

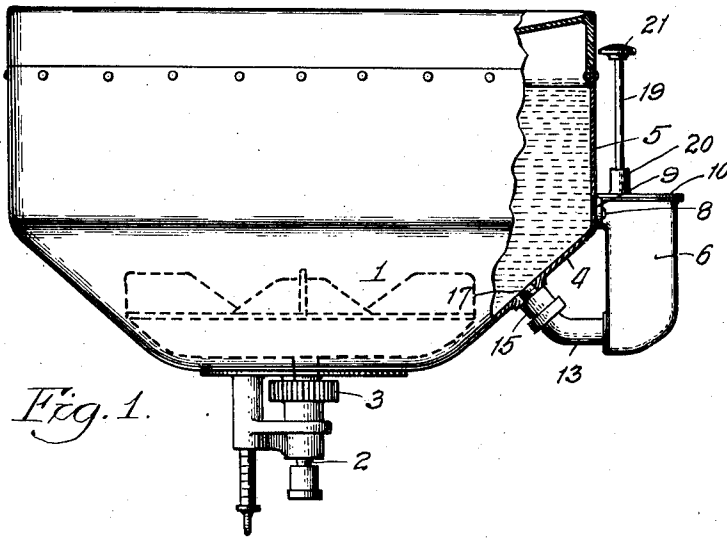
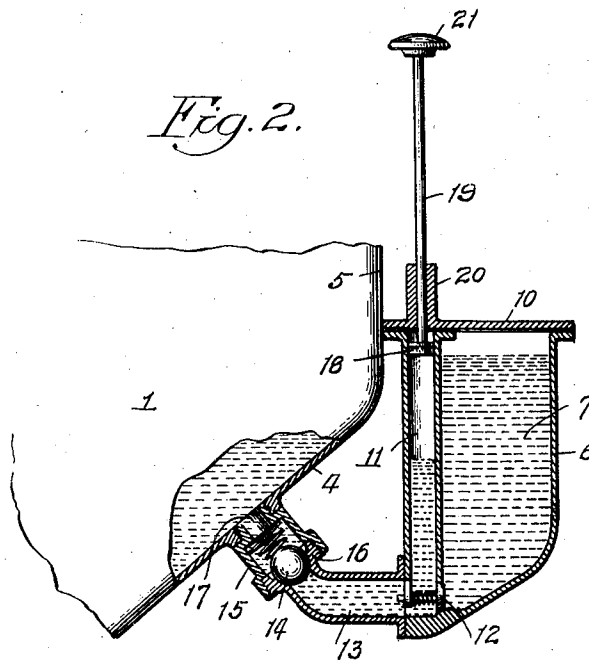
Jan. 25, 1927.

H. F. SNYDER

WASHING MACHINE

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1,615,413



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# UNITED STATES PATENT OFFICE.

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## WASHING MACHINE.

Application filed June 14, 1922. Serial No. 568,159.

The present invention relates to a method of forming a cleansing fluid and to the device employed in such method for supplying liquid soap.

5 When washing clothes in a washing machine using a cleansing fluid produced by the addition of pieces, chips or flakes of soap into the water contained in the tub and the agitation of the mixture or mass in the tub  
10 to form the cleansing fluid, there is the disadvantage of the pieces, chips and flakes of the soap catching into the folds, and similar places, of the clothes and not dissolving. These pieces of soap will be carried over into the rinse water, the wringer, the ironing machine and other apparatus peculiar to  
15 laundering. When present in the ironing machine the pieces of soap, owing to the heat of the ironing machine, will cause stains, spots and the like in the clothes.

Among the objects of this invention are to eliminate such disadvantages; to utilize a liquid in lieu of chipped, cut or flaked soap; to eject or introduce the liquid soap into the  
25 swirling mass into the tub of the washing machine during the washing or the cleansing operation; to place the liquid soap in a reservoir which is preferably secured to the side of the tub, and, from time to time or intermittently, as the washing operation may demand, supply measured quantities of the  
30 liquid soap into the tub; to so locate the liquid soap dispensing device that it will eject the charges of liquid soap into the path of movement of the swirling mass in the tub; and such other objects, advantages and capabilities as will later more fully appear, and are inherently possessed by the device and method of its use.

40 My invention further resides in the combination, construction, and arrangement of parts illustrated in the accompanying drawing as well as in the combination and relation of steps described in the specification, and while I have shown herein a preferred embodiment and method, I desire the same to be understood as illustrative only and not as limiting my invention.

50 In the accompanying drawing illustrating my invention:—

Fig. 1 is a view partly in side elevation and partly in section of the tub of the washing machine and the attached soap dispenser.

Fig. 2 is a sectional view of the soap dis-

penser and part of the tub, on an enlarged scale.

Referring more in detail to the drawings, the invention is illustrated as comprising a tub 1, forming a part of a power driven washing machine. Within this tub near the  
60 bottom thereof is located a liquid impeller supported upon a vertical shaft 2, extending through the bottom of the tub and operated by suitable mechanism, including a pinion 3 on the shaft 2, by the power mechanism for the machine. The construction of the tub and the construction and arrangement of the liquid impeller is in accordance with the showing in my co-pending application Serial No. 568,158, filed June 14, 1922.  
70 It will be noted that the bottom of the tub has a tapered wall portion 4. To the side wall 5 of the tub is secured a container or reservoir 6 adapted to contain a liquid soap 7, the reservoir being fastened in place by bolts 8 passing through a bracket 9 forming an integral part of the reservoir. This reservoir is intended to contain a relatively large quantity of liquid soap of which charges may be taken, from time to time, as may be desired or as the operation of the machine may demand, to eject the charges of soap into the tub. The container has a closure 10. Within the reservoir 6, is secured a measuring chamber 11. This chamber is preferably  
85 formed integrally with the reservoir 6, and has an inlet controlled by a spring pressed check valve 12 opening from the reservoir chamber. From the lower end of the chamber 11 leads a passage 13 provided with a spring pressed check valve 12. The inclined part 4 of the tub has a threaded nipple 15 connecting the end 16 of the passage 13, to the tub, the nipple 15 having an orifice or nozzle 17 through which the liquid soap is forced when ejected into the tub. The pump chamber 11 is cylindrical and has a piston 18 reciprocally mounted therein, the piston being connected to a piston rod 19 slidable through a hub 20 formed integral with the  
100 top or cover 10 of the reservoir. The upper end of the rod 19 has a handle 21 by which the pump may be manually operated.

During the operation of the washing machine the liquid impeller is reciprocated angularly to cause the mass, comprising the materials to be cleansed and the cleansing solution, such as the water and the soap, to

move outwardly and then upwardly along the side of the tub. It will thus be seen that as the charges of liquid soap are ejected from the outlet 17, the same will be mixed  
5 with the upwardly swirling mass within the tub. Inasmuch as the soap is in liquid form, it will be readily dissolved and no part of it can be caught and retained in the folds of the clothes and thus eventually cause stains  
10 therein.

It is not intended that the liquid soap be continually fed into the tub but only at various times such as at or just before the starting of the operation of the machine  
15 and also during the operation of the machine, as desired. In order to feed charges of soap into the tub it is merely necessary to operate the piston in the pump. An upward movement of the piston draws a charge  
20 from the reservoir into the measuring chamber 11 of the pump and a downward stroke of the piston will eject the charge through the passage 13, past valve 14 and through nozzle 17 into the tub. The valves 14 and  
25 12 respectively close and open upon the upward stroke and open and close upon the downward stroke of the piston.

It is of course understood that the specific description of the structure and method described above may be departed from without departing from the spirit of my invention as set forth in this specification and  
30 appended claims.

Having now described my invention, I  
35 claim:

1. A washing machine comprising a tub, a liquid dispenser mounted on said tub com-

prising a reservoir, a measuring device having a chamber, and a pump operable to draw a measured charge of liquid from said  
40 reservoir into said chamber, to eject said charge from said chamber, and to inject said charge into said tub.

2. A washing machine comprising a tub, means for agitating a liquid in said tub, a  
45 liquid soap reservoir mounted on said tub and having an outlet, closure means for said outlet, and means for opening said closure means, withdrawing through said outlet a measured quantity of soap from said reser-  
50 voir, for closing said closure means and for injecting said quantity into said tub.

3. A washing machine comprising a tub, means for agitating a liquid in said tub, a  
55 liquid soap reservoir mounted on said tub and having an opening for establishing communication between said tub and said reservoir, means for automatically closing said opening, and means for withdrawing from  
60 said reservoir a measured quantity of soap and for injecting said quantity into said tub.

4. A washing machine comprising a tub, means for agitating a liquid in said tub, a  
65 liquid soap reservoir mounted on said tub and having a passage for establishing communication with said tub below the liquid level in said tub, closure means for normally closing said passage, means for opening said closure means, for withdrawing a measured  
70 quantity of soap from said reservoir and for injecting said quantity into said tub.

In witness whereof, I hereunto subscribe my name to this specification.

HOWARD F. SNYDER.