

Sept. 14, 1948.

G. C. SCHMIDT

2,449,513

SOAP FEEDER

Filed May 7, 1945

2 Sheets-Sheet 1

FIG. 1.

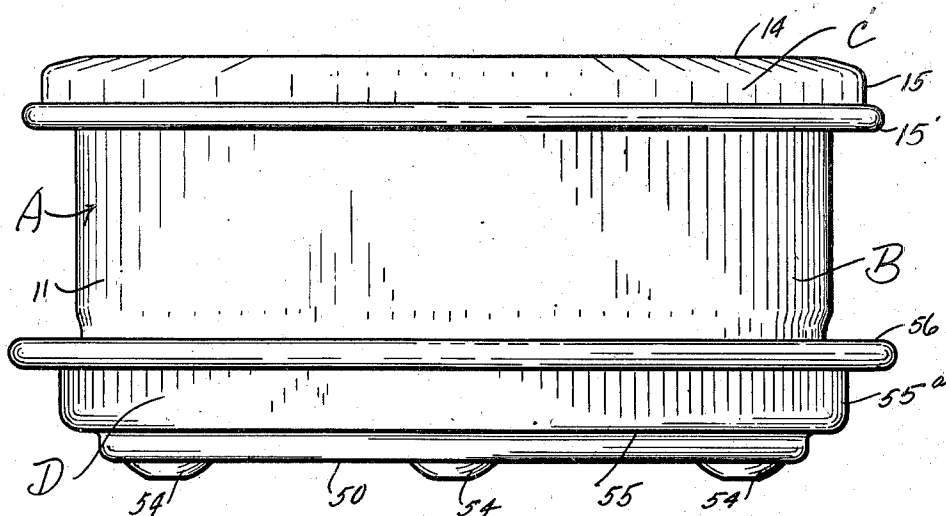
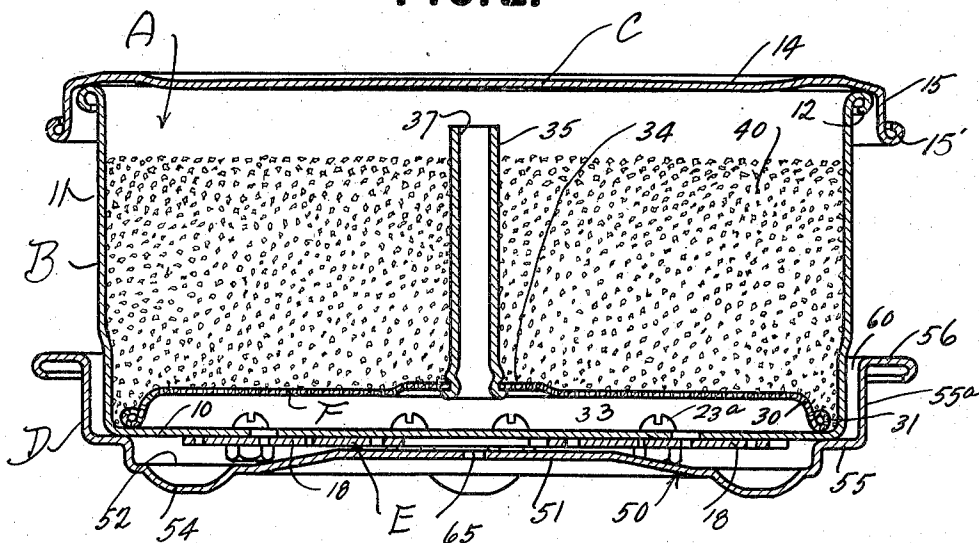


FIG. 2.



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FIG. 3.

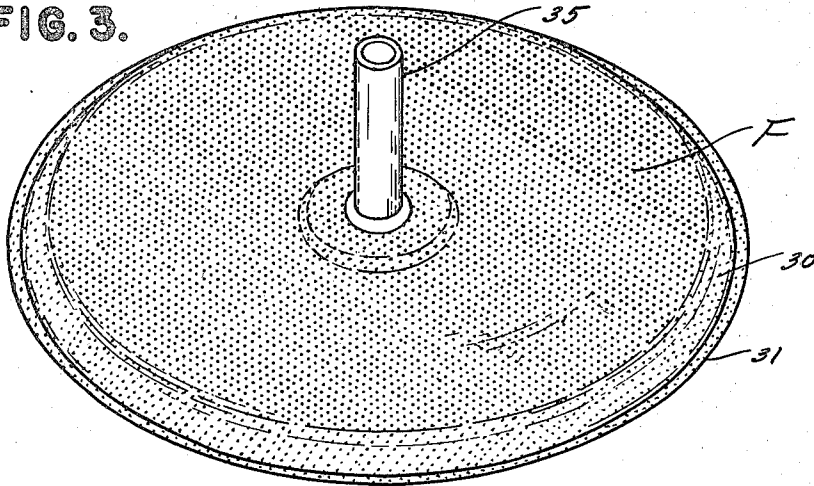


FIG. 4.

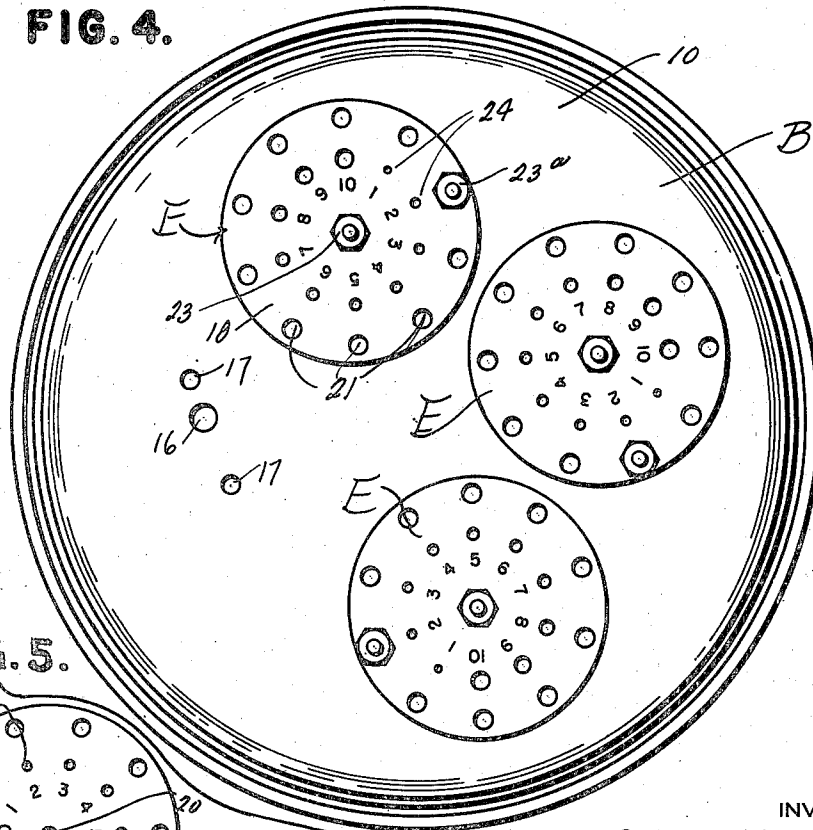
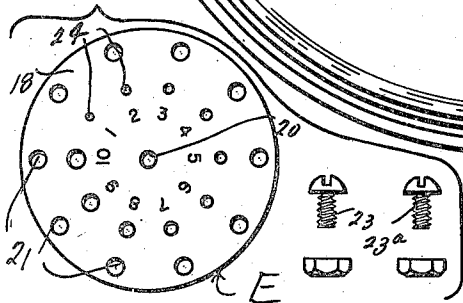


FIG. 5.



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SOAP FEEDER

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mesne assignments, of one-half to Lois E.
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5 Claims. (Cl. 206—0.5)

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This invention relates to improvements in devices for feeding soap in regulated quantity to the water of dishwashing machines and the like.

The primary object of this invention is the provision of a feeder or dispenser which thru diffusion will feed the soap in uniform and regulated manner to the cleansing fluid of washing machines under such circumstances as to maintain a uniform alkalinity of the washing fluid over long periods of washing time without substantial variation.

A further object of this invention is the provision of a feeder or regulator adapted to be used in spray types of washing machines in which thru diffusion the soap or cleaner is automatically fed to the cleansing fluid under such circumstances as to result in a material saving of the soap or cleaner while maintaining the wash water at uniform strength thruout the entire wash period. In this respect the regulator eliminates waste of hand feeding methods.

Other objects and advantages of the invention will appear in the following detailed description.

In the accompanying drawings forming a part of this specification, and wherein similar reference characters designate corresponding parts thruout the several views—

Figure 1 is a side elevation of the improved feeder or regulator.

Figure 2 is a vertical cross sectional view taken thru the improved regulator showing granular cleaner, such as soap, therein.

Figure 3 is a perspective view of a perforated screen disc used in the regulator for supporting the soap or cleaner.

Figure 4 is a plan view showing a plurality of the regulating valves.

Figure 5 is a view showing the parts of each of the valve structures.

In the drawings, wherein for the purpose of illustration is shown only a preferred embodiment of the invention, the letter A may generally designate the improved regulator. It is intended to be placed in the dishwashing machine upon a screen therein above the water level where the spray from the wash water will impinge thereon in a manner that is well understood in the art to which this invention relates.

The improved regulator A preferably comprises a container B having a closure C. It is adapted

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to rest in a tray D. The container on the bottom thereof is provided with a plurality of valve structures E.

The container and all of its parts may be formed of any approved material such as aluminum, stainless steel, plastic, etc. The receptacle or container portion B is provided with a bottom wall 10 and a preferably cylindrical side wall 11 having an outwardly rolled bead at the top thereof, as shown at 12 in Figure 2. The closure C is of loose fitting type including a top wall 14 and a skirt flange 15 rolled outwardly at 15'. The bottom wall 10 is provided with a plurality of sets of bolt openings, each set comprising an opening 16 and a pair of spaced-apart openings 17, preferably smaller in diameter than the diameters of the opening 16 and disposed to either side of the opening 16, and all arranged so that a valve disc 18 may be rotatably secured over each set.

The valves E each include the disc 18 provided with a central bolt receiving opening 20 and a plurality of bolt receiving openings 21 at the outer margin thereof. The central opening 20 and the opening 17 are adapted to receive a central bolt 23 with the head end of the bolt inside the bottom wall 10 and the nut thereon at the outer side of the bottom 10 projecting below the valve disc as shown in the drawings. When the valve disc 18 is rotated about one opening 17 as a center, the openings 21 will register, one after the other, with the other opening 17 and a bolt 23a may be passed, through the first-mentioned opening 17 and a selected opening 21, to hold the valve disc 18 in a selected position. This stabilizes the position of the valve disc with respect to the feeder opening 16. Each valve disc 18 is provided with a ring of graduated openings 24 between the central opening 20 and the openings 21 in position to selectively align with the feeder opening 16, depending upon the position of the disc 18 as adjusted thru the medium of the bolt 23a. In this manner the size of the feeder opening (to the wash water) may be regulated. It is to be noted that the opening 16 is much larger than any of the openings 24. It is not necessary to have all valve discs E with the same size openings in line with its feeder opening 16, since regulation may be effected thru alignment of different sized openings of the different valve discs with the respective opening 16.

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The screen F, upon which the soap rests, is preferably of stamped metal including a downwardly turned skirt portion 30 which is perforated and has a rolled edge 31 adapted to rest upon the bottom wall 10 as shown in Figure 2. The body portion of the screen is thus spaced from the inside surface of the bottom of the container; the space 33 being of uniform depth except at the central portion 34 of the screen F, where the same is raised and supports a breather tube 35. The tube 35 is crimped upon the portion 34 centrally of the screen and it provides a passageway 37 therethru which opens at the top of the breather tube just above the bottom of the lid C and opens into the space 33 to supply breather action into said space, since it has been discovered that air cannot always reach this space, through the material disposed upon the screen F, and a vacuum might be created in this space.

The soap or cleaner 40 is adapted to rest upon the top of the screen F and marginally therearound; the level terminating below the top of the tube 35.

The tray D is an important part of the regulator, since it insures the successful diffusion of water thruout the lower mass of the soap within the regulator for the uniform feed of the soap into the wash water. It consists of a bottom wall 50 having a central raised portion 51 and a surrounding annular portion 52 provided with depressed feet 54 adapted to rest upon some supporting surface for holding the bottom wall 50 spaced therefrom. Above the horizontal plane of the portion 51 is a raised or elevated ledge 55 of the tray D which receives thereon the container B, as shown in Figure 2 of the drawings. When resting on this ledge 55 the bottom wall of the container and its valve structures are spaced slightly from the upper surface of the bottom wall 50 of the tray. The tray D above the ledge 55 is provided with an annular skirt or wall 55^a, flanged outwardly at 56 at the top thereof. When the container rests within the tray the wall 55^a retains it against sliding off the tray D and outer surface of the side wall 11 is spaced from the inside surface of the wall 55^a, as shown at 60 in Figure 2 of the drawings. In this space the spray water from the washing machine collects and seeps into the bottom of the tray, since the container rests only loosely upon the ledge 55 and sufficient water will pass thereby into the bottom of the tray. The water from the tray seeps upwardly thru the valve openings into the space 33 and collects therein until the amount is sufficient to diffuse thru the lower portion of the mass of soap or cleaner 40 therein. In this respect it is noted that the side skirt 30 is perforated so that immediately upon any water entering the space 33 diffusion will start. The soapy water will, of course, pass from the soap or cleaner thru the perforated screen F into the space 33 and also pass thru the valve openings into the tray and exit therefrom at the central opening 65 in the bottom of the tray.

While the several parts making up the regulator A are loose fitting, they are preferably of sufficient weight so that when assembled and in use, the splash and spray of the water will not dislodge them.

Experience has shown that the soap or cleaner 40 is only moist at the lower part thereof.

To give an example of the efficiency of the regulator a test was made by adding soap to wash water manually at the rate of eight ounces at the start and eight ounces every thirty minutes for a

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period of about four hours. The alkaline strength in grams per gallon of the water varied at each feeding and was highest at each feeding and sharply decreased as the period for the next feeding approached. In contradistinction, in a second test using the improved regulator or diffuser of the present invention, the soap was added in sufficient quantity in the container for the entire test period of substantially four hours. The alkaline strength in grams per gallon remains substantially constant thruout the wash period except at the very start and end of the period and resulted in a saving of the cleaner in amount of twenty-five per cent to obtain the same cleaning effect upon dishes as during the first test period where manual feeding was practiced.

Various changes in the shape, size and arrangement of parts may be made to the form of invention herein shown and described without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a soap feeder and regulator the combination of a container including a bottom wall and upstanding side walls, a closure for the container, valve means in the bottom wall of the container, a perforated screen in the container for supporting a body of soap or cleaner in the container spaced from the bottom wall of the container, means for breather action of air from the top of the container into said space, and a tray for supporting the container, said tray including an upstanding wall structure and a bottom wall and including means for supporting the container in the tray spaced from the inside surface of the upstanding wall and from the inside surface of the bottom wall, said tray having an opening therein for passage of soapy fluid therefrom.

2. In a regulator for use in spray type washing machines the combination of a container including a bottom wall and upstanding side walls, a closure for the container, valve means in the bottom of the container for regulating inlet and exit of wash water thereto and therefrom, a perforated soap supporting screen in the container including a top wall and a depending skirted wall, the latter being perforated and spaced from the inside surface of the upstanding wall of the screen, whereby soap will rest not only upon said screen but also in the space between the screen skirt and the side wall of the container, a breather tube supported by the screen and opening below the screen and in the top of the container below the closure, and a supporting tray for the container including a bottom wall, an upstanding skirt wall, and means formed therebetween for supporting the bottom of the container in spaced relation above the inside surface of the tray bottom wall, the bottom wall of the tray having at least one combined discharge and feed opening therein.

3. In a regulator the combination of a soap receiving container having valve means in the lower part thereof for inlet and outlet of wash water, a tray for supporting the container including a bottom wall, an upstanding side wall with means for supporting the container in the tray spaced from the inside surface of the bottom wall and the inside surface of the tray side wall, the bottom wall of the tray having at least one combined discharge and feed opening therein.

4. In a regulator of the class described the combination of a container including a bottom wall and an upstanding side wall, a tray having a continuous upstanding wall spaced outwardly

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of said upstanding side wall, defining an upwardly-opening open mouth and an annular passageway between said walls, a bottom wall and means to support said container within said tray and with said bottom walls spaced apart, and a plurality of valve means for regulating feeding of wash water into and from said container, said means including valve bodies mounted upon the first-named bottom wall and extending into the space between said bottom walls.

5. A soap feeder and regulator comprising a container having a bottom wall and upstanding side walls, a perforated screen mounted in the container having a perforated portion spaced from the inside surface of the bottom wall, said screen adapted to receive thereon within the container comminuted cleaning material, a breather tube communicating the top compartment of the container with the space between the perforated screen and bottom wall of the container, a tray for loosely receiving the container in resting relation thereon having a bottom wall and upstanding side walls spaced outwardly from said container and defining an upwardly facing open mouth, the bottom wall of the container having opening means therein to the tray for inlet and outlet of water into the tray between the bottoms of the tray and container and also with respect

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to the space between the upstanding walls of the tray and container.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
350,675	Hathaway -----	Oct. 12, 1886
563,921	Gridley -----	July 14, 1896
750,815	Coon -----	Feb. 2, 1904
816,860	Howard -----	Apr. 3, 1906
1,036,463	Dawson -----	Aug. 20, 1912
1,045,057	Moran et al. -----	Nov. 19, 1913
1,296,241	Walker -----	Mar. 14, 1919
1,476,090	Lipsner et al. -----	Dec. 4, 1923
2,044,821	Urban -----	June 23, 1936
2,178,735	Behrman -----	Nov. 7, 1939
2,266,902	Perkins -----	Dec. 23, 1941
2,304,867	Wenker -----	Dec. 15, 1942

FOREIGN PATENTS

Number	Country	Date
11,416	Great Britain -----	May 26, 1908
235,951	Great Britain -----	June 25, 1925