passage of material through the opening 8 is controlled by a combined dispensing and agitating device designated generally by 9. The device 9 comprises a frusto-conical element 10 which constitutes a continuation of the bottom 7. The element 10 is adapted to rotate with respect to the bottom 7 but overlaps the latter, for example by the extension 11 so as to prevent egress of material between the parts 7 and 10. The element 10 has fixed thereto a ratchet, said element 10 and the ratchet being mounted for rotation as a unit on a sleeve 13 which is maintained in fixed relation to the bottom 7 by a supporting bracket 14.

The rotatable element 10 has a plurality of vanes 15 fixed thereto, and co-operating stationary vanes 16 are fixed to the bottom 7 of the dispenser body. The stationary vanes 16 are spaced from the inner surface of the bottom by a distance slightly greater than the width of the movable vanes 15, and the vanes 15 project beyond the element 10 into contact with, or at least in close proximity to the bottom. Therefore, when the vanes 15 are moved in a manner hereinafter explained, they will sweep through the space between the vanes 16 and the bottom, not only scraping adhering material from said bottom but also generally agitating the mass of material within the dispenser by their movement therethrough and by their interaction with the vanes 16.

The vanes 15 and element 10 are moved by

engagement of a pawl 17 with the aforementioned ratchet 12. This pawl is mounted on a plate 18 arranged in the space between the bottom 7 and the discharge spout 4. Plate 18 is pivoted for movement in a horizontal plane about pin 19. Movement is imparted to the plate, and consequently to the pawl and ratchet by an operating lever 20 projecting through an elongated slot 21 in the side of the dispenser body. A spring 22 is provided for returning the plate 18 to its original position after movement thereof.

Referring to Fig. 4, it will be seen that the plate 18 has a solid portion 23 which in the normal position (as shown) closes the opening through sleeve 13. The plate 18 also has an opening 24 adapted to come into registry with the opening through sleeve 13 when the plate 18 is moved by lever 20. The plate 18 also has an extension 25 overlying the opening 24 and spaced therefrom, which extension, upon movement of the plate, is adapted to enter a slot 26 in the side of the sleeve 13 and close the opening of said sleeve.

In operation, and assuming the dispenser filled with soap powder, the powder will drop into the space within sleeve 13 but will not escape due to the fact that the portion 23 of the plate 18 normally closes the sleeve. Upon actuation of lever 20, the plate 18 will be swung about its pivot 19 thereby moving the portion 23 away from the sleeve 13 and placing the aperture 24 in registry with said sleeve. At the same time, the portion 25 of the plate 18 will enter the sleeve through the slot 26. As a result, the body of material between the portions 23 and 25 will be dispensed, but the portion 25 will prevent more material running out of the dispenser.

During movement of the plate 18, the pawl 17 moves the ratchet 12 and its associated parts including vanes 15. As a result, the vanes 15 are rotated relatively to the bottom 7, relatively to the material in the dispenser, and relatively to the stationary vanes 16. This provides a vigorous and efficient agitating action and is to be distinguished from the mild agitation which is obtained when a member is merely moved through a mass of material. With the arrangement of the present invention, the vanes not only move through the material, but also scrape the bottom of the dispenser where the greatest caking is likely to occur. Also the movable vanes have what might be called a shearing action in co-operation with the stationary vanes, and this further increases the efficacy of the agitation.

Upon return movement of the plate 18 caused by spring 22, the portion 25 moves to the inactive position, and the portion 23 moves to the active position shown in the drawings. The pawl 17 runs idly over the ratchet teeth as permitted by its spring 27.

It will be appreciated that, if desired, the movement of the vanes 15 could be made to occur during return movement of the plate 18, for example by reversing the direction of teeth on the ratchet and correspondingly changing the pawl. With such an arrangement, the vanes would be moved while the space within the sleeve 13 is filling up with material rather than while said space is being emptied.

It will be seen from above that there has been provided a dispenser of simple construction in which agitation of the material is effected as an incident to the dispensing operation and this agitation is of such a character that movable vanes are rotated in close proximity to a stationary inner wall of the dispenser and in close proximity to stationary vanes. Also, as the movable vanes are in close proximity to the stationary inner wall, they derive some measure of support therefrom.

Although a single embodiment has been described and illustrated by way of example, it will be understood that other forms may be used without departing from the invention as expressed in the appended claims.

What I claim is:

1. A dispenser comprising a container having a conical bottom leading to a discharge opening, vanes secured to a stationary part of the dispenser and extending over said bottom substantially parallel thereto and spaced therefrom, movable vanes extending over said bottom and substantially filling the space between the inner surface of the bottom and said stationary vanes, and means for moving the movable vanes and for dispensing material from the container.

2. A dispenser comprising a container, a discharge opening in the bottom of said container, a stationary sleeve attached to said bottom and extending downwardly in continuation thereof, a plate closing the bottom of said sleeve, rotatable means mounted on said sleeve and carrying agitating vanes extending into the container in engagement with the bottom thereof, and means for rotating said plate and the rotatable means carrying the vanes.

3. A dispenser as claimed in claim 2, comprising a second plate associated with the closure plate and adapted to close the opening of the container bottom when the closure plate is moved away from the bottom of the sleeve.

4. In a dispenser, a container having side walls, a bottom with a discharge opening, a discharge spout below said discharge opening, a plurality of stationary vanes extending across said container bottom substantially parallel thereto and spaced therefrom, a plurality of movable vanes mounted on an annular member and extending across the surface of said bottom between it and the stationary vanes, said annular member being mounted on a stationary annular sleeve associated with said container bottom.

5. A dispenser comprising a container having a bottom with a discharge opening, a discharge spout in said container spaced from said discharge opening and having an opening in the lower part thereof, scraping and agitating means comprising stationary vanes extending across said container bottom substantially parallel thereto and spaced therefrom, and movable vanes arranged in the space between said stationary vanes and bottom, and means in the space between said discharge spout and container bottom for carrying the movable vanes and for closing the discharge opening of the container bottom.

6. A dispenser comprising a container having a bottom with a discharge opening, a discharge spout spaced from said opening and having an opening in the lower part thereof, stationary vanes extending across the bottom but spaced therefrom, movable vanes in the space between the stationary vanes and the bottom, a stationary sleeve below the opening of the bottom and in the space between said bottom and discharge spout, means rotatably mounted on said sleeve carrying said movable vanes, closure plates in said space adapted to cooperate with said sleeve to open and close same, and means extending through the wall of the dispenser for operating said plates and rotating said movable vanes.

JOHN A. MARCUSE.