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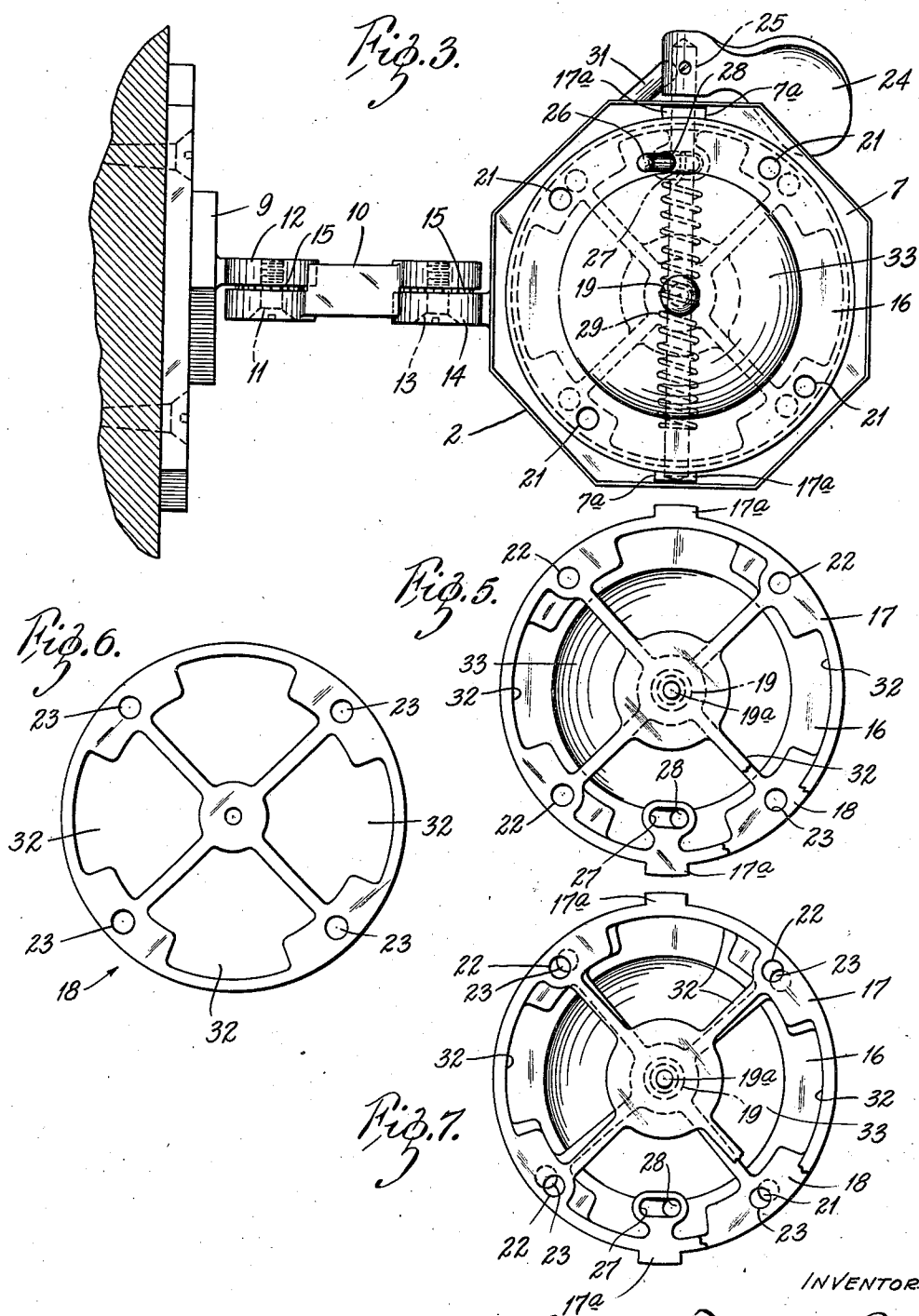
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DISPENSER

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2 Sheets-Sheet 2



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DISPENSER

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9 Claims. (Cl. 221-62)

This invention relates to dispensers for powdered soap or other finely divided materials. The principal objects of the invention are to provide a simple, economical and easily operable device that provides for a free discharge of the material without mechanical agitation, that can be easily inspected, repaired and refilled, that will protect the contents of the dispenser from water or vapor, that can be readily adjusted to vary the quantity of material discharged, that can be locked so that the contents thereof can only be removed by the normal dispensing operation and that will embody other advantages hereinafter appearing. The invention consists in the dispenser and in the construction, combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like symbols refer to like parts wherever they occur,

Fig. 1 is a view partly in side elevation and partly in vertical section of a dispenser embodying my invention,

Fig. 2 is a vertical section through the lower portion of the dispenser on the line 2-2 in Fig. 1,

Fig. 3 is a plan view of the dispenser with the upper section removed,

Fig. 4 is an enlarged vertical section through the upper portion of the container on the line 4-4 in Fig. 1,

Fig. 5 is a bottom plan view of the rotary soap dispensing mechanism,

Fig. 6 is a face view of the intermediate adjusting disk; and

Fig. 7 is a view similar to Fig. 5 with the dispensing mechanism adjusted to cut down the size of the discharge openings.

The dispenser shown in the accompanying drawings comprises a hollow material containing upper section 1 supported on a hollow base or dispensing section 2 and having a screened filling opening at its upper end closed by a hinged cover 3. Mounted for limited vertical sliding movement in a central opening provided therefor in the cover 3 is a stud 4 having a threaded lower end portion adapted to cooperate with a threaded hole provided therefor in a strap 5 that spans said opening and has its ends rigidly secured to the side walls of the container 1. This stud has a flatsided upper end portion 4a that terminates short of the upper end of the cover 3 and is adapted to be rotated by a suitable key (not shown) to cause the threaded lower end of said stud to enter the hole in the strap 5 and thus lock the cover in closed position.

The lower end portion of the container section 1 has a continuous downwardly opening groove 6 that receives the upper end portion of the side wall of the hollow base section, the inner wall of said groove being extended below the outer wall thereof and resting on a horizontal shoulder or ledge 7 provided therefor in said base section. The container section is removably secured to the base section preferably by means of a screw 8 which extends through a hole in the side wall of the base section just below the outer wall of the container section and is threaded into the inner wall thereof.

The base section 2 of the dispenser is supported on an adjustable wall bracket comprising a base plate 9 adapted to be secured flatwise to the wall and a link 10 having one end pivotally secured by a screw 11 to an outstanding lug 12 on said base plate and its other end pivotally secured by a screw 13 to an outstanding lug 14 on the side wall of said base section. By this arrangement, the dispenser may be adjusted vertically and at various distances from the wall by swinging the link 10 relative to the base plate 9; and the vertical position of the dispenser may be maintained by swinging the same about the screw 13 as a pivot. The dispenser is locked in the desired position of adjustment by tightening the screws 11 and 13, suitable friction washers 15 being interposed between the link and the lugs.

Seated on the interior ledge 7 of the base section 2 of the dispenser is a dispensing valve which normally closes the opening in the bottom of the upper container section 1. This valve comprises top, bottom and intermediate disks 16, 17 and 18, respectively, of the same diameter that are held together by means of a headed stud 19, which extends downwardly through a central hole provided therefor in the top disk 16 and has a reduced threaded lower end portion 19a that passes through a central hole in the intermediate disk 18 and is threaded through a central hole in the bottom disk 17. When the stud 19 is tightened, it prevents relative rotary movement of the bottom and intermediate disks, while permitting rotary movement of the top disk relative to said bottom and intermediate disks. The bottom disk 17 has diametrically opposed outstanding lugs 17a thereon that seat in recesses 7a provided therefor in the container supporting ledge 7 of the base section and thus prevent rotation of said disk in said section. The superimposed disks 16, 17 and 18 of the dispensing valve are provided in their peripheral marginal portion with similar series of circumferentially spaced holes 21, 22 and

23, respectively, the holes of the intermediate and bottom disks being always in communication and the holes of the top disk being normally out of register with the holes of said intermediate and bottom disks so as to prevent flow of material through said holes.

The upper disk is rotated to bring its openings into register with the communicating openings in the two disks therebelow by means of a thumb operated arm 24 that is located exteriorly of the dispenser and is fixed to a horizontal rock shaft 25 that extends crosswise of the base section with its ends journaled in the side walls thereof just below the valve supporting ledge therein. This horizontal rock shaft is provided with a radially projecting cylindrical pin 26, which extends upwardly through an elongated slot 27 provided therefor in the bottom disk 17 of the valve and has a working fit in a circular hole 28 provided therefor in the rotary top disk 16, whereby the swinging movement imparted to said pin upon rotation of the rock shaft causes said top disk to rotate far enough to bring the openings 21 therein into register with the communicating holes 22 and 23 in the bottom and intermediate disks. The rotary top disk is yieldably held in cut-off position by means of a coiled torsion spring 29 that is sleeved on the rock shaft 25 with one end anchored thereto and with the other end anchored to a pin 30 that projects inwardly from the side wall of the base section 2. The opening and closing movements of the rotary disk valve 16 are limited by the engagement of the pin 26 with the ends of the arcuate slot 27 in the disk 17. In order to prevent bending or breakage of the pin 26 by excessive pressure on the arm 24, a stop pin 31 is mounted on the base section in position to be engaged by said arm 24 when the holes 21 in the rotary top disk 16 are in line with the discharge holes 22 in the bottom disk 17.

As shown in the drawings, the lower and intermediate disks have portions thereof cut away, as at 32, to save material and to reduce weight and also to reduce the surface area of the parts in contact, these cut away portions forming hub and rim portions connected by spokes. The area of frictional contact between the top and intermediate disks is further reduced by offsetting upwardly, as at 33, the portion of the top disk located inwardly of the circumferentially spaced holes 21 therein. This upwardly offset portion of the top disk is highest at the axis thereof and gradually diminishes in height towards the plane of the outer marginal portion thereof. The upper or container section 1 of the dispenser has downwardly diverging side walls, and the lower or base section 2 has downwardly converging side walls, the lower end of said base section being left open to permit the material to pass there-through.

In order to dispense the material contained in the closed container 1 of the dispenser, the rock shaft 25 is actuated by means of the thumb piece 24 with the one or both hands of the operator held in cupped position below the relatively large opening in the lower end of the base section 2. Rotation of the rock shaft imparts a swinging movement to the pin 26, which rotates the top disk or valve 16 far enough against the tension of the spring 29 to bring the circumferentially spaced holes 21 in said disk into register with the communicating holes 22 and 23 in the fixed bottom and intermediate disks 17 and 18, respectively, thereby permitting the

powder to flow through said holes and drop through the bottom opening in the base member into the hands of the operator. Upon release of the thumb piece 24 the coil torsion spring 29 returns the rotary disk valve 16 to closed position, thus cutting off the flow of the powder through the discharge openings 22 and 23.

The hereinbefore described dispenser has numerous advantages. The dispenser may be readily disassembled for inspection, repair and adjustment merely by separating the top section from the base section and by lifting the three valve disks as a unit out of said base section. The size of the discharge openings formed by the cooperating holes in the bottom and intermediate disks may be regulated by loosening the fastening stud 19 for said plates and rotating said disks to bring the openings thereof out of register, after which the disks may be firmly clamped together in the desired position of adjustment by again tightening said stud. The cut-away portions 32 of the bottom and intermediate disks and the upwardly offset middle portion 33 of the top disk cut down the area of surfaces in contact and thus reduce the friction between said plates and the tendency for the plates to stick or bind.

The downwardly flaring of the upper or container section permits the material therein to spread out and flow downwardly and outwardly towards the discharge openings at the bottom and adjacent to the side walls of said container without the necessity for mechanical agitation of the material; and the dome-shaped metal portion of the top plate of the valve causes the material to slide off said dome-shaped portion in the direction of the discharge openings, whereby substantially all of the material in the dispenser is discharged therefrom. The joint between the upper and lower sections is substantially waterproof and vapor proof and the discharge openings are always closed except when the device is operated, thus preventing entry of water or vapor through these openings. The supporting bracket permits the container to be readily fastened to the wall and adjusted both vertically and horizontally relative thereto.

What I claim is:

1. A dispenser for finely divided materials comprising a container having a bottom provided with a plurality of discharge openings and a rotary plate located above said bottom having means for selectively opening and closing the discharge openings in the plate, a substantially vertical axis for said plate, said container having downwardly diverging side walls and said discharge openings being located adjacent to said side walls whereby the material in the dispenser readily falls away from said walls onto the rotary plate, said rotary closure plate having the portion thereof located inwardly of said discharge openings offset upwardly to direct the said material toward the openings.

2. A dispenser comprising a base section and a downwardly opening container section resting thereon and detachably secured thereto, and a dispensing mechanism comprising a disk non-rotatably supported in said base section and having a series of circumferentially spaced discharge openings therein, a rotary disk mounted on said fixed disk and provided with a plurality of circumferentially spaced openings adapted to be brought into register with said discharge openings, and means supported on the dispenser independently of the disks accessible from the ex-

terior of said dispenser for manually rotating said rotary disk, said disks being adapted to be inserted in and removed from said dispenser as a complete preassembled unit without disturbing said disk rotating means.

3. A dispenser comprising a base section, a downwardly opening container section resting thereon, and a dispensing mechanism comprising a disk non-rotatably supported in said base section and having a series of circumferentially spaced discharge openings therein, a rotary disk mounted on said fixed disk and provided with a plurality of circumferentially spaced openings adapted to be brought into register with said discharge openings, a shaft journaled in said base section below said disks and having one end disposed exteriorly of said base section, a pin fixed to said shaft and having a working fit in an opening provided therefor in said rotary disk, and a coil torsion spring sleeved on said shaft with one end anchored thereto and with the other end anchored to said base section for yieldably holding said rotary disk in a position with the openings therein out of register with said discharge openings.

4. A dispenser comprising a base section, a downwardly opening container section resting thereon, and a dispensing mechanism comprising a disk non-rotatably supported in said base section and having a series of circumferentially spaced discharge openings therein, a rotary disk mounted on said fixed disk and provided with a plurality of circumferentially spaced openings adapted to be brought into register with said discharge openings, a shaft journaled in said base section below said disks and having one end disposed exteriorly of said base section, a pin fixed to said shaft and having a working fit in an opening provided therefor in said rotary disk, and a coil torsion spring sleeved on said shaft with one end anchored thereto and with the other end anchored to said base section for yieldably holding said rotary disk in a position with the openings therein out of register with said discharge openings, said fixed disk having an elongated slot therein through which said pin extends, whereby said pin is adapted to abut against the ends of said slot and thus limit the rotary movement of said rotary disk in both directions.

5. A dispenser comprising a container and a bottom member therefor, said bottom member comprising a disk nonrotatably mounted in said container and having openings therethrough and a disk rotatably secured to said nonrotatable disk and having openings therethrough adapted to be brought into register with the openings in said nonrotatable disk, and means supported on the dispenser independently of the disks for manually rotating said rotary disk, said disks being adapted to be inserted in and removed from said dispenser as a complete preassembled unit, and means releasably to hold said disks as said unit in the dispenser.

6. A dispenser comprising a container and a dispensing mechanism comprising a disk nonrotatably supported in said container and having

openings therethrough, a disk rotatably secured to said nonrotatable disk and having openings therethrough adapted to be brought into register with the openings in said nonrotatable disk, a disk disposed intermediate between said rotary and nonrotatable disks and having openings adapted to communicate with openings in said rotary and nonrotatable disks, said intermediate disk being adapted for rotary adjustment relative to said rotary and nonrotatable disks, means for locking said intermediate disk to one of said rotary and nonrotatable disks in the desired position of rotary adjustment, and means supported on the dispenser independently of the disks, accessible from the exterior of the dispenser for manually rotating said rotary disk, said disks being all secured together for insertion in and removal from said dispenser as a complete preassembled unit.

7. In a dispensing device adapted for use with finely divided materials subject to cohesion, and the like, a container having downwardly diverging side walls, and a bottom wall, discharge passage means through the bottom wall, a movable member above the bottom wall adapted to open and to close the discharge passage means at will, means to operate the movable member to closing and opening positions, said member receiving on it material disposed in the container and being adapted to agitate the material by bodily displacing said material and breaking any adhesion to the diverging walls upon being moved to open or closed position, and said movable member having its upper surface shaped to direct the material toward the discharge passage means.

8. In a dispenser, a container, a pair of disks in the container for controlling egress of material therefrom, the first of said disks being nonrotatably mounted in the container, and having discharge passage means therethrough, the second disk being rotatably secured to the first disk and having openings adapted to be brought into register with the openings in the nonrotatable disk, means operable from outside the container for rotating the second disc, means connecting said rotating means to one of said disks by a slip connection for quick removal, of the disk from the operating means and means mounting the two disks in the container for removal together as a preassembled unit.

9. In a dispenser for finely divided material, a container having downwardly divergent walls, a bottom for said container, an opening in the bottom, valve means in said bottom, adapted to comprise at least a portion of the bottom and to occupy one position to prevent egress of material and to be moved to another position to cause discharge of material, said bottom extending across said container at the lower portion of said downwardly divergent walls, and means to displace said valve means to shift it from its one position to its other, to operate the valve means and effect discharge of material, said displacing action shifting the mass of material above the valve and causing it to break any adherence to said diverging walls.

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