

A Spread Fabric Washing Machine

Technical Field

This invention in general relates to human needs. More particularly this invention relates to a novel cloth washing machine particularly useful for wrinkle free fabrics with easy drying and saving on water and energy.

State of Art

Existing washing machines are: 1.top loading .2. front loading types. Top loading is preferred for easy loading and removal of clothes without bending. Machines are also classified on an impeller that swirls the clothes in water with reversible throw or a horizontal rotating drum in which the clothes are rotated and fall .Both washing machines use a lot of water and energy. Both washing machines have a washing process that squeezes the clump of fabrics, with water flow removing dirt. Both washing machines spin dry the mass of clothes. Both washing machines give a mass of clothes which has to be sorted and ironed before use. Modern fabrics are soft, wrinkle free and do not need ironing. Existing washing machines are decades old and not meant for wrinkle free fabrics. Eliminating sorting, spreading and ironing saves time and energy. Yarns are spun for strength. Squeezing to and fro affects the yarn, loosens the fibres and weakens the yarn too. There are no simple devices to wash modern soft clothes.

Ideal modern washing machines device should be: 1.suitable for wrinkle free clothes. 2. Cheap for all. 3. Long life with minimal wear and tear of clothes. 4. Easy to fix, run and use. 5. Safe and reliable. 6. Save on water, energy and time. There are no devices as of now!

The following description gives critical examination of the washing machines known in the art. It also discusses the shortcomings of the conventional methods. Further in order to overcome the problem associated with washing machines, the invention offers the solution to overcome the impediments in the construction and the process of using the same.

Constraints in all existing washing machines are as follows:

1. All fabrics are washed as clumps which prevents uniform water flow and cleaning of all parts of all clothes.
2. Fabric clumps are twisted and untwisted in washing that loosens yarn fibers weakening clothes.

3. All clumps have to be sorted and spread out manually for drying and ironing.
4. All clumps are spin dried that produces more clumping of clothes.
5. There is no economic, efficient use of water and energy.

Accordingly the object of the invention is to identify the problem associated with the conventional washing machines. An extensive search has been carried out using the Internet and related patent specifications were studied for washing machines with spread fabric, none was found. Since the present invention is radically different, in washing fabrics in spread fashion the inventor is unable to site any patent specification out of the available databases.

The invention is directed to a novel type of washing machines wherein the fabrics are spread out and hung vertically in a rotating vertical drum. As the drum rotates the fabrics are rotated with water freely flowing along all fabrics without clumps. Clumps prevent water flow at the center and cleans clumps surface only. Impellers move clumps up and down. Spin drying also forms clumps. Modern wrinkle free clothes need a different washing process. These do not need ironing. Hence they need to be washed differently.

Accordingly it is the primary object of the invention to invent a novel washing machine, which is unique in design and construction, working and use.

It is another object of the invention to indicate a novel process by virtue of which the device can be effectively utilized. Further objects of the invention will be clear from the ensuing description.

Summary of the invention:

The device comprises of an outer water tub with an inner vertical rotating drum with a rectangular top. The drum has a fitting rectangular frame with rods across sitting on slots. The clothes are spread on rods and fixed in the frame. A cross rod with a clip prevents flying off of rods in rotation. The drum has a lower drive shaft rotated by an electric motor by belt or gears. The washing machine has water inlet at top, a drain at bottom. The washing machine has added sensors, soap and additive dispensers, water heaters and controls. The clothes are spread on rods and fitted to frame and loaded to top of drum. The water is let in to the mark, soap and additives added. Motor is started. The drum is rotated with spread clothes in one or other direction. When wash is complete, water is drained. Drum is rotated faster for spin

drying with out clumps. The frame is removed with clothes on rods and used. Manual or electronic control regulates the wash.

Statement of Drawings:

5 These and other objects and features of the invention will become more apparent upon perusal of following description taken in conjunction with accompanying drawings wherein:

Figure 1 shows in elevation the details of washing machines .

Figure 2 shows the various components.

10 Figure 3 shows the exploded view of the action.

Figure 4. shows another embodiment of the invention with long drive shaft.

DESCRIPTION OF PREFERRED EMBODIMENTS

15 The following specification describes salient features of invention, the method of construction, the method of use and the advantages of the novel invention.

The novel device has a single water tub with rotating vertical fabric drum inside. The drum has a rectangular top in which a rectangular frame sits. The frame has slots in which cross rods with spread fabric are placed. The drum at the bottom has a drive shaft worked by an electrical motor by belts or gears. A cross rod with a clip on the drum top prevents flying off of rods in use. Detergents, additives are added. A water tap at top and drain at bottom with a control panel on the outside completes the washing machine.

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The novel washing machine according to invention is better because the fabrics are washed in spread fashion, as all parts of all fabrics are uniformly washed.

25 There are no clumps or squeezing of fabrics. There is a gentle rotation in water. All parts of all fabrics are uniformly washed.

The novel device has higher water, time and energy savings. The existing washing machines have not been improved for decades. The object of the invention is to overcome the inherent defects. To this end the new invention is addressed!

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The device comprises of an outer vertical plastic tub 1, with a transparent lid 2 at the top. The tub has inside a perforated rotating fabric drum 3 with rectangular top end. A removable rectangular frame 4 fits in the drum top. The frame has series of slots 5 in its upper surface on the long sides. In the slots sit a series of fabric rods 6 across. A

restraining cross rod 7 fitted to drum top with a joint at one end and a clip 8 at the other end falls over the rods and clips to the drum top by a bolt 8 or sliding mechanism to prevent flying off in rotation. The drum has at the bottom a drive shaft 9 fitted in a sealed water leak proof seal 10, on the tub bottom. The motor 11 drives
 5 by belt or gear the drum driveshaft directly or by a clutch. The tub has a water tap 12 at the top, and a drain 13 at the bottom. A control 14 for wash cycles and sensors controls the wash. Heating elements 15 heat the water. The rectangular frame has a handle 16 for removal with fabrics or loading. The water tub with the rotating fabric drum and lower motor are assembled in an outer shell with controls, display and tap
 10 and drain.

To use, the lid 2 is opened. The clothes are fitted on fabric rods 6 and fixed to rectangular frame slot 5. The frame with handle 16 is fitted to drum top 3. The cross clip rod 7 is fixed. The lid is closed. The controls or in manual models the water tap 12 is opened and filled to level in the tub. The motor 11 is started. The drum with clothes
 15 on rods 6 is rotated below the water. All fabrics are rotated in one or opposite side without clumps and washed. The perforated slots allow free water circulation. The motor is stopped by control or timer. The water drain 13 is opened to release dirty water. To dry clothes, the motor is set for higher rpm spin and turned on. Water is centrifuged out for drying. The electronic models have a control with necessary
 20 sensors fitted for various wash cycles, automatic water fill, wash water drain, rinse, heating, soaking, drying.

The device can be modified. Manual models can have timer assisted wash cycles. After drain, higher spin action is set by another switch. The electronic control 14 in fig 4. has suitable sensors for water level, temperature, etc fixed and connected for
 25 various wash time cycles. It can have a water heat element 15 for water heating. Hot air drying can also be added. Soaps, additives, water quality sensors can be added as needed. Drum perforations may be vertical slots 20 or holes. Additional impeller in the water tub run by another or same motor can create more vertical water flow and cleaning. The fabric rods may be of aluminum or non corroding stainless steel or
 30 plastic coated steel. The water tub may be cylindrical too.

In fig 4. The driveshaft 9 is longer projecting up ending in a top bush fitted 17 on lid for stable distortion free rotation. Added impeller 18 rotated by same or smaller additional motor is also shown. A second rectangular frame 19 below top frame 4 for short clothes may be fitted

It will be apparent to those skilled in the art that modifications to the invention described herein can readily be made without departing from the spirit of the invention. Protection is sought for all the subject matter described herein including any such modifications.

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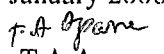
Advantages of the new invention:

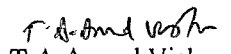
1. Fabrics are kept spread, washed and dried, good for wrinkle free fabrics.
2. Water use is lesser as clothes are hung vertical without clumps.
- 10 3. Time and energy use is lesser as there is no iron use.
4. Simple easy use.

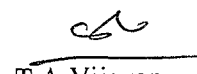
We Claim:

1. A washing machine comprising of a vertical water tub¹ having a lid² at the top, the said tub has a rotating perforated fabric drum³ with a rectangular top, the top of the said drum has a fitting rectangular frame⁴, the said frame having slots⁵ on the long sides, the said frame slots having across series of rods⁶ having the spread fabrics, the said drum top edge has a restraining cross rod⁷ fixed across and above the said fabric rods, the said cross rod has joint on one end and at other end a bolt⁸ to fix on the drum top, the said drum has a lower drive shaft⁹, the said drive shaft fitting a leak proof seal¹⁰ in the said tub bottom, the said drive shaft has a gear or belt connected to a motor¹¹, the said water tub having a top water inlet¹² and a bottom drain¹³, the said washing machine has needed controls¹⁴.
2. A washing machine as claimed in claim 1 wherein the said fabric drum³ is rectangular in cross-section, the said drum having slots²⁰ or holes on its sides and bottom, the said drum having a driveshaft⁹ at the bottom, the said drive shaft is fitted rotatably to the bottom of the water tub in a sealed fitting¹⁰.
3. A washing machine as claimed in claim 1 wherein the said fabric drum³ has two frames^{19,4} assembled in its inside lower for small clothes and upper for longer clothes.
4. A washing machine as claimed in claim 1 wherein the said rectangular frames has a series of identical slots⁵ on the long sides for the fabric rods, the said frame has two handles⁶ on the shorter sides for easy removal.
5. A washing machine as claimed in claim 1 wherein additional impeller¹⁸ is fitted on the water tub floor run by same or different motor.
6. A washing machine as claimed in claim 1 wherein the said water tub¹ has a leak proof seal¹¹ in its bottom for the said fabric drum drive shaft⁹, the said tub has a drain¹³ at the bottom and a feeding water tap¹² at the top.
7. A washing machine as claimed in claim 1 wherein an electronic control has needed sensors for water level, temperature, fabric fitted in the water tub and controls the wash cycle automatically.

Dated this twentieth day of January 2006.


T.A. Aparna


T.A. Anand Vishnu


T.A. Vijayan