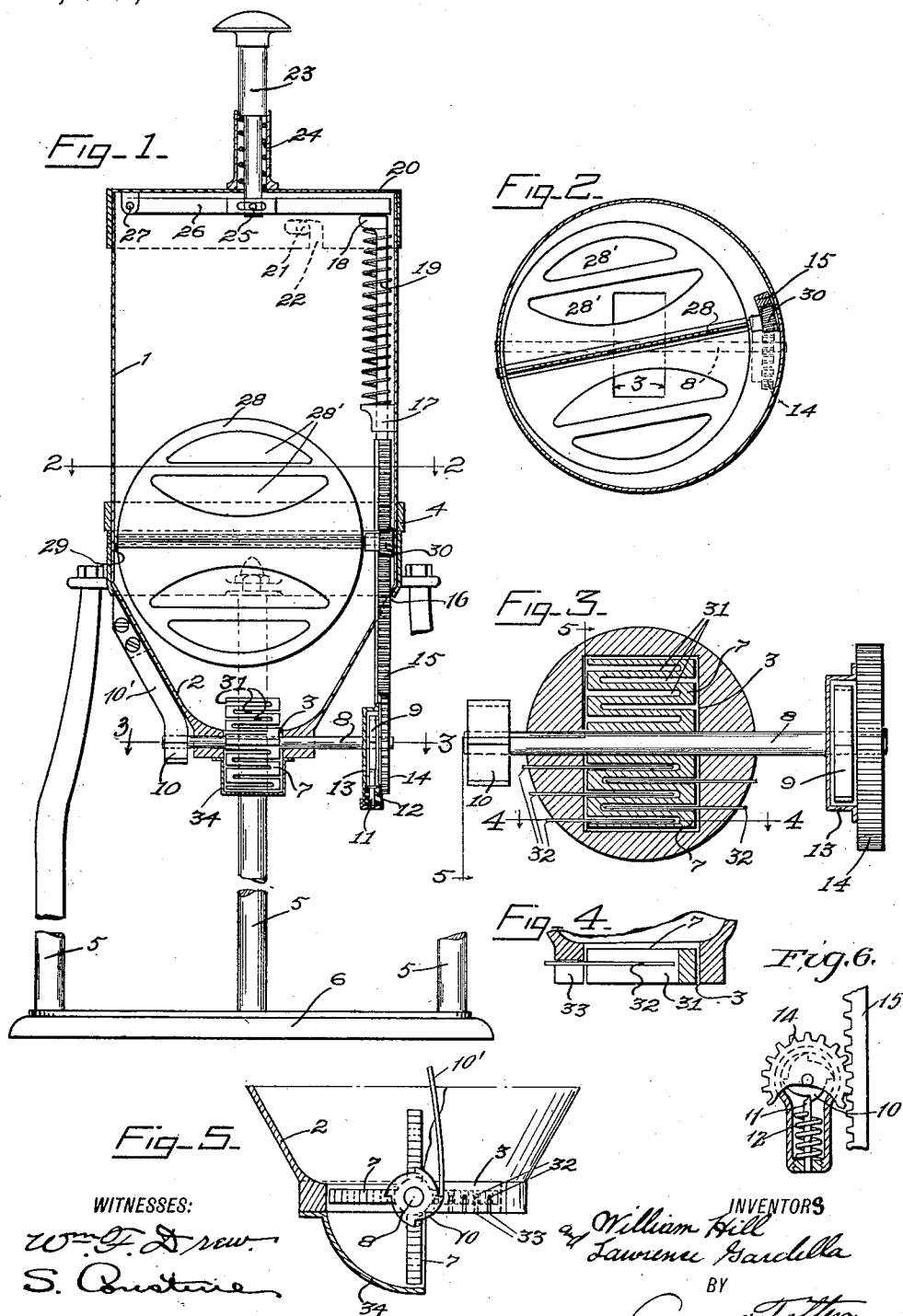


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DISPENSING APPARATUS.
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WITNESSES:

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WILLIAM HILL, OF SAN FRANCISCO, AND LAWRENCE GARDELLA, OF OROVILLE,
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DISPENSING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM HILL and LAWRENCE GARDELLA, citizens of the United States, residing, respectively, in the city and county of San Francisco and State of California, and Oroville, in the county of Butte, State of California, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a specification.

The present invention relates to improvements in dispensing apparatus and more particularly to a type of apparatus designed to dispense a predetermined charge of material on each operation thereof.

Our invention is particularly adapted for the dispensing of dental and soap powders, and, in fact, any powdered or granulated material, and the invention has for its principal objects to provide an improved form of discharge gate which removes the substance from the container and to which the substance is prevented from adhering; to provide a novel form of agitating means which prevents the powdered material from becoming clogged or caked within the container, and to provide a novel form of operating means for the discharge and agitating devices, and by which the material will be thoroughly agitated before being discharged from the container.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein—

Figure 1 is a view in vertical section of an embodiment of our invention.

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a view in detail of one section of the discharge gate, disclosing one of the pins which coöperates therewith for pre-

venting the powder from caking on the surface thereof.

Fig. 5 is an end view of the discharge gate.

Fig. 6 is a view of the other end of the discharge gate shaft, showing the rack and pinion and the ratchet.

Referring more particularly to the several views of the drawings, wherein like characters of reference designate corresponding parts throughout the several views,—1 indicates a suitable open topped container, preferably cylindrical in form, and formed with inwardly beveled lower walls 2 which terminate at the lower end in an outlet opening 3. The container is adapted to rest in a collar 4 from which extend three arms 5 carried by a base plate 6 and said structure provides a supporting frame which positions the container a sufficient distance to permit a mug or receptacle to be placed beneath the same to receive the charge therefrom.

The outlet opening 3 is provided with a rotatably mounted discharge gate comprising the radially disposed blades 7, preferably four in number, carried by the supporting shaft 8 which extends through bearing openings in the lower walls 2. Mounted on the ends of the shaft 8 are the ratchets 9 and 10, and coöperating with the ratchet 9 is a pawl 11 inwardly pressed against the ratchet by the spring 12, and said pawl is carried by a housing 13 which loosely surrounds the shaft 8 and is adapted to rotate thereon. The ratchet 9 is of such construction as to permit the pawl 11 to ride freely thereover when the housing 13 is rotated in a clockwise direction, as viewed from the right in Fig. 1, and to be engaged by the pawl when the housing is rotated in a counter-clockwise direction. Each ratchet is preferably formed with four teeth and the same are arranged on the shaft 8 in such manner that the respective teeth thereof will lie in line with the respective blades 7 of the discharge gate.

A pinion 14 is connected to said housing 13 and coöperating with the same is a rack 15 extending at its lower end through an opening 16 in the container. The rack operates through a guide 17 in the interior of the container and the upper end of said rack terminates short of the top edge of the container and is formed with a head portion or

flange 18. A spring 19 interposed between the guide 17 and the flange 18 maintains the rack in a normally raised position.

When the rack 15 is pushed down, the pinion 14 and housing 13 are rotated in a clockwise direction, and the pawl 11 engages the next tooth of the ratchet 9. The spring 19 then returns the rack to its raised position, the pinion and housing are rotated anticlockwise and the pawl 11 acting on the ratchet 9 rotates the shaft 8 and the discharge gate through one fourth of a complete rotation, thereby delivering a charge of the contents of the container. The ratchet 10 is now engaged by a pawl 10' which prevents backward movement of the shaft 8 and the discharge gate upon further downward movement of the rack 15.

A movable cover 20 is positioned on the container and the same is retained thereon by the pins 21 which operate in bayonet slots 22 in the cover 20.

An operating plunger 23 extends centrally from the cover 20 and operates in a tubular guide carried by the cover and the plunger is normally maintained in its raised position by a coiled spring 24 which surrounds the same. The lower end of the plunger coacts through a pin 25 with the central portion of a lever 26 pivoted at one end, as at 27, to the underside of the cover and coacting at its opposite end with the headed portion of the rack 15.

An agitator 28 formed with perforations 28' is carried by and rotatable with a shaft 29 which extends transversely within the container near the bottom thereof, and is rotatably mounted at its ends in bearings in the walls thereof. A pinion 30 is carried by the shaft 29, and the same intermeshes with the rack 15, and on each reciprocation of the rack the agitator will be operated to loosen or agitate the material in the container and prevent the same from caking.

The operating parts are so arranged that after each downward movement of the rack, the shaft 8 and the discharge gate 7 are rotated a one-quarter turn to deliver a measured quantity of material from the container. It will also be observed that previous to each operation of the gate the agitator is rotated to loosen or agitate the material to be discharged by the gate.

The blades 7 are each formed with a plurality of slots 31 which open at alternate side edges thereof, and on the rotation of said gate suitable pins or bars 32, seated in slots 33 formed at opposite sides of the discharge opening, pass through said slots and prevent the adhering of the material to the faces of the blades.

A hood 34 is positioned below a portion of the material discharge opening and the blades 7 pass therethrough on their upward movement after being rotated to discharge a

quantity of material from the container. The upward movement of the blades in the hood prevents the material in the container from escaping therefrom through the passage provided for the upward movement of the blades.

A complete cycle of reciprocation of the rack causes the rotation of the agitator and the free movement of the pawl 11, housing 13 and pinion 14 on the downward movement and the simultaneous rotation of the shaft 8 a one-quarter of a turn and the rotation of the agitator on its upward movement. The rotation of the agitator immediately prior to the operation of the discharge gate insures the positioning of ample material within the zone of operation of the blade 7 to be discharged thereby on each one-quarter turn of the shaft 8.

It will be apparent that we have provided a simple and efficient form of dispensing apparatus, which may be constructed at little cost, and by the employment of which a waste of material is prevented.

Having thus described our invention what we claim is:—

1. A dispensing apparatus comprising a container having a discharge opening at its lower end, a rotatable discharge gate in said opening for delivering a measured quantity of material on each operation thereof, a rotatable agitator in said container and a common means for simultaneously rotating such agitator and said discharge gate, said operating means adapted to rotate said agitating means immediately prior to rotation of said discharge gate and at an increased speed over the rotation of the same.

2. A dispensing apparatus comprising a container having a discharge opening at its lower end, a rotary discharge gate mounted in said opening and comprising a plurality of radially disposed blades each formed with one or more openings therein, and means within the path of travel of said blades for registering with said openings on the rotation of said gate to prevent the adhering of material to the faces of said blades.

3. A dispensing apparatus comprising a container having a discharge opening at its lower end, a rotatably mounted discharge gate positioned in said opening and comprising a plurality of radially disposed blades each formed with a plurality of open ended slots, and means within the path of travel of said blades for registering with said slots on the rotation of said gate to prevent the adhering of material to the blades thereof.

4. A dispensing apparatus comprising a container having a discharge opening at its lower end, a rotatably mounted discharge gate in said opening, an agitator rotatably mounted in said container, and means for

rotating said discharge gate in one direction and for rotating said agitator in both directions.

5 5. A dispensing apparatus comprising an open topped container, having a discharge opening at its lower end, a rotatably mounted discharge gate in said opening, actuating means cooperating with said gate, said actuating means extending upwardly within
10 said container, a spring for normally maintaining said actuating means in an elevated position, a removable cover for said container and operating means carried by said cover which cooperate with said actuating

means for operating the same to rotate said 15 gate in one direction.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM HILL.

Witnesses:

HARRY A. TOTTEN,

D. B. RICHARDS.

LAWRENCE GARDELLA.

Witnesses to signature of Lawrence Gardella:

J. M. MCGEE,

H. LANGE.

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