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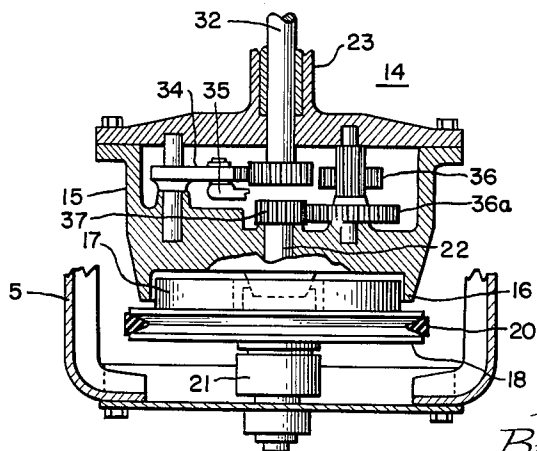
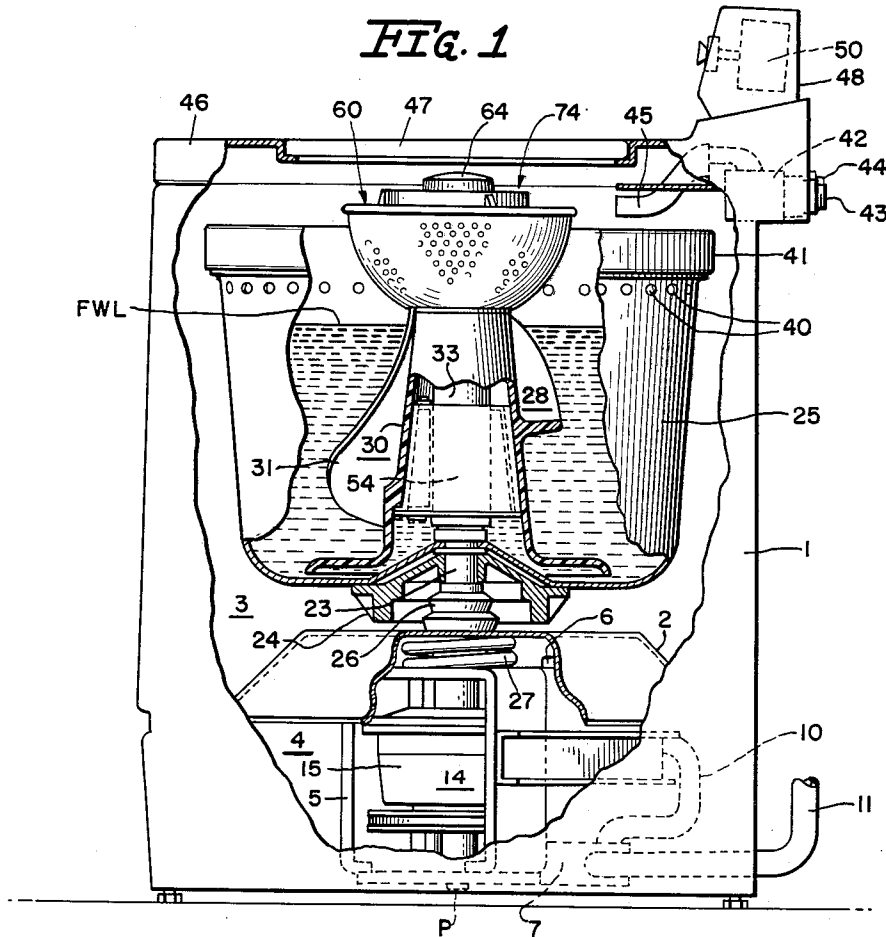
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3,145,552

WATER CONDITIONER DISPENSER FOR CLOTHES WASHING MACHINE

Filed June 28, 1963

3 Sheets-Sheet 1



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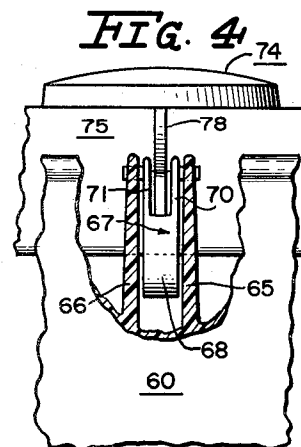
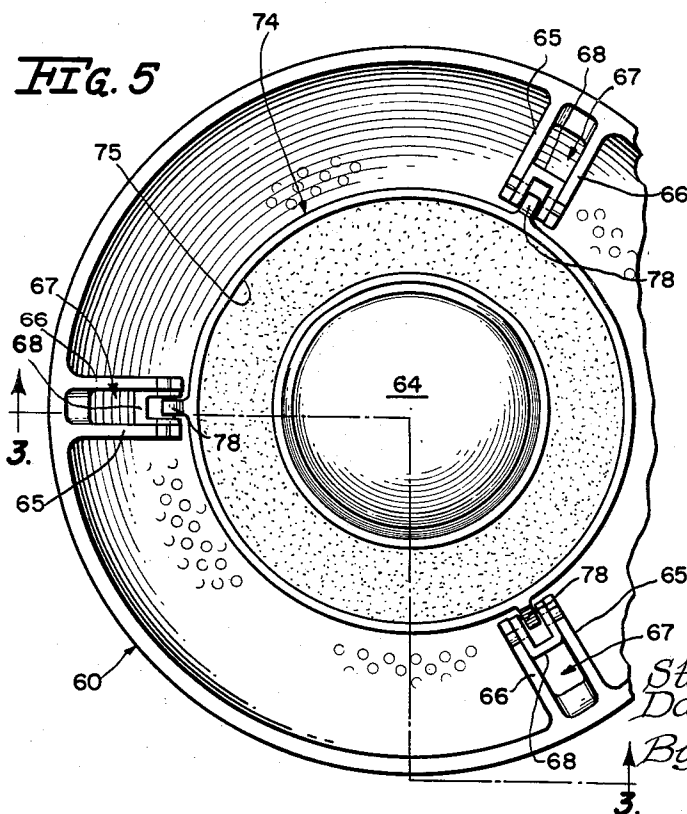
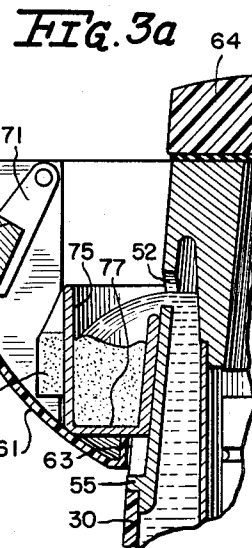
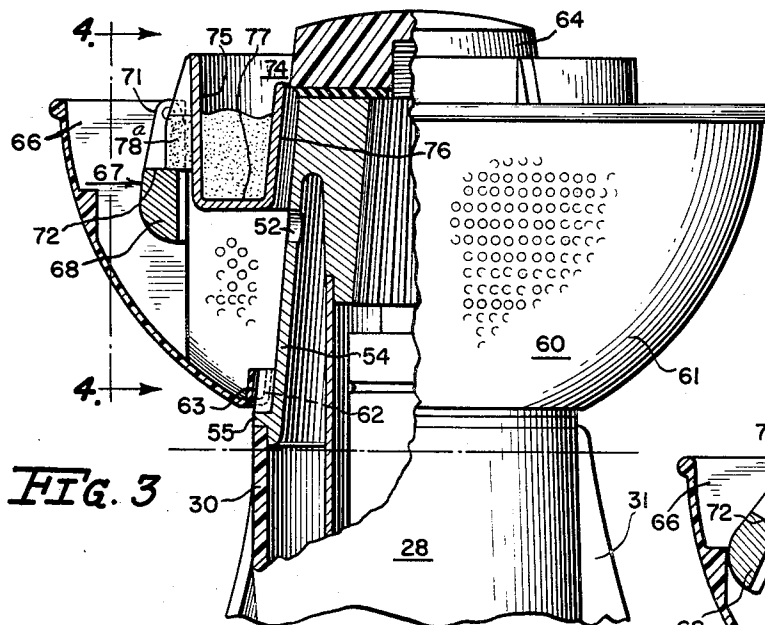
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WATER CONDITIONER DISPENSER FOR CLOTHES WASHING MACHINE

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3 Sheets-Sheet 2



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FIG. 6

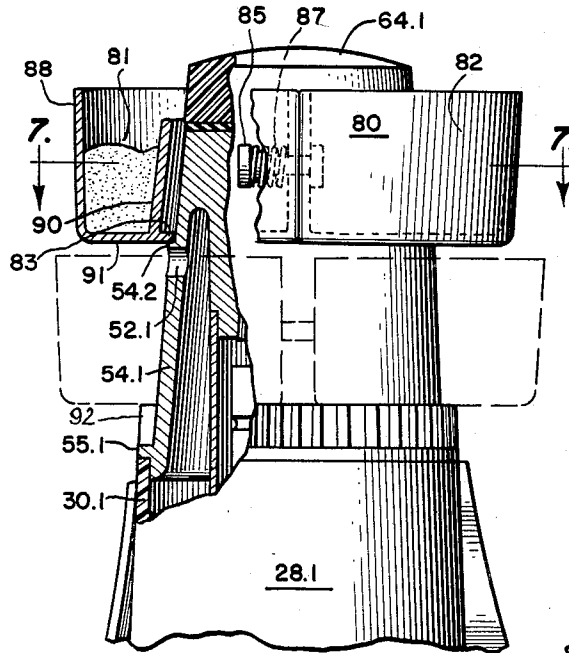
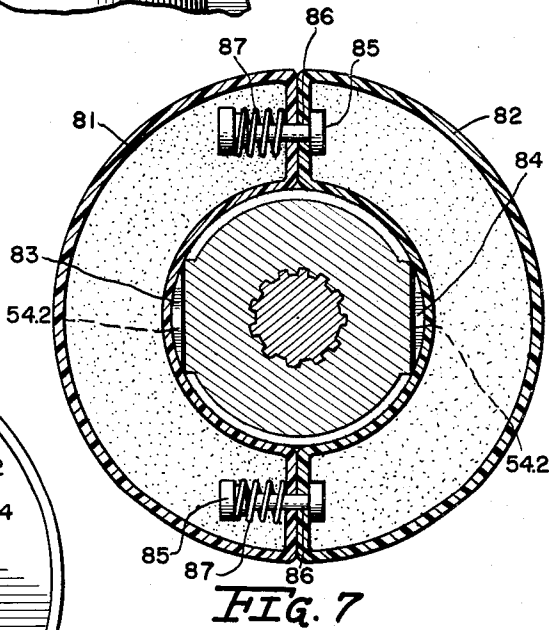
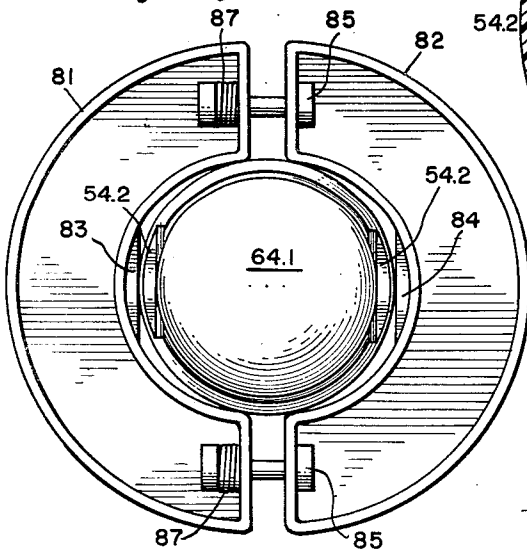


FIG. 6a



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3,145,552

WATER CONDITIONER DISPENSER FOR CLOTHES WASHING MACHINE

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Filed June 28, 1963, Ser. No. 291,375

12 Claims. (Cl. 68—17)

This invention relates to clothes washing machines, and in particular, to a washing machine having means for adding a charge of detergent or other water conditioning material to the washing tub at an appropriate time in the washing operations.

It is well known in the domestic clothes washing art that there are many situations in which laundering results are greatly improved by a washing machine cycle of operations which includes two separate washing cycles, each of which uses a detergent solution. It is also well known that the removal of lint or other water-borne detritus as a continuous process during the washing and rinsing operations is an advantageous practice, for it is quite disturbing to the user to see light-colored fragments on articles of dark-colored clothing as she is removing the articles at the end of the operational cycle of the machine.

We are well aware of lint-removal mechanisms in contemporary washing machines, and of dispensing devices for adding charges of bleaches, fabric softeners, or the like at appropriate times in the washing and rinsing cycles. In washing machines of the vertical axis agitator type, for example, it is commonplace to mount a lint filter on the agitator either above or below the normal water level, and to arrange a water circulation system so that during the washing and rinsing cycles, there is a more or less continuous flow of water through the lint filter. It is also commonplace to utilize, in water conditioning dispensers, the conjoint rotation of the agitator and the washing basket during the centrifugal extraction of the washing or rinsing liquid. For example, some prior art dispensers, mounted on the agitator post, use centrifugal forces to transport a quantity of liquid rinse agent material from a reservoir compartment to a release compartment as the tub is rotating to spin out the wash water. As the basket and agitator come to a stop at the end of the spin cycle, the liquid drains into the tub from the release compartment. It is subsequently mixed with the incoming rinse water. A serious disadvantage of these prior art devices is that they are useful only with liquid materials, and it is well known that many of the effective detergents, bleaches, and the like are in powdered or pelletized form.

It is therefore an object of the invention to provide a dispenser mechanism which may be mechanically associated with a lint-filter device.

It is still another object of the invention to provide a dispensing mechanism which is releasably latched in non-dispensing position during a portion of a first operating cycle of a washing machine, and released for movement to a dispensing position during a portion of a subsequent operational cycle.

It is a still further object of the invention to provide a dispenser mounted on the agitator post of a centrifugal extraction type of washing machine whereby during a first washing cycle the dispenser is held remote from the water action in the tub, but during the spinout of wash water, is released to assume a second position in which water action will introduce the water-conditioning material into the water of the tub for a subsequent washing or rinsing function.

In a presently preferred form we apply our invention to a washing machine of the vertical-agitator, centrifugal-extraction type, in which there is a continuous recirculation of water from and to the tub during the washing and rinsing operations. The recirculation can be accomplished by any external pumping means by which the recirculated water is returned to the washing tub from a level suitably above the operating level of the washing or rinsing liquid in the tub. Such recirculation machines commonly employ lint-filtering pans which are mounted on the agitator post above the normal water level in the tub but in a position in which the recirculating liquid must pass through the filtration mechanism. On the agitator post, and initially releasably held sufficiently above the lint filtering mechanism so as to be out of the path of flow of the recirculating liquid, we mount an open-topped, pan-like structure which accommodates the charge of detergent or water-conditioning material which is to be subsequently introduced into the washing tub. The support mechanism includes latch devices which release in response to centrifugal forces established during the rotation of the tub and agitator during the centrifugal extraction of the wash water; the release of the dispenser permits it to drop along the agitator post to a new position in telescoping relation with the lint filter and in the path of the recirculating water. The resulting mixture of water and conditioning material will then overflow the dispenser for passage into the lint filter and from there into the washing tub. In embodiments of our dispenser particularly adapted to dry or pelletized detergents, the resulting mixture of water and detergent can drain into the lint filter through a foraminated bottom wall of the dispenser. We wish it to be understood, however, that our invention is not in any sense limited to a combination of lint filter and dispenser; the dispenser may be used entirely independent of any lint-filtering mechanism.

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It is a feature of our invention that the dispenser cannot discharge the conditioning material into a "dry" tub, that is, into the tub at the completion of the water extraction operation. This is important when the dispenser is used to add a bleach or similar material for subsequent operation. The arrangement and operation of the dispenser in our invention insure that the conditioning material will be diluted with water before it can enter the tub, therefore eliminating the possibility that the clothes will be subjected to the possibly harmful action of undiluted conditioning agent.

Other features and advantages of our invention will best be understood from the following detailed description of presently preferred embodiments read in connection with the accompanying drawings, in which:

FIG. 1 is a side elevation of a clothes washing machine embodying one form of our invention, certain parts of the washing machine outer casing and other mechanism being broken away to reveal underlying structure;

FIG. 2 is a side sectional elevation of the transmission mechanism for oscillating the agitator during the washing and rinsing operations and rotating the washing tub for centrifugal extraction of the wash and rinse waters;

FIG. 3 is an enlarged view, in vertical section, on lines 3—3 of FIG. 5, of the upper portion of the agitator and the FIG. 1 form of dispenser and lint filter mounted thereon;

FIG. 3a is a fragmentary sectional view, showing the dispenser in operating position;

FIG. 4 is a side elevational detail of the latching and release mechanism for the dispenser of FIG. 3, looking in the direction of the arrows 4—4 of FIG. 3;

FIG. 5 is a top plan view of the dispenser and lint filter;

FIG. 6 is an enlarged view, in partial vertical section, of the upper portion of the agitator and a second form of dispenser mounted thereon to the exclusion of a lint filter;

FIG. 6a is a fragmentary sectional view showing the

disengagement of the dispenser from the agitator during the centrifugal extraction cycle; and

FIG. 7 is a horizontal sectional view of the second form of dispenser, taken on lines 7—7 of FIG. 6.

Referring first to FIG. 1, the clothes washer illustrated therein is of the familiar vertical-agitator, spin-tub type. An outer appearance casing 1 is provided with a bottom bulkhead 2, welded or otherwise secured within the casing to provide a water collection chamber 3 and a machinery compartment 4. Disposed within the latter compartment is a frame 5 mounted for gyratory movement about a pivot point P located in a transverse structural member at the base of the cabinet. Said frame carries a drive motor 6 disposed with its downwardly projecting shaft provided with a drive sheave (not shown) and drivingly engaging the rotor of a pump 7 which receives liquid from the compartment 3 by way of an appropriate inlet in the bulkhead 2. Said inlet communicates with a hose 10 which comprises the inlet hose to the pump. The discharge hose 11 from the pump is of the usual type which is adapted to hook over the side of a laundry tub (not shown) to discharge the spent washing and rinsing liquid thereinto. The motor 6 is of the reversible, split-phase, induction type commonly in washing machine use; as is well understood in the art, when the motor operates in one direction it operates the agitator for the washing and rinsing function, and when operated in the other direction it rotates the clothes tub for centrifugal extraction of water from the tub and contents thereof. The pump 7 may be of any of the well known types in which, when the motor is operating in the "spin" direction, it efficiently removes the water from the compartment 3, but when the motor is operated in the "wash" direction the pump is not effective as a pumping mechanism.

The transmission 14 mounted within the frame 5 has a casing 15 about the lower portion of which a circular concentric skirt 16 provides a driven clutch element within which is a uni-directional clutch 17, as well known in the art. The clutch is fixed to the sheave 18 from which the belt 20 connects with the motor sheave. When the motor operates in the spin direction, the clutch 17 engages the skirt 16 to rotate the housing therewith. By means of a conventional slip clutch 21 of the coil-spring type, the rotation of the sheave 18 in the wash direction transmits torque to the main pinion shaft 22; in this direction of rotation, the clutch 17 is disengaged from the clutch member 16 so the drive torque is not transmitted to the housing 15, it being understood that any conventional braking or snubbing devices (not shown) may be used to restrain rotation or oscillation of the casing 15 during the washing operation. During the spin operation the clutch 21 slips relative to the pinion shaft 22 whereupon no torque is transmitted thereto.

A sleeve 23 extending from the transmission housing 15 and coaxial with the clutch member 16 and pinion shaft 22, is secured to a fixture 24 on which is mounted the washing tub 25, whereupon when the transmission housing is rotated as aforesaid, the tub 25 rotates therewith. A flexible rubber boot 26 fixed about the sleeve 23 and bulkhead 2, prevents passage of water into the machinery compartment while permitting gyratory movement, as is well known in the art. A coil spring 27 between the frame 5 and damping devices (not shown) on the underside of the bulkhead 2, serves to damp excessive gyrations, also as well known in the art. Within the tub 25 and coaxial therewith is an agitator 28 from the relatively large diameter central post 30 of which extend a plurality of vanes 31, said vanes being arranged as a spiral or screw about the post 30, although this is not in any way a factor of importance to the present invention. The agitator is secured to the upper end of an agitator shaft 32 journaled in the transmission casing as shown in FIG. 2; said agitator shaft passes axially through a sleeve 33 which seals it against the water in the tub 25. Agitator shaft 32 is connected by way of

a sector gear 34 and a crank 35 (fragmentarily shown in FIG. 2) connected to the gear 36. Gear 36 is in mesh with the gear cluster 36a, in turn in mesh with the drive pinion 37 fixed to the end of the main pinion shaft 22; the agitator shaft has a pinion 38 in mesh with the sector gear 34. As is known in the art, rotation of gear 36 by pinion 37 and gear cluster 36a causes an oscillation of crank 35 and the sector gear 34 to which it is affixed; the sector gear in turn oscillates the shaft 32. Completing the general description of the washing machine, the tub 25 is generally frusto-conical and is imperforate except for the row of apertures 40 through which water is ejected into the compartment 3 during the centrifugal spin operation. A ring 41 of heavy material is carried at the top of the tub to contribute a stabilizing influence during spin. A solenoid-operated water valve assembly 42 has an inlet 43 arranged to be connected to the hot water supply of the site of installation and an inlet 44 arranged to be connected to the cold water supply, whereupon hot, cold, or tepid water can be directed into the tub 25 by way of the valve outlet 45, as is well known. The top panel 46 of the casing 1 has an access lid 47 and a controls compartment 48 within which are located various control devices including the time-cycle controller 50 which conducts the washing machine through an operation sequence which will include one or more wash cycles and at least one rinse cycle, said cycles being separated by centrifugal extraction cycles. The level of water indicated at FWL in FIG. 1 is typical of a "full" fill for washing a full load of clothes. For light loads the user may select a partial fill which would lower the water level about one third.

As is well known in the art and has been previously noted, the transmission casing 15 is held against rotation during the oscillation of the agitator, but because of the "locking" effect of the various gears of the transmission, the agitator shaft and thereon-affixed agitator will rotate with the transmission casing during a centrifugal extraction cycle. The present invention utilizes this rapid rotation of the agitator during the first of the extraction cycles, as presently explained.

It has been previously noted that our invention is applied to a washing machine in which a pumping mechanism effects a recirculation of the water during the washing and the rinsing operations. In the illustrated embodiment this recirculation is preferably effected by the pump mechanism which is built into the agitator post or center column 30, and arranged during the oscillation of the agitator to draw water from the lower portion of the washing tub and discharge it through the ports 52 near the top of the agitator post. Said pump, which may be of the oscillating-vane type, is illustrated at 54 and may in all respects be similar to the pump fully disclosed in the presently copending application of Stephen L. McMillan, Serial No. 277,236, filed May 1, 1963, and assigned to our present assignee.

Referring now to FIG. 3, the upper portion 54 of the agitator post is formed with a shoulder or step 55 to support a filter 60, the outer wall 61 of which is foraminated. At appropriate intervals, its inner wall 62 is pocketed to interfit with the driving lugs 63 extending radially from the agitator portion 54. It will be understood that the filter 60 and the agitator post are suitably dimensioned to permit the filter to be readily removable without having to unscrew the nut 64 which secures the agitator to the upper end of the agitator shaft. The filter bowl has three pairs of radial walls 65, 66 which extend inwardly from the outer wall of the filter, FIG. 5; said walls confine flyweights 67 which are pivotally suspended, as shown. As FIGS. 3 and 4 show, the flyweights have a solid base 68 from which extend upwardly the links 70, 71 having the illustrated pivotal connection with the walls 65 and 66. The upper edge 72 of base 68 releasably supports the detergent dispenser 74.

The dispenser 74 is an annular pan-like structure hav-

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ing a relatively high outer wall 75, a substantially lower inner wall 76, and a base wall 77. Support ribs 78 extend radially from the outer wall 75 of the dispenser; as clear from FIGS. 4 and 5, the ribs 78 fit between the links 70 and 71 of each of the flyweights 67. Each rib 78 rests on the upper edge 72 of its associated flyweight, and upon suitable outward movement of the flyweights, the dispenser will be released and drop to the operating position, FIG. 3a.

Centrifugal forces acting on the flyweights 67 during oscillation of the agitator will urge them outwardly about their pivots. To prevent the release of the dispenser during agitation, the sides of the support ribs 78 may be provided with pads 78a which frictionally engage the adjacent wall of the flyweights; the flyweights may have a biasing spring (not shown); or the ribs 78 may be widened in a radial direction to provide a base which is at least coextensive with the flyweight surface 72.

FIG. 3 shows that when dispenser 74 is carried by the weights 67, wall 77 cannot interfere with the flow of washing liquid into the filter 60 during the washing action. Upon release of the dispenser by the displacement of the weights during the centrifugal extraction of the wash water, the FIG. 3a position then assumed by the dispenser will place its inner wall 76 below the openings 52; the outer wall 75 extends above the level of the openings.

After the centrifugal extraction of the wash water, the subsequent operation of the machine may be a second washing operation, or an agitated rinse operation, according to the design and arrangement of the control mechanism and the option of the user. In either operational sequence, the agitator resumes operation after the tub has been filled with water, and the resumption of operation will reinstate the recirculation of the washing or rinsing liquid through the agitator and the outlet ports 52 thereof. In view of the height of the dispenser wall 75, the liquid issuing from the ports 52 will be intercepted. The dispenser will fill and the resulting mixture of water and detergent or other water conditioning material in the dispenser will flood over the top of the dispenser. The mixture will, of course, enter the filter bowl and pass therethrough into the washing tub. In either a second washing operation or a rinsing operation, the agitation and accompanying recirculation extends over several minutes, and the complete evacuation of the contents of the dispenser is assured. In the centrifugal extraction of the wash water or the rinse water which follows, any liquid remaining in the dispenser will be evacuated over the rim thereof in view of the upward and outward slope of the wall 75.

In the embodiment illustrated in FIGS. 6, 6a, and 7, the agitator is slightly modified to accommodate the dispenser and its method of securement and release. Specifically, the agitator 28.1 has the outer wall structure 30.1 on which rests the step 55.1 of the structure 54.1; said latter structure has the plurality of ports 52.1 for the discharge of the recirculating fluids. The nut 64.1 secures the agitator to the agitator shaft (not shown), as previously noted. The structure 54.1 is provided with the diametrically opposed steps 54.2 which, as shown in FIG. 7, are chordal in shape. Said steps releasably support the detergent dispenser 80 in its FIG. 6 position in which it is remote from the path of water issuing through the ports 52.1.

Dispenser 80 comprises two semi-circular sections 81, 82, each of said sections comprising an independent compartment for the detergent or other conditioning materials. The inner wall of each section has at its base a ledge, respectively 83, 84, which seats on the respective steps 54.2 of the agitator element 54.1. The sections 81 and 82 are held in the operative relationship of FIG. 7 by the screws 85 which pass freely through relatively large openings 86 in the facing end wall of the respective sections. A coil spring 87 disposed about the re-

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spective screws 85 holds the dispenser sections together. However, as the agitator and tub come to centrifuging speed—400 to 500 r.p.m. in the average domestic washing machine—centrifugal force causes the dispenser sections to separate from each other, the springs 87 being designed to resist such separation until the rotational speed of the tub approaches the centrifuging level. The separation of the dispenser portions frees the portions from the steps 54.2 on the agitator, whereupon the dispenser sections drop until interrupted by shoulders 92 on the agitator member 54.1.

As noted previously with respect to the FIG. 3 embodiment, the outer wall 88 of each section is substantially higher than the inner wall 90. In the FIG. 6 position, the bottom wall 91 of the dispenser sections is above the row of apertures 52.1. FIG. 6a shows that the fall of the sections will be interrupted by the step 55.1, whereupon the inner wall 90 of each section is below the row of apertures, and the outer wall 88 extends above the apertures and will therefore be in position to intercept the streams of liquid issuing from the apertures. As previously described, the water conditioning material will become mixed with the water discharging through the openings 52.1 and will flood over the walls of the sections for passage directly into the tub.

While there has been described what is at present thought to be a preferred embodiment of the invention, it will be understood that modifications may be made therein and it is intended to cover in the appended claims all such modifications which fall within the true spirit and scope of the invention.

We claim:

1. In combination:

a washing machine tub arranged to receive water and clothes to be washed therein,
an upstanding agitator within said tub,
means for effecting a first and a second operation of said agitator,

means for effecting a recirculation of water within said tub during each said agitator operation, said means withdrawing water from said tub and returning it thereto at a level above the surface of the water,

means for rotating said agitator and said tub intermediate said first and second agitator operations to centrifugally extract water from the clothes therein,
means for refilling said tub,

an annular receptacle arranged to be disposed about said agitator, said receptacle comprising a detergent reservoir and providing for the escape of detergent solution therefrom,

means for releasably securing said receptacle in a first position above the return level of said recirculating water, said means being responsive to centrifugal forces to release said receptacle for movement axially of said agitator upon rotation of said agitator at said centrifugal forces to release said receptacle for movement axially of said agitator upon rotation of said agitator at said centrifugal extraction speed, and means for interrupting said movement to place said receptacle at a second level above the surface of the water but in the path of recirculating water during said second agitator operation, whereby a solution of detergent and water may be formed in said receptacle for passage therefrom into said tub.

2. In combination:

a washing machine tub arranged to receive water and clothes to be washed therein,

an upstanding agitator within said tub,

means for effecting a first and a second operation of said agitator,

means for effecting a recirculation of water within said tub during each said agitator operation, said means withdrawing water from said tub and return-

ing it thereto at a level above the surface of the water,
 means for rotating said agitator and said tub intermediate said first and second agitator operations to centrifugally extract water from the clothes therein, 5
 means for refilling said tub,
 an open-topped bowl releasably disposed about said agitator at a first level above the said return level of said recirculating water, said bowl accommodating a quantity of detergent, 10
 centrifugally responsive latch means effective to release said bowl for gravity fall upon rotation of said agitator during said centrifugal extraction,
 and means for interrupting said fall at a second level above the surface of the water but in the path of said recirculating water whereby a detergent solution may be formed within said bowl and washed from said bowl into said tub. 15
 3. In combination:
 a washing machine tub arranged to receive water and clothes to be washed therein, 20
 an upstanding agitator within said tub,
 means for operating said agitator during first and second periods to effect a washing action on said clothes,
 means for effecting a recirculation of water within said tub during said agitator operation, said means withdrawing water from said tub and returning it thereto at a level above the surface of the water, 25
 means for rotating said agitator and said tub intermediate said first and second agitator operation periods to centrifugally extract water from the clothes therein, 30
 a detergent receptacle adapted to be disposed about said agitator, said receptacle having means for the passage of a mixture of detergent and water into said tub and said receptacle being biased for axial movement on said agitator, 35
 latch means opposing said bias to releasably hold said receptacle in a position away from said recirculating water, 40
 means responsive to centrifugal forces generated upon rotation of said agitator during said centrifugal extraction to effect the disengagement of said latch means from said receptacle to permit said axial movement thereof, 45
 and means for interrupting said movement to position said receptacle in a position in which it will intercept said recirculating water during the subsequent agitator operation, whereby said detergent and water mixture may be generated for passage into said tub. 50
 4. In combination:
 a washing machine tub arranged to receive water and clothes to be washed therein,
 an upstanding agitator within said tub,
 means for effecting a first and a second period of oscillation of said agitator, 55
 means for effecting a recirculation of water within said tub during each said agitator oscillation period, said means withdrawing water from said tub and returning it thereto at a level above the surface of the water, 60
 means for rotating said agitator and tub intermediate said first and second oscillation periods to centrifugally extract water from the clothes therein,
 means for refilling said tub with water, 65
 a first open-topped bowl disposed about said agitator in a position intercepting said returning water, said bowl having a foraminated lower section through which the intercepted water can drain into said tub,
 a second open-topped bowl disposed about said agitator, said second bowl being arranged to accommodate a quantity of water conditioning material, 70
 means effective during the first of said agitator oscillation periods to releasably secure said second bowl in a position remote from said returning water, 75

means responsive to centrifugal forces engendered during rotation of said tub to release said securing means,
 and means engaging with said second bowl after the release of said securing means to establish said second bowl in a position in which it will intercept said returning water during said second agitator oscillation period, said second bowl having means for passing a mixture of intercepted water and conditioning material into said first bowl.
 5. A filtering and water conditioner dispensing mechanism for a clothes washing machine having a tub for receiving water and clothes to be washed, an agitator within said tub to effect first and second periods of washing action on the clothes therein, means for rapidly rotating said tub and agitator to centrifugally extract water from said tub intermediate said first and second washing periods, means for refilling said tub, and pumping means effective during the second period of washing action to withdraw water from said tub and return it thereto through openings in said agitator substantially above the water level in said tub, comprising, in combination:
 a bowl-shaped filter mounted on said agitator to intercept water discharging through said openings for filtration of the water returning to said tub,
 a bowl-shaped water-conditioner receptacle disposed about said agitator in concentric relation to said filter,
 means for supporting said receptacle in a first position remote from the flow of water from said agitator openings during the first clothes washing action of said agitator,
 and means responsive to centrifugal forces engendered by said rapid rotation of said agitator and basket to release said receptacle, 5
 the size of said receptacle relative to the filter and the agitator being such that upon release the receptacle drops to a second position in which it will intercept water issuing from said agitator openings during said second washing action, whereby the water conditioning material in said receptacle may be caused to flow into said tub.
 6. The filtering and dispensing according to claim 5 in which said receptacle and said filter are in telescoping relationship. 45
 7. The combination according to claim 5 in which said supporting means include flyweights interposed between said filter and said receptacle.
 8. The combination according to claim 5 in which said supporting means include weights pivotally mounted in said filter bowl, each of said weights having a step portion releasably engaging with projections on said receptacle. 50
 9. The combination according to claim 5 in which said supporting means include at least one step-provided structure interposed between said filter and said receptacle, means for positioning said structure to maintain said first position of said receptacle during the said agitator washing action, and means responsive to centrifugal forces generated during a subsequent rapid rotation of said agitator to effect a displacement of said structure to release said receptacle for movement to its second-named position.
 10. In combination:
 a washing machine tub arranged to receive water and clothes to be washed therein,
 an upstanding agitator within said tub,
 means for oscillating said agitator at a relatively low rate to effect a first and a second washing action on said clothes, 5
 means for effecting a recirculation of water within said tub during said agitator washing actions, said means withdrawing water from said tub and returning it thereto from a level above the surface of the water,
 means for rotating said tub and agitator at a relatively

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- high speed intermediate said first and second washing actions to remove water from said tub,
 means for refilling said tub,
 means comprising open-topped arcuate channel sections articulatively connected in end-to-end relation about said agitator to provide a detergent container,
 means for supporting said container sections on said agitator at a first level above the said return level of said recirculating water,
 centrifugally responsive means effective to permit radially outward movement of at least some of said sections for disengagement of the container from said supporting means upon rotation of said agitator at relatively high speed, whereby said channel sections collectively drop to a second level above the surface of the water but in the path of said recirculating water during said second washing action of said agitator, whereby the detergent content of said bowl may be washed from said bowl into said tub.
11. The combination according to claim 10, in which the means for connecting said channel sections one to the other include spring means carried by said sections to normally position the respective end walls thereof in sufficiently close relation to maintain the assembled container on said supporting means during said first washing action while yielding during rotation of said agitator to permit separation of said sections sufficient to disengage the same from said supporting means.
12. In combination,
 a washing machine tub arranged to be supplied with water to a first level accommodating a quantity of clothes to be washed therein,

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- an upstanding agitator within said tub,
 means for operating said agitator to effect a washing action,
 means for rotating said agitator and tub at a relatively high speed to centrifugally extract the water content of said tub following said washing action,
 means operable subsequent to said centrifugal extraction to discharge water into said tub from a second level above the first level,
 an open-topped annular receptacle disposed on said agitator for free axial movement thereon and adapted to receive a quantity of water conditioning material,
 means for releasably retaining said receptacle on said agitator in a first position in which the receptacle top is above the first and second-named levels,
 means responsive to centrifugal forces during said centrifugal extraction operation to release said receptacle for gravity fall thereof along said agitator,
 and means for interrupting said fall to position said receptacle intermediate said first and second levels, said last-named position disposing said receptacle to intercept said water discharging into said tub whereby the content of said receptacle may be washed therefrom into said tub.

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