Aug. 13, 1935. G. VOORHIS 2,011,128

SOAP DISPENSER

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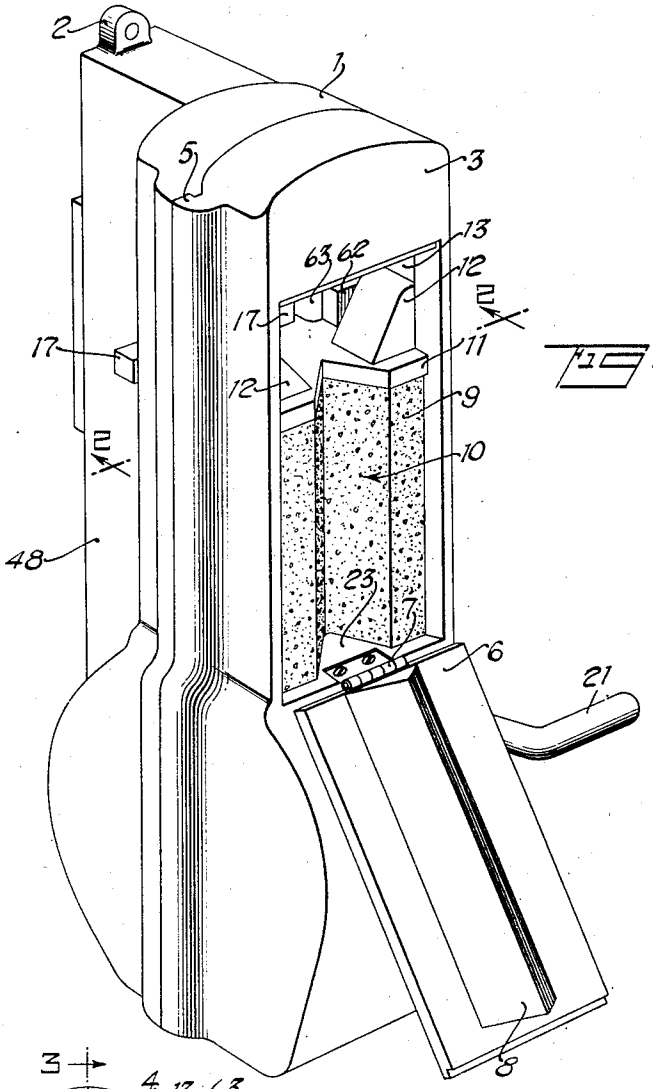

FIG. 1.

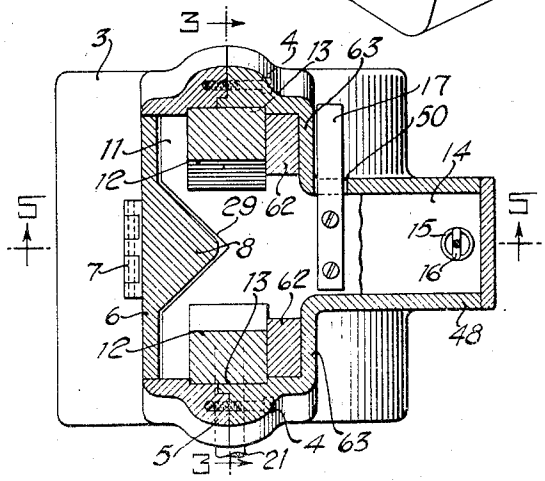

FIG. 2.

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FIG. 3.

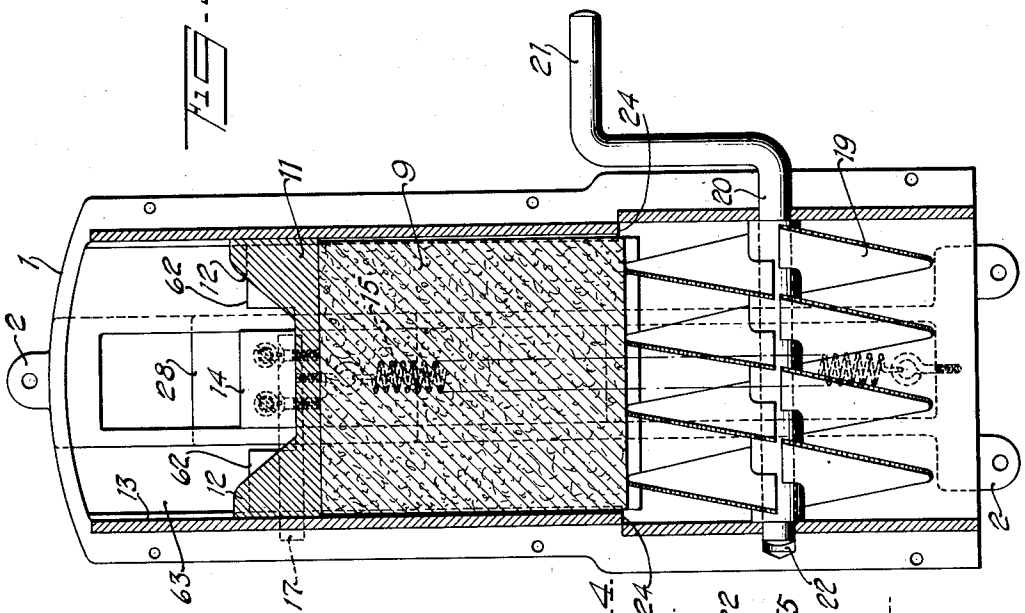
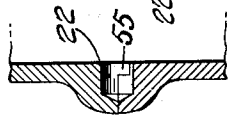


FIG. 4.



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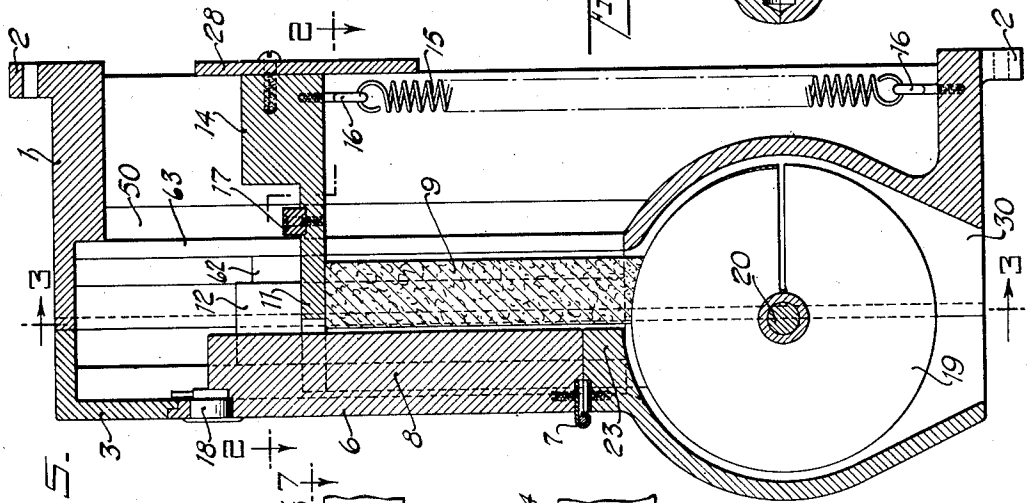

FIG. 6.

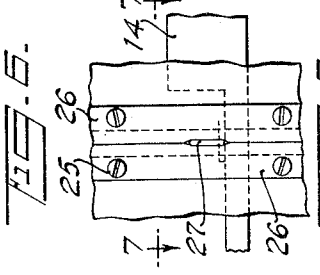

FIG. 7.

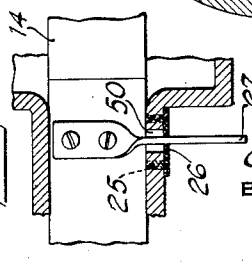

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FIG. 8.

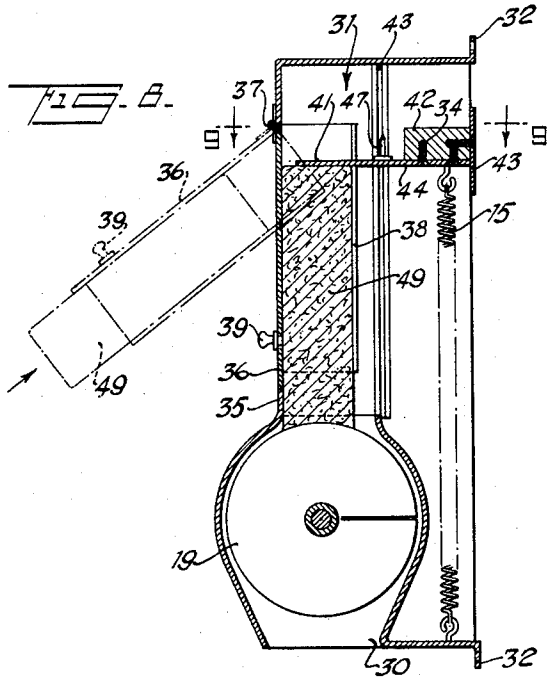


FIG. 9.

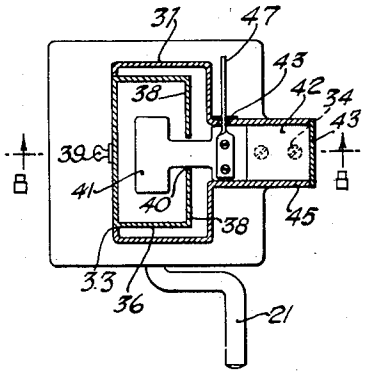


FIG. 10.

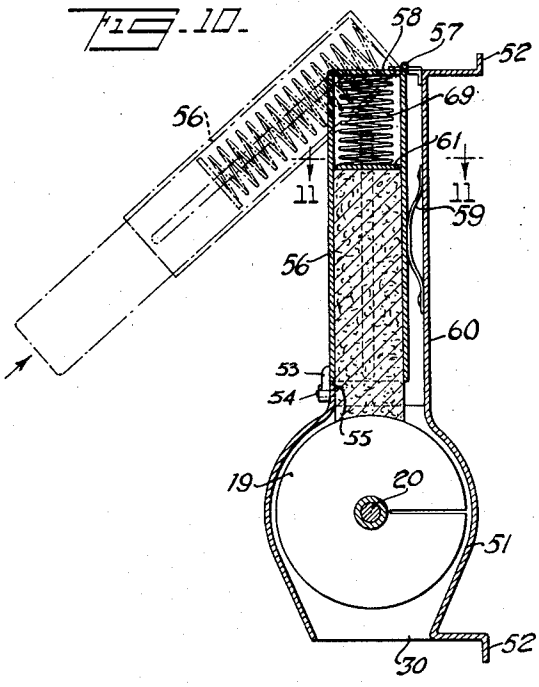
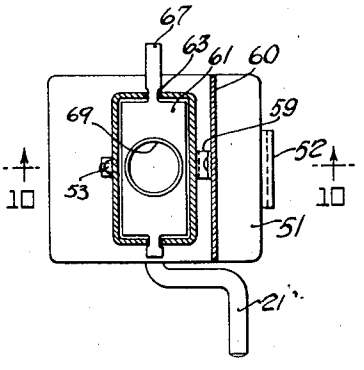


FIG. 11.



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Patented Aug. 13, 1935 2,011,128

UNITED STATES PATENT OFFICE

2,011,128

SOAP DISPENSER

Gordon Voorhis, New York, N. Y., assignor to Standard Soap Pulverizer, Inc., Rhinebeck, N. Y., a corporation of New York

Application April 22, 1933, Serial No. 667,413

7 Claims. (Cl. 146—61)

This invention relates to apparatus primarily designed for dispensing soap of the type in which a rotary cutter is employed to shred the soap off of the lower end of a cake and discharge it through an opening in the bottom of the casing in a fine powder. In such apparatus the cake of soap inserted in a substantially vertically arranged casing is forced downward by spring pressure or gravity or both upon the rotary cutter, and one of the principal objects of the present invention is to provide a telltale device which I call a flag projecting beyond one side wall of the casing sufficiently to be visible to the user standing in front of the casing and to the attendants, indicating the extent to which the cake of soap in the casing has been used up and any present or prospective need for the insertion of a new cake.

Another object of the invention is to provide a casing into which only cakes of soap of a predetermined exterior conformation can be inserted in position for operation thereon, thereby enabling the vendor or lessor of the apparatus to make sure that only soap of the proper character and quality giving the best results in cooperation with the apparatus will be used.

Other objects of the invention are to provide a moisture-proof casing which will protect the soap when the exterior of the apparatus or adjacent surfaces are being cleaned, as by a spray from a hose, and one which will prevent the cake of soap from jumping or chattering under the action of the cutters and will ensure the complete or nearly complete consumption of each cake, and also will not be acted on chemically by the soap so as to produce unsightly stains or discolorations.

A special object of certain of the modifications of the invention shown is the production of a casing which is self-locking in closed position after the cake of soap has been inserted, thus saving the expense of the usual lock and key. Other objects of the invention will become obvious to those skilled in the art upon consideration of the detail description of the various constructions and the drawings illustrating the same.

The best form of apparatus embodying my invention at present known to me, together with certain modifications thereof, is illustrated in the accompanying two sheets of drawings in which

Fig. 1 is a perspective view of a soap dispenser made of molded material, the door of the casing being open.

Fig. 2 is a horizontal section on line 2—2 of Fig. 1, showing the door closed.

Fig. 3 is a vertical section on line 3—3 of Fig. 2, and

Fig. 4 is a detail horizontal section through the axis of the shaft 20 of the meeting edges of the casing walls showing the journal bearing for shaft 20 molded therein.

Fig. 5 is a vertical section on line 5—5 of Fig. 2.

Fig. 6 is a detail elevation of the exterior of one side of the casing showing a modified form of telltale or flag, and

Fig. 7 is a detail horizontal section on line 7—7 of Fig. 6,

Fig. 8 is a vertical section on line 8—8 of Fig. 9, and

Fig. 9 is a horizontal section on line 9—9 of Fig. 8, illustrating a modified structure suitable for manufacturing out of sheet metal.

Fig. 10 is a vertical section on line 10—10 of Fig. 11, and

Fig. 11 is a horizontal section on line 11—11 of Fig. 10, showing a more simplified construction to be made of sheet metal.

Throughout the drawings like reference characters indicate like parts.

Referring to the molded structure illustrated in Figs. 1 to 7, the casing is composed of a back section 1 provided with lugs 2, 2, by which it may be screwed to the surface of a wall and a front section 3 which is fastened to the rear section by screws 4, 4. Preferably the front section is formed with a flange 5 overlapping the rear section and engaging the complementary, oppositely extending flange or rib 55 formed on the latter (see Fig. 4) so as to form a more watertight joint to prevent water entering if it is sprayed upon the casing from a hose. 6 is a door hinged to the front casing at its lower end as shown at 7, and provided with a projecting rib 8 along its inner surface which will fit into a corresponding groove 10 in the cake of soap 9 provided for use in this casing. 23 is a continuation of rib 8 fastened to the front of the casing below the doorway so that when the door is closed 8 and 23 will form a continuous rib nested in the groove 10. I prefer to hinge the door at its lower end for two reasons: Because it then will stay wide open without employment of a catch, and also because when open, it gives free access to, and full view of, the casing interior, thereby facilitating the removal of the remains of a nearly used-up cake and the insertion of a new one.

In the lower portion of the casing any desired

form of rotary cutters or shredders 19 may be installed on the horizontally extending shaft 20 journalled in the semicircular recesses 22, 22, in the meeting faces of the two casing sections and rotated by the exterior hand crank 21. The underlapping portion of each rib 55, serving to form part of the lower wall of a journal-bearing recess 22, affords a smooth, continuous bearing surface extending beyond a vertical plane passing through the axis of cutter-journal 20 thereby forming a crescent-shaped pocket in which said journal may nest without exerting any wedging action thereon, such as might otherwise tend to separate the two casing sections. The plane of division between the two portions of the journal bearing being vertical, however, the cutter drops out easily, when the casing sections are separated.

To force the soap down upon the rotary cutter I employ a sliding member 11 which I call a feed pan which is provided on its upper surface with guide blocks 12, 12, sliding in grooves 13, 13, in the side faces of the casing interior, and other guide blocks 62, 62, bearing on the casing back walls 63, 63. This pan 11 has a notch 29 in its edge enabling it to be slid down along the rib 8. The pan has a rear extension 14 which projects into the rear extension 48 of the casing and is there connected to the tension spring 15, the lower end of which is anchored to the casing base at 16. A guide plate 28 is fastened to the back of the pan extension 14 and slides up and down along the edges of the walls of the casing extension 48. A horizontal projection 17 from the pan extends through the slot 50 in the casing far enough to have its end visible from the front of the apparatus, as indicated in Fig. 1.

The lower portion of the casing containing the rotary cutters 19 has undercut portions 24 through which the extreme outer ends of the helical cutters may move, thus ensuring even cutting action along the entire under surface of the soap cake 9.

As the slot 50 would permit the entrance of water to the interior of the casing I may use a thin flag or telltale 27 shown in Figs. 6 and 7 and provide the slot 50 with flexible strips 26, 26, of rubber or similar material projecting from either side of the slot and normally meeting but yielding to permit the movement of the flag 27 downward between them as the cake of soap is slowly consumed. 18 is any convenient form of lock for the door 6.

In the operation of this form of the invention the door 6 is opened for insertion of a cake of soap and the feed pan 11 lifted by grasping the back guide plate 28 and pulling up on it. When the cake is in the position shown in Fig. 1 the feed pan is released and is pulled by the spring 15 into contact with the upper end of the cake. The door is then closed and locked and thereafter users on rotating the crank 21 will cause very finely shredded soap to be discharged through the lower opening 30.

The casing being made of proper moldable material of waterproof character will not rust and requires no painting nor enameling, such as anyone of the well known phenol condensation products. Furthermore it is moisture-proof and protects the soap and the metal cutters from water when the exterior of the casing is being cleaned. If any part needs repairing or adjustment in the interior, the front section 3 can be taken off, thereby allowing the cutters to be removed and replaced. By supplying a special brand of soap with groove 10 cut in each cake, the vender of the casing may control the sale of soap for use in the apparatus, because any cake of soap not having this special groove will be prevented by the rib section 23 from slipping down to a bearing on the rotary cutters and of course the doors can not be closed unless a cake of the proper shape is used.

The modification shown in Figs. 8 and 9 is designed to meet the demand for a cheaper apparatus, as it can be made of stamped metal such as stainless steel, and requires no lock. The casing generally indicated by 31 has a rear extension 45 in which the spring 15 is housed as before and connected to the rear extension 44 of the feed pan 41. The back guide plate 43 is fastened to the block 42, the parts being held together by screws 34. The flag or telltale arm 47 extends out through slot 43 so as to be visible from the front of the casing. The rotary cutters are again indicated at 19.

In this modification the soap holder comprises a sleeve 36 hinged to the main casing 31 at 37 and swinging outwardly when grasped by the knob 39, as indicated in broken lines in Fig. 8. This soap holding sleeve swings in the opening 33 in the front of the casing 31, and when in vertical position is flush therewith. It may be formed out of a single sheet of metal by bending it into the shape shown in Fig. 9 with the rear flanges 38, 38, separated by a slot 40 through which the feed pan 41 may project to the interior of the sleeve. The sleeve is open at the top and bottom so that the feed pan 41 may be lifted up far enough to nearly clear its upper end, and when the pan is in this position, or approximates it, the sleeve can be swung out into the broken line position shown in Fig. 8 and the cake of soap 49 inserted by hand far enough so that it will not interfere with the sleeve holder being swung back into normal position, but will thereupon drop down behind the sill 35 of the casing opening into the position shown in full lines in Fig. 8, locking the holder in closed position so that it will be impossible to open the case until so much of the cake of soap has been cut away that its upper end has sunk below the lower end of the sleeve 36. Then the sleeve can be swung outward, the small remaining section of the soap removed and a new cake inserted.

A still cheaper form of the invention is shown in Figs. 10 and 11 where the casing 51 has an upwardly projecting back plate 60 and a lower portion forming a receptacle for the rotary cutters 19. Lugs 52, 52, are provided for attaching it to the wall as before. The soap holder again consists of a metal sleeve indicated at 56, but this is closed at the top 58 and hinged to the rear portion of the casing at 57. The feed pan 61 is wholly enclosed in the sleeve 56 with a projection 67 extending through the side slot 63 and constituting a flag or telltale as before. The feed pan is forced down by the compression spring 69 confined between it and the top 58 of the sleeve 56. A spring 59 may be mounted on the back section 60, normally forcing the hinged sleeve 56 outward. When the sleeve is swung out into the broken line position a cake of soap is again inserted through the lower end and the sleeve swung back into vertical position so that the lower end of the cake can drop below the sill 55, as before, and thereby lock the parts in position until the soap has been nearly all consumed. If it is desired to use up the entire cake, a swinging button 53, pivoted at 54, may be used to maintain the holder 56 in closed position.

Among the advantages of the invention may be noted the finely and evenly divided condition of the soap powder delivered by it, the pratically complete consumption of each cake so that no waste occurs, ease of access to all parts for replacement or repairs, automatic action of many features and low cost of construction.

Various changes in details of construction other than those shown could be made without departing from the broader principles of invention therein embodied and defined in the appended claims.

The embodiments of the invention shown in Figs. 1 to 9 present an especially advantageous feature in that a long tension spring **15** can be substituted for the short compression spring usually employed in apparatus of this type and this without adding to the height of the casing, such increase in height being objectionable mainly because the apparatus must often be installed in positions where the vertical space is limited.

Having described my invention, I claim:

1. In an apparatus for dispensing pulverized soap and like materials the combination of a closed casing having a rotary cutter in its lower portion on which a cake of soap may rest, a spring pressed member adapted to rest on such cake and force it down against said cutter and a lateral projection from said member extending through a slot in said casing and beyond one side wall thereof so as to be visible from the front of the apparatus, said casing having a rear extension of less width than the main body thereof, in which extension the spring pressure means is housed and said slot being formed in the wall of said extension near its junction with the main casing body.

2. In dispensing apparatus for soap and like materials, the combination, with a casing having a cutting apparatus in its lower, open end and a hinged door closing an opening in its front, of a projecting rib on the inner face of such door extending lengthwise of the casing, and an extension of such rib mounted on the inner face of the casing adjacent said door; whereby, when the door is closed, a continuous rib is formed extending practically the entire length of the casing interior, and with which a properly grooved cake of soap may engage.

3. A combination such as defined in claim 2 in which said door is hinged at its lower end.

4. A structure such as defined in claim 2 combined with a feed pan mounted to slide lengthwise of said casing interior and having a notch in one edge closely engaging said rib, and spring means normally forcing said pan toward said cutting apparatus.

5. In a dispensing apparatus for soap and like materials the combination with a vertically arranged casing having an open lower end and a soap cutting mechanism located therein, of a feed pan sliding lengthwise of said casing interior, and a tension spring forcing said pan toward said cutting mechanism, said casing having a longitudinally extending rear extension into which a projection from said feed pan extends and in which said spring is housed.

6. A combination such as defined in claim 5 in which said rear casing extension has a longitudinally extending slot in one side wall and said pan has a laterally extending finger projecting through said slot and serving to indicate the amount of soap remaining uncut in the casing at any time.

7. A dispensing apparatus for soap and like materials comprising the combination of a vertically arranged casing having an opening at its lower end and a rotary cutter journalled over said opening, said casing being divided along a vertical plane into two sections provided with detachable inter-connecting means, the rear section being also provided with means for fastening to a wall surface, and said cutter being journalled in semi-circular recesses formed in the meeting edges of the casing walls and registering one with the other, whereby on removing said front casing section said cutter will drop out for sharpening or renewal, said front casing section being provided with a continuous, rearwardly projecting flange along its outer edge adapted to surround, and form a substantially watertight joint with, said rear section, the walls of one of the recesses in said flanges projecting beyond the vertical plane passing through the axis of said cutter-journal; whereby a crescent-shaped lower bearing section for such journal is provided which prevents any wedging action of the downwardly pressed journal, such as might otherwise tend to force apart the two casing sections.

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