Aug. 26, 1941. W. A. STARRETT 2,253,945

DISPENSER

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Fig. 1.

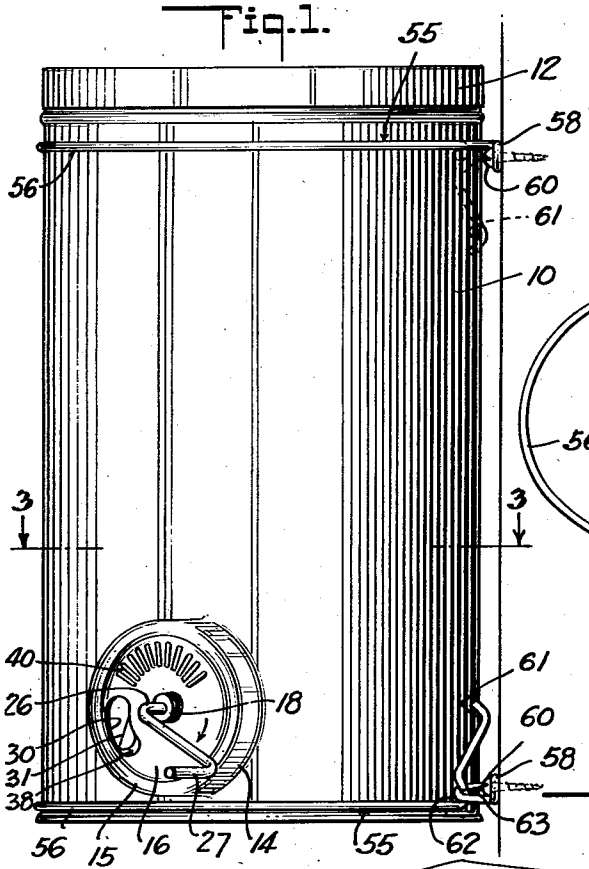


Fig. 2.

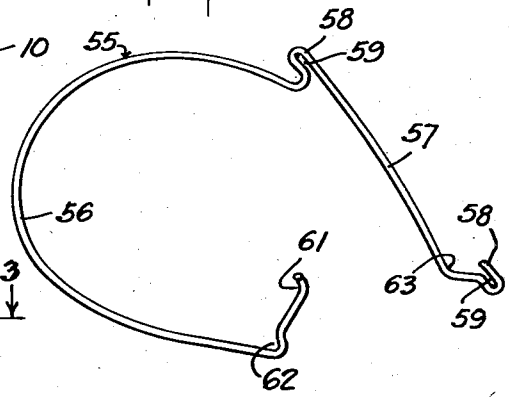
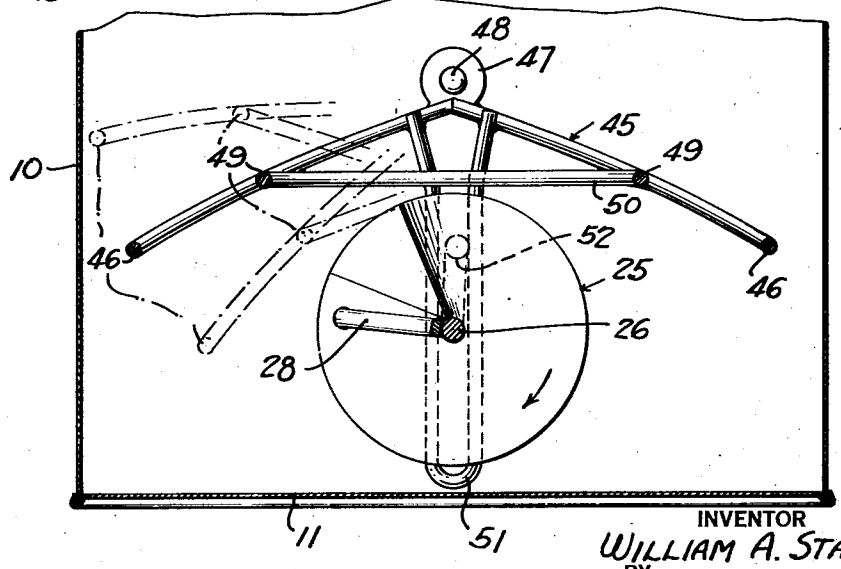


Fig. 5.



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Fig. 3.

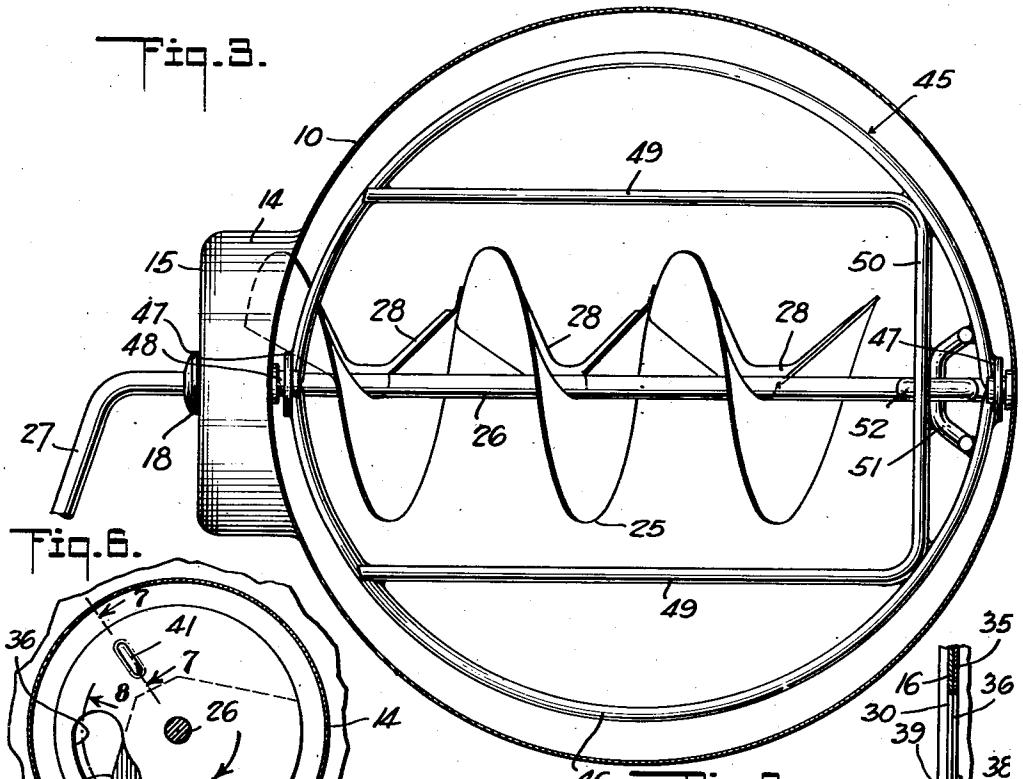


Fig. 6.

Fig. 8.

Fig. 4.

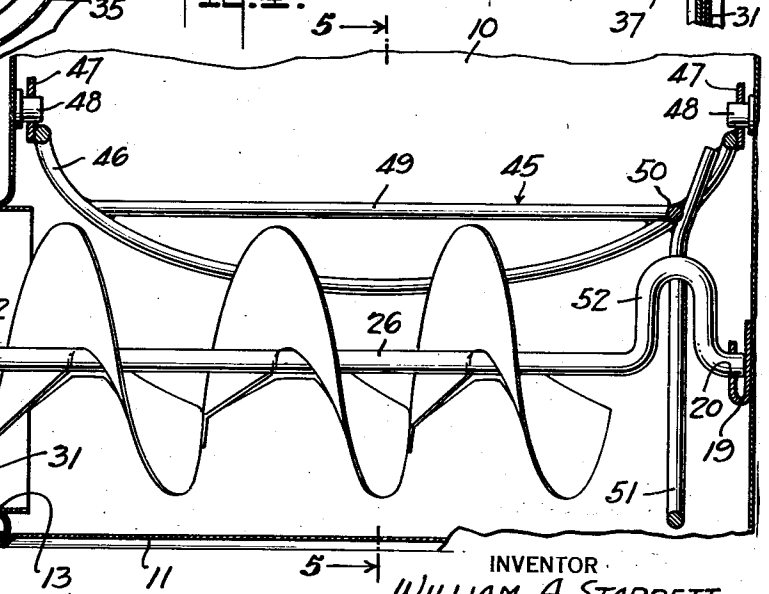
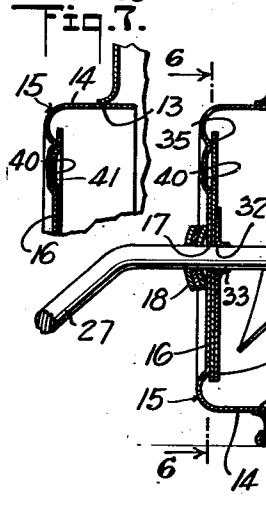


Fig. 7.



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2,253,945

DISPENSER

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Application September 11, 1940, Serial No. 356,265

6 Claims. (Cl. 221—102)

This invention relates generally to the art of dispensing and more particularly to dispensing receptacles.

An object of this invention is to provide a dispenser characterized by a container for fluid materials, and a mechanism by which the contents of the container can be discharged therefrom in relatively small quantities as desired, and the quantity varied by simple and easily adjusted regulating means.

Another object of this invention is to provide a dispenser of the above described character which in dispensing semi-solid materials of pasty consistency such as mechanic's paste soap for an example, functions to break up solid masses of soap and promote a plastic condition thereof, as well as feed the soap in the container to a zone thereof from which the soap is dispensed, all in synchronism with, and operation by the dispensing mechanism of the dispenser, whereby to insure efficient and accurate dispensing of the contents from the container.

A further object of the invention is to provide a device embodying extremely simple means by which a container can be detachably secured to a support in various rotatively adjusted positions, all without the need for tools or for any extraneous fastening means.

With these and other objects in view, the invention resides in the combinations and arrangements of elements as set forth in the following specification and particularly pointed out in the appended claims.

In the accompanying drawings,

Figure 1 is a view in side elevation of a dispenser embodying this invention;

Figure 2 is a perspective view of one of a pair of brackets for detachably securing the container of the dispenser to a support;

Figure 3 is a plan sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a fragmentary longitudinal sectional view of the lower portion of the dispenser;

Figures 5 and 6 are sectional views taken, respectively, on the lines 5—5 and 6—6 of Figure 4;

Figures 7 and 8 are fragmentary detail sectional views taken, respectively, on the lines 7—7 and 8—8 of Figure 6.

Referring specifically to the drawings, the invention, in its present embodiment, comprises a cylindrical container 10 of sheet metal having a closed bottom end 11 and an open upper end adapted to be closed by a friction cover 12 (Figure 1).

In close proximity to its bottom end, the cylindrical wall of the container is provided with a circular opening 13 in which is fitted and secured by soldering or other means the axial flange 14 of a cup-shaped sheet metal housing 15.

The front or transverse wall 16 of the housing 15 is provided with a central opening 17 and with a front bearing 18 composed of a number of concavo-convex washers soldered together and to said front wall in co-axial relation to the opening 17. A rear bearing 19 in the form of a U-shaped strip of metal having an opening 20 in one branch, has its other branch welded or otherwise secured to the cylindrical wall of the container 10 at a location diametrically opposed to the opening 17.

A screw conveyor 25 is composed of a shaft 26 journaled in the bearings 18 and 19 and having a crank handle 27 at its outer end by which the shaft can be rotated. The screw of the conveyor 25 comprises a number of sheet metal disks each of which is provided with a central opening receiving the shaft 26 and is split radially and pulled into helical form as shown in Figures 3 and 4. Adjacent disks are welded together at their split edges to form a continuous helix, and are reinforced so as to be rigid, by stiffening bars 28 which latter are welded to the disks and to the shaft 26.

The front wall 16 of the housing 15 is provided eccentrically with an arcuate shaped discharge port 30 controlled by a cutoff or valve member 31 in the form of a segmental plate having a central opening 32 formed by punching a pronged hub 33 laterally from the plane of the plate, which hub is welded to the shaft.

A regulator member 35 in the form of a sheet metal disk has a central opening freely receiving the shaft 26 to mount the disk snugly between the front wall 16 of the housing 15 and the valve member 31 for rotational adjustment.

The regulator member 35 has an arcuate slot 36 adapted to register with and vary the effective size of the port 30 in response to rotational adjustment of the regulator member by means of a suitable sharp pointed instrument 37 (Figure 8) which can be inserted into a perforation 38 formed in the regulator member adjacent one end of the slot 36, by punching through the member to leave a burr of sufficient height on the outer side of the member to provide a stop 39. This stop limits rotational adjustment of the regulator member in one direction by engagement with the wall of the port 30 as shown in Figure 8, the adjustment of the regulator member in the oppo-

site direction being limited by engagement of the pointed end of the instrument with the edge of the port 30.

An arcuate series of radially arranged notches 40 is pressed into the front wall 16 from the inner side thereof for coaction with a radial projection 41 pressed into the regulator member 35 from the inner side thereof, in releasably retaining the regulator member in any one of several positions of rotational adjustment.

An agitator 45 for operating upon the contents of the material in the container 10 comprises a generally circular wire frame 46 of somewhat smaller diameter than the internal diameter of the container. Secured by welding or other means to the frame at diametrically opposed points are bearings 47 in the form of metal washers receiving axle- or trunnion-forming pins 48 welded to the inside of the container to mount the agitator therein immediately above the conveyor 25 for oscillatory movement about an axis parallel to the axis of the conveyor.

The agitator 45 also includes longitudinal bars 49 and a transverse bar 50, the former spanning segmental portions of the frame 46 at opposite sides of and in parallelism with the axis of the agitator. The transverse bar 50 connects the bars 49 at one end thereof and co-acts with the frame 46 in supporting a yoke 51 in depending position and at a right angle relative to the axis of the agitator for engagement by a crank 52 bent out of the shaft 26, whereby upon rotation of the shaft, oscillatory motion will be imparted to the agitator.

The container 10 is adapted to be secured to a suitable vertical support by brackets 55 each constructed of a single length of wire to provide an open loop 56 adapted to embrace the container and terminating at one end in an attaching bar 57, the ends of which are provided with return bends 58 to define slots 59 adapted to receive screws 60 to secure the bracket to a support.

The free end of the loop 56 is laterally bent to provide a holding notch 61 and a latching notch 62 adapted to co-act with a keeper notch 63 formed on the bar 57, in respectively holding the loop 56 in an expanded position to freely receive the container 10 and a constricted position to tightly embrace and rigidly support the container. In practice, two of the brackets 55 are employed and are spaced on a support to co-act with the container adjacent its ends as shown in Figure 1.

The operation of the invention is as follows:

Let it be assumed that a quantity of a fluid substance such as paste soap has been supplied to the container, and that the regulator member 35 has been adjusted to a selected position. Upon rotating the handle 27 in a clockwise direction as viewed in Figures 1, 5 and 6, the feeding action of the conveyor 25 will force soap through the port 30 during the portion of a revolution of the shaft 26 in which the valve member 31 opens the port.

As the agitator is being oscillated between the extreme positions shown in broken lines in Figure 5, during a single revolution of the shaft 26, the frame 46 and the bars 49 of the agitator 45 undercut the mass of soap so as to work the latter and tend to promote its plasticity in counteraction to the tendency of the soap to become more solid with an attending failure to gravitate in the container. The downward and inward direction of motion of the frame 46 and bars 49 urges the mass of soap into the operating zone of the conveyor so as to insure that the latter will be fully supplied with soap for dispensing in response to the feeding action of the conveyor upon the soap.

What is claimed is:

1. A dispenser of the class described comprising: a container having an exteriorly projecting cup-shaped housing in a vertical wall thereof adjacent the bottom of the container; a conveyor including a shaft journaled in a vertical wall of the housing for rotation in the container about a horizontal axis; said vertical wall of the housing having a port disposed eccentrically of said axis; an agitator mounted in the container for oscillatory movement about an axis parallel to and vertically above the conveyor axis; a yoke depending from said agitator; a crank on said shaft co-acting with said yoke to oscillate the agitator in response to rotation of said shaft so as to urge material into said housing; and a valve member operatively connected to said shaft and controlling said port to open the latter during a portion of a revolution of the conveyor.

2. A dispenser of the class described comprising: a container having an exteriorly projecting cup-shaped housing in a vertical wall thereof adjacent the bottom of the container; a conveyor including a shaft journaled in a vertical wall of the housing for rotation in the container about a horizontal axis; said vertical wall of the housing having a port disposed eccentrically of said axis; an agitator mounted in the container for oscillatory movement about an axis parallel to and vertically above the conveyor axis; a yoke depending from said agitator; a crank on said shaft co-acting with said yoke to oscillate the agitator in response to rotation of said shaft so as to urge material into said housing; a valve member operatively connected to said shaft and controlling said port to open the latter during a portion of a revolution of the conveyor; a regulator member freely mounted on said shaft between the valve member and said vertical wall of the housing and having means operable in response to rotational adjustment of the regulator member to vary the effective size of said port; and means for releasably retaining the regulator member in any one of several positions of rotational adjustment.

3. In a dispensing device of the class described: a container; a conveyor in the container, having a shaft journaled in a wall of the container; said wall of the container having a port disposed eccentrically with respect to the axis of said shaft; a valve member fixed to said shaft and co-actable with said port to close the latter during one portion of a revolution of the shaft and to open the port during another portion of the revolution; a regulator member freely mounted on said shaft and frictionally confined between said wall of the container and the valve member for co-action with said port in varying the effective size of the latter in response to rotational adjustment of the regulator member; and means for releasably retaining the regulator member in selected positions of adjustment.

4. In a dispensing device of the class described: a container; a conveyor in the container having a shaft journaled in a wall of the container; said wall of the container having a port disposed eccentrically with respect to the axis

of said shaft; a valve member fixed to said shaft and co-actable with said port to close the latter during one portion of a revolution of the shaft and to open the port during another portion of the revolution; a regulator member freely mounted on said shaft between said wall of the container and the valve member and having an opening co-actable with said port to vary the effective size of the latter in response to rotational adjustment of the regulator member; said wall having an arcuate series of notches; a projection on the regulator member co-actable with any one of the notches in releasably retaining the regulator member in a selected position of adjustment; and means by which the regulator member can be rotated.

5. In a dispensing device of the class described: a container; a conveyor in the container having a shaft journaled in a wall of the container; said wall of the container having a port disposed eccentrically with respect to the axis of said shaft; a valve member fixed to said shaft and co-actable with said port to close the latter during one portion of a revolution of the shaft and to open the port during another portion of the revolution; a regulator member freely mounted on said shaft between said wall of the container and the valve member and having an opening co-actable with said port to vary the effective size of the latter in response to rotational adjustment of the regulator member; said wall having an arcuate series of notches; a projection on the regulator member co-actable with any one of the notches in releasably retaining the regulator member in a selected position of adjustment; the regulator member having a perforation adjacent said opening adapted to receive an instrument to adjust the member; and a stop on the regulator member co-actable with an edge of said port to limit rotational adjustment of the member in one direction.

6. A dispenser of the class described comprising: a vertically disposed cylindrical container having a lateral discharge port adjacent the bottom end thereof; a conveyor in the container rotatably mounted upon a horizontal axis to feed material of paste consistency to said port; valve means operatively associated with said conveyer and controlling said port to open the latter during a portion of a revolution of the conveyor, an agitator oscillatively mounted in the container about an axis vertically above and parallel to the axis of the conveyor; said agitator including a generally circular frame and longitudinal bars at opposite sides of said axis; and means operatively connecting the agitator to the conveyor to oscillate in response to rotation of the conveyor for co-action of said frame and bars in breaking up the material and working the latter downwardly and inwardly of the container into the feeding zone of the conveyor.

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