(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 February 2013 (21.02.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/024366 A2

(51) International Patent Classification:
D06F 13/00 (2006.01)

(21) International Application Number:
PCT/IB2012/002738

(22) International Filing Date:
14 December 2012 (14.12.2012)

(25) Filing Language: English

(26) Publication Language: English

(72) Inventors; and
(71) Applicants : **ALSHDAIFAT, Wasfi** [JO/AE]; P.O. Box 46618, Abu Dhabi (AE). **ALMUHAIRBI, Eida** [AE/AE]; P.O. Box 46618, Abu Dhabi (AE).

(74) Common Representative: **ALSHDAIFAT, Wasfi**; P.O. Box 46618, Abu Dhabi (AE).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

— *upon request of the applicant, before the expiration of the time limit referred to in Article 21(2)(a)*

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

(54) Title: MULTIPLE FIXED BASINS ELECTRIC WASHING MACHINE

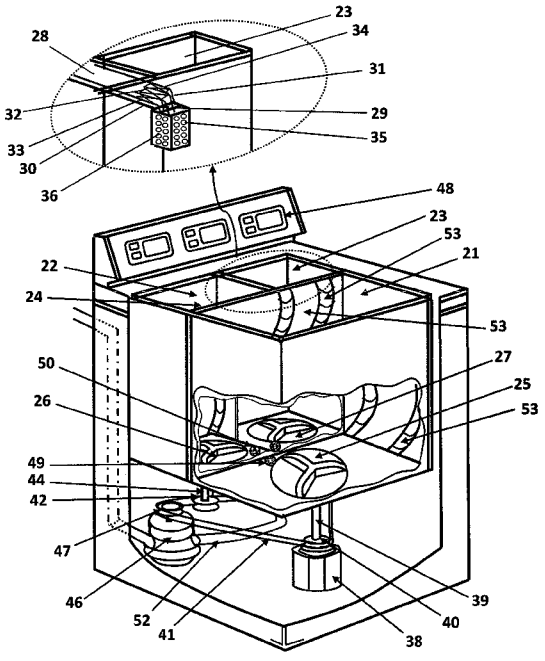

FIG. 1

(57) Abstract: A time saving washing machine with multiple fixed basins (20) having horn like obstacles (53) modifications in the inner side walls of the basins is provided to handle practically, efficiently, and economically a onetime process of washing multiple types of laundry. The basins side walls have a horn like protruding obstacles (53), to flex, move and turn the fabrics in multiple directions, so that it is exposed to and repeatedly penetrated by the pumping water's force and detergent solution from all sides. The agitators (25), (26), (27) for the basins are driven by a motor (38), the motor's output shaft directly drives the main agitator (25), while driving the shafts (44), (45) of the secondary agitators (26), (27) through a drive belt (41) connected to pulleys (42, 43). A centralized water feed line (28) and multiple cleaner compartments (35), (36), (37) are installed to distribute the water and cleaner to the basins (21), (22), (23).

WO 2013/024366 A2

MULTIPLE FIXED BASINS ELECTRIC WASHING MACHINE

Description of the Invention

Technical Field of Invention

Laundry of multi-colored and multi-types of fabrics, such as clothing, towels, underwear and sheets, are washed with water using up-loaded or front loaded electric-motor driven washing machines, these are divided in groups, and washed one after the other in one basin in conventional washing machines.

Background Art

The idea behind the washing machine is to fill the basin (tub) with water, and to spin this water using a fan (finned water-pumping agitator in the center of the bottom of the basin) in top loaded types, connected to an electric motor. While the inventor of the electric washing machine remains unknown, Electric washing machine Woodrow's US patent 921195 is one of the oldest issued patents in the field.

Washing machines was improved during 1930s. The mechanism was enclosed within a cabinet. Bendix introduced the first automatic machine in 1937, then an improved one in 1947, while General Electric introduced the first top loading automatic model in 1947, this machine had many features that are incorporated into modern machines.

As the conventional washing process in the washing machines, requires dividing the laundry into groups, mainly three: colored, white and towels, these groups are washed separately, each one is filled in the washing machine, the machine will carry out a complete washing process, consuming a full cycle time, water, energy and cleaners, the user then have to remove the 1st group and fill the next one to start another washing cycle and so on, as each washing cycle requires filling the washing machine by the user with the laundry repeatedly for three times, using three quantities of water filling the basin to a minimum level, consuming energy three times, consuming cleaners for three times to cooperate with the minimum quantity of water, this means a washing machine handling these laundry a one time during one cycle is a necessity.

A little larger compact washing machine that can wash such three types of laundry at once, will result in a higher ratio of height to diameter for each basin than conventional ones, this would require further modifications on the whole machine to cooperate with the new created basins, to make the washing process more efficient.

Even a washing machine with multiple basins, and rotatable baskets is disclosed in patent: CN 201567472 U, it is neither showing how to modify the washing effect, through effective design for the basins walls to achieve higher performance, neither showing how to improve the water delivery.

Furthermore, an electric washing machine with multiple fixed basins is disclosed under Int. patent application publication No.: WO/2012/010982, is trying to modify the washing effect, the wavy surfaces of the basins sides walls are taking more space, and it is not clear how effective their performance will be, especially in guiding the washed laundry downward, instead of creating bulky accumulation of the laundry in the top center of the basin.

So, it is the main aim of this invention is to provide a multiple basins electric washing machine with effective design for the basins walls to achieve effective washing, through easy modifications consuming very small size of the inner side walls of the basins surfaces.

Disclosure of Invention

Brief Description

As the process of washing multi types of laundry (colored clothes, white clothes and towels, adult females cloths, adult males cloths, kids cloth, underwear) requires washing these in multiple separate washing cycles with their complete water, energy, cleaners and labor time requirements, a washing machine with multiple fixed basins is developed here.

The original basin is divided into three, one big washing compartment (basin) and two secondary washing compartments (basins), the big basin is normally used for the bigger quantity of laundry (normally the colored clothes).

Each basin will have at its bottom center a separate agitator, in total the three agitators will be driven by one motor, the motor will drive the main agitator directly by its output shaft, while it is driving the shafts of the secondary agitators by a drive belt connected to their pulleys (or gears).

A centralized water feed line and multi-cleaner compartment are installed to distribute the water and cleaner to the basins.

The basins inner side walls surfaces are to have a horn like protruding obstacles (protrusions), in order to flex the weaves of the fabrics, and to move the laundry in a way to be exposed and penetrated repeatedly from all sides by the water force and detergent solution.

Brief Description of the Drawings:

- FIG. 1: Illustrates an inner view of a 3-dimensional view of the assembled internal parts of the electric washing machine with multiple fixed basins.
- FIG. 2: Illustrates a three dimensional view of the washing machine with the horn like protrusions on the basins inner side walls.
- FIG. 3: Illustrates a two dimensional upper general view of the electric washing machine with multiple fixed baskets.
- FIG. 4 (A, B): Illustrates A 2-D and 3-D view of a washed fabric model side movements inside a basin under the effect of the horn like protrusions.

Best Mode for Carrying out the Invention:

In order to make it easy to carry out the invention, a detailed description of the parts of the invention supported with figures is provided here, wherein the figures of the main parts are arranged sequentially according to the importance of the part, each part has many features, since in the case here there are interfering parts drawings, we made it easy to read, by referring to each feature with a number included in the parts description text and in the parts numbering list, the numbering of parts features is indicated here by starting it sequentially from number 20, whenever a part feature appears in a text, it will be directly assigned its required serial number. As example in FIG. 1, the parts' features are arranged sequentially from number 20 to 21, 22, 23...

1- Electric washing machine with multiple fixed basins FIG. 1: The washing machine 20 inner parts are drawn here assembled for simplicity; it is showing how the parts are installed together in their suitable locations to carry out their required functions. The original basin is divided into three: the main (big) basin 21, the secondary (small) basins 22, 23. The main basin 21 is bigger than the other two secondary basins 22, 23, in order to handle the biggest quantity of similar type laundry, which is normally the colored group of laundry, as each of the towels and white clothes size is normally less than that of the colored one, the two basins 22, 23 used to clean these groups (towels, white laundry) are smaller, hence they are called secondary basins 22, 23.

As each basin 21, 22, or 23 is byitself a fully separate washing system, each one requires to have separately all the technical features provided for a normal basin in conventional washing machines, and so each basin will have side walls 24, main agitator 25, or secondary agitators 26, 27, the water feed line 28 divided into main supply pipe 29, secondary supply pipes 30, 31, these pipes are provided with three solenoid valves, main valve 32, secondary valves 33, 34, and each basin has a cleaner (detergent|) compartment, main 35, secondary 36, 37. For compactability, the side walls 24 can be shared, the water feed line 28 can be designed such that it is introduced towards the upper center point of the sidewalls crossing area, where it branches into three pipes, each one is going towards one cleaner pocket (compartment).

The main basin's 21 water pipe 29 diameter will be bigger than that of the secondary basins 23, 24 water pipes 30, 31 as well as the main basin 21 cleaner compartment 35 should be bigger than that of the secondary basins 22, 23 cleaners compartments 36, 37, in cooperation with each basin size.

A most important separate technical feature of the basins 21, 22, 23 is the water spinning agitators 25, 26, 27, the main basin 21 will have its own main spinning agitator 25, which will be bigger than each one of the secondary basins' 22, 23 secondary spinning agitators 26, 27.

As in conventional washing machines a minimum sufficient water quantity (water level) is required to be filled in each washing cycle to fully immerse and suspend the clothing freely in the basin, in order to achieve a successful washing process, and as that quantity size increases as the diameter of the basin increases, here in the multi-fixed basin electric washing machine 20, the division of the basin into smaller basins 21, 22, 23, will reduce the cross sectional area of each basin, this will mean: as the:

min. required water quantity size = cross sectional area of basin multiplied by the height of min. required water level

; then as the cross sectional area of a basin division is less than for the original basin, a less water quantity amount will achieve the minimum required water level (height) necessary for suspending and immersing the laundry, this result will create an economical washing cycle in regard of water consumption, it also did not force the user to use the minimum big amount of water required for a washing cycle even when the laundry quantity is small as in conventional big basin washing machines.

Anyway, the three spinning agitators 25, 26, 27 are to be rotating either at once or when their selected basin is occupied for use, in one embodiment in this invention, one motor 38 is used to drive these three agitators 25, 26, 27, the motor is installed in a place to have its output-shaft 39 fixed in-line with the main basin's 21 main spinning agitator 25, while a drive belt 40 is installed on a pulley (gear) 41 installed on the motor's 38 output-shaft 39, this drive belt 40 will transfer the rotation of the motor's 38 main pulley (gear) 41, to two secondary pulleys (gear) 42, 43 installed on the secondary agitators' 26, 27 input shafts 44, 45, and also transfer the movement to the water pump's 46 pulley (gear) 47, so, when the whole machine's 20 basins 21, 22, 23 are on work, the motor 38 will be driving the three agitators 25, 26, 27 at once, a conventional program can be used via a control unit to control a clutch mechanisms which may be installed on the shafts' 39, 44, 45 pulleys 41, 42, 43, where

the control unit receives the orders from the user via a control panel (screen) 48, who can select the required basins 21, 22, 23 agitators 25, 26, 27 to be set for work, in cooperation with other washing cycle requirements. Still the three basins 21, 22, 23 one time work on, is the most economical choice for the user.

All basins 21, 22, 23 water drainage exits 49, 50, 51 will be located at the lower center collection point where all basins 21, 22, 23 meet, and so all basins three drainage exits 49, 50, 51 will pour the drained water to inside one drainage pipe 52.

2- Fabric side movements inside the basin (FIG.s. 2-4): In conventional top loaded washing machines, the spinning water circulates primarily along the poloidal axis during the wash cycle, that will push the fabrics to the edge of the basin around its center in one movement, while the raise of the water outwards towards the sides of the basin, and then downwards towards the agitator in the bottom center, is creating another movement, where both will form a circulation pattern similar to the shape of a torus. But as this type of combined movements continues in one direction would just lead to the water spinning around the basin with the agitator, rather than the water being pumped in the torus-shaped motion, so as to expose the fabric to a pressure and friction force from the water, rather than only carrying it around and around, the conventional solution was making the agitator direction to be periodically reversed, some other solutions were to supplement the water pumping action of the agitator with a large rotating screw on the shaft above the agitator, to help water move downwards in the center of the basket.

A further inventive solution for this matter is disclosed here, wherein the surface of the side walls 24 of each basin 21, 22, 23 can be made to have a protruding horn like obstacles (protrusions) 53 (FIG.s 2-4), this geometrical shape will have a great effect on the washing efficiency, wherein instead of reversing the direction of the spinning water and detergent 54 via an extra mechanisms installed, stopping and reversing

the agitators 25, 26, 27 motion direction periodically, the moving fabric model 55 after pushed by the circulating water and detergent 54 (Fig. 4-A) towards the edge of the basin 21, 22, 23 will be guided to follow the curve of the protruding horn like obstacles (protrusions) 53, this will make it changes its direction gradually, as the fabric 55 gets out from the curved edge area, it will be rotated around its center by 90° - 180° (Fig 4-A) resembling a fabric model 55 with numbers 1 – 2 turning over inside the basin), as each fabric 55 when it is suspended horizontally, will have four non-geometrical faces, facing four horizontal directions, the prior mentioned 90° - 180° rotation will lead to:

a- Exposing one to four sides (facing horizontally) of the fabric model 55 to the push, force, or pressure of the incoming faster spinning water & detergent solution 54 that is coming from behind it, as soon as it gets out from the curved surface 53, that is to say: in-between the protruding horn like obstacles 53, the water and detergent solution 54 will be expanded due to crossing a longer distance, and so its speed will slow down, while the spinning water out of the curved areas, will spin faster, and so this fast spinning water 54, once the fabric model 55 gets out of the curved area in-between the protruding horn like obstacles 53, it will expose it to an extra pressure, which will cause more friction between the water and detergent solution 54 from one side, and the fabric model 55 from another side, in another way leading to a more pumping of water and detergent solution 54 through the fabric model 55, which will be washed thoroughly during every second of the wash cycle's full time.

b- As the fabric model 55, while getting out from in-between the horn like obstacles 53 also will move from a higher water 54 level at the edges of the basin 21, 22, 23 towards a lower water 54 level at the center, following the track of numbered fabric models 55 in-between points (1-2- 3- 4) in FIG.s (4- A, B), the fabric model 55 will rotate down towards the agitator 25, 26, 27, then up again to the side walls 24 edge of the basins 21, 22, 23, following the track of numbered fabric models 55 in-

between points (5- 6- 7- 8- 9) in FIG.s (4- A, B), completing the cycle of rotation, wherein during it, its upper and lower surfaces will also be at this time facing the water and detergent solution's 54 pumping effect, the turbulence of the water and detergent solution 54 specially near the agitators 21, 22, 23 will lead to rotating the fabric 55 around its vertical axis, the systematic and non systematic motions of the fabric 55, will change its 3-directional motion, and hence what can be called 3-dimensional all faces full time washing will result.

c- While the in conventional top-washing machines, the reversed agitator motion will create only the pumping effect on the fabric piece for only the first three seconds of the reversed rotation cycle, and during the remaining 5-7 seconds of the spinning rotation time, the fabric piece will be carried with the water just to rotate around and around without a noticeable water pumping effect on it, which means the pumping effect will take place for only 30 – 40 % of each wash period, from another side, the invented walls with protruding horn like obstacles 53 resulting pumping effect on the fabrics in this invention, will be permanent for a full time period, this means compared to conventional washing machines, the invented machine hereby with the protruding horn like obstacles 53 in the side walls can carry out each full water and detergent solution 54 pumping effect washing cycle during a time less by 60 % to 70 % of the washing time required in conventional washing machines, such a result when added to the other benefits of the multi-compartments, the energy, water and time saving figures will be duplicated.

d- Saving the need for agitator revering mechanism, this costs money and requires maintenance.

e- The 3-dimensional movements directions of the laundry which will cause its up, down, right, left, turning around, and upside down movements is in general creating a dropping and a folding action of the laundry that can easily produce a large amounts of foam, such a result helps in decreasing the used cleaner quantity.

Still a further development in the protruding horn like obstacles 53 is carried out by making the horn like 53 widths in each basin (21, 22, 23) wider at the top than at the bottom, that is to say: the protruding horn like obstacles 53 shape are tilting toward the basin walls in the downward direction, this feature will help in the followings:

a- Decreasing the size of the protruding horn like obstacles 53.

b- Helping in directing the fabric movement forward and downwards after getting out from in-between the protruding horn like obstacles 53.

c- As the occupied size by the water and detergent solution 54 at the top half of the basins (21, 22, 23) is larger than that at the bottom half (FIG. 4- B) due to the smaller diameters of the baskets and basins at their top sides than their bottom sides; this will create a gradual natural rotation speed difference between the basins (21, 22, 23) lower sides and top sides, as a result a higher rotation speed of the water and detergent solution 54 will be created at the top half more than at the lower half, this will make the fabric be exposed to a higher pumping effect while moving upwards, with a contraction in its size following the decrease of the water and detergent solution 54 size upwards, this will help in pressurizing the fabric to expel out some water and detergent solution 54 for sure with dirt to cooperate with its contraction in-between track points (4- 5- 6- 7- 8) in FIG.s (4- A, B), while when moving back downwards in-between track points (1- 2- 3- 4) in FIG.s (4- A, B), it will expand due to the expansion of the basin size downwards, and so the fabric will absorb more water and detergent solution 54, the higher spinning of the water and detergent solution 54 at the bottom near the agitator will push it to the side walls and up, to repeat the process again and again. So this easy cheap shape that does not contain any mechanisms, will create a non preceded full time full rinsing, washing, cleaning than any conventional washing

machine mechanisms, and so the washing time can be shortened effectively, the result which may save more energy and mechanisms using a natural shape and natural movements.

In total, if we were knowing that the conventional top-loaded washing machines consumes three times of water quantity and double energy value compared to that of front-loaded washing machines, the developments carried out in this invention over the top loaded machines, will make it not only more economical than the conventional front loaded-machines, but it will be more practical and time saving, so the negative points of the top loaded washing machines mostly will be ended.

Industrial applicability

In addition to all of the mentioned reasons before about the important needs for an electric washing machine with multi-fixed basins and the modes for carrying out it using conventional available parts with little modifications, the subject invention has the following benefits:

1- Body inner shape and abbreviated mechanical modifications which costs little extra parts and parts costs.

2- Three washing cycles are abbreviated into one, wherein the basins size remain nearly equal the original one, the height / diameter ratio for each basin will increase, decreasing the value of the min. quantity of water required to rinse the laundry fully and spinning it, as the water quantity remains nearly the same, the following benefits are achieved:

   a- Water saving: the used water quantity will be 35 % - 50 % of the original three cycles required amount.

   b- As the water quantity is less than the one used in three cycles, and as the energy consumption time is shortened to 33 %, the energy consumption will be 50 % at maximum of that of the three cycles process.

   c- As the steps of filling and removing laundry inside the machine are abbreviated from three into one, labor time is saved by around 60 %.

3- The horn like protrusions created on the basins inner surfaces, expose the laundry pieces to a better and faster washing quality within a shorter time, which means abbreviating the required time of washing, that would save more energy, cleaner, the value in point (2-b) can decrease to 1/3-1/2.

Parts Drawing Index:

20 Electrical washing machine with multi-fixed basins.

21 Main (big) basin.

22 Secondary (small) basin.

23 Secondary (small) basin.

24 Side wall.

25 Main (big) agitator.

26 Secondary (small) agitator.

27 Secondary (small) agitator.

28 Water feed line.

29 Water main supply pipe.

30 Water secondary supply pipe

31 Water secondary supply pipe.

32 Main pipe solenoid valve.

33 Secondary pipe solenoid valve.

34 Secondary pipe solenoid valve.

35 Main cleaner (detergent) compartment.

36 Secondary cleaner compartment.

37 Secondary cleaner compartment.

38 Motor.

39 Motor's output shaft.

40 Motor's main pulley.

41 Drive belt.

42 Secondary pulley (gear).

43 Secondary pulley (gear).

44 Secondary agitator input shaft.

45 Secondary agitator input shaft.

46 Water pump.

47 Water pump pulley (gear).

48 Control panel (screen).

49 Main water drainage exit.

50 Secondary water drainage exit.

51 Secondary water drainage exit.

52 Water drainage pipe.

53 Horn like obstacle (protrusion).

54 Water & detergent.

55 Fabric model.

Claims

1. An electric washing machine (20) with multiple fixed basins comprising:
   original basin divided into three.
   a horn like obstacles (protrusions) (53) on the surface of basin inner side wall;
   three agitators (25), (26), (27) based in the bottom center of each basin, centralized water feed line (28);
   detergent compartment divided into three compartments (35), (36), (37);
   a three way drainage outlets (49), (50), (51) gathering in one drainage pipe (52);
   a motor (38) driving the main agitator (25), two agitators pulleys (gears) (42), (43), and water pump pulley (gear) (46).
2. The electric washing machine (20) in claim 1, wherein the three fixed basins (21), (22), (23) are separated by plastic barriers.
3. The electric washing machine (20) in claim 1, wherein the three basins (21, 22, 23) consists of one big size main basin (21), and two small sizes secondary basins (22, 23).
4. The electric washing machine (20) in claim 1, wherein the three basins (21, 22, 23) are used during one time operation for washing three sets of laundry e.g: (adult male cloths, adult female cloths and kids cloths), or (colored laundry, white laundry, towels)...
5. The electric washing machine (20) in claim 1, wherein protruding horn like obstacles (53) from the surfaces of the basins (21), (22), (23) are created to have a horn like (53) protruding shape, with its top wider base starting from the top edge of each basin (21), (22), (23) inner wall and curving like an arc downwards with a decrease in its width and thickness.
6. The electric washing machine in claim 5, wherein the protruding horn like obstacles (53) shape will affect on the rotating water and detergent

solution by creating an obstacle in its way, to push it towards the center of the basin and to swirl downwards.

7. The electric washing machine (20) in claim 1, wherein the horn like protrusions (53) on the surface of basin inner side wall are elongating the washing rotation distance, creating a three directional water and detergent (54) pumping through all sides of the fabric (55), an upside down turnover, and reversing sides directions.
8. The electric washing machine (20) in claim 1, wherein the three agitators sizes (25), (26), (27) are suitable for the size of each basin, one main big agitator (25) for the main basin (21), two secondary small agitators (26), (27) for the secondary basins (22), (23).
9. The electric washing machine (20) in claim 1, wherein the motor (38) has its output shaft (39) connected directly to the main agitator (25), while connected through a drive belt (41) fixed from one side on a driving pulley (40) fixed on its output shaft (39), and from another side to three driven pulleys (42), (43), (47).
10. The electric washing machine in claim 1, wherein the three driven pulleys (42, 43, 47) consists of two pulleys (42), (43) which are fixed to the input shafts (44), (45) of the secondary agitators (26), (27), and one pulley (47) fixed to the shaft of the water pump (46).
11. The electric washing machine (20) in claim 1, wherein the centralized water feed line (28) is directed from the machine top side towards the top crossing area between the basins' (21), (22), (23) barriers.
12. The electric washing machine (20) in claim 1, wherein the centralized water feed line (28) is divided into three pipes (29), (30), (31): one main big size (29), and two smaller sizes pipes (30), (31) located before the inlet of the cleaner (detergent) compartments (35), (36), (37).
13. The centralized water feed line (28) in claim 12, wherein the three water pipes (29), (30), (31) have three solenoid valves (32), (33), (34) controlling the water feed or blocking it according to a conventional programmed control unit orders receiving fed orders, set via a control panel (48) run by the user.

14. The electric washing machine (20) in claim 1, wherein the detergent compartments (35, 36, 37) are located at the top crossing area between the basins (21), (22), (23) barriers.

15. The electric washing machine (20) in claim 1, wherein the detergent compartments (35), (36), (37) are arranged so that one main compartment (35) with detergent outlet facing the big size basin (21), and two small secondary compartments (36), (37) each with its detergent outlet facing a secondary basin (22), (23).

16. The three water pipes (29), (30), (31) in claim 12, wherein the main pipe (29) is feeding the main detergent compartment (35), while the secondary pipes (30), (31) are feeding the secondary detergent compartments (36), (37).

17. The electric washing machine (20) in claim 1, wherein the three drainage outlets (49), (50), (51) are located near the lower crossing area of the basins (21), (22), (23) barriers, and drain the waste water inside one main drainage pipe (52) fixed under them.

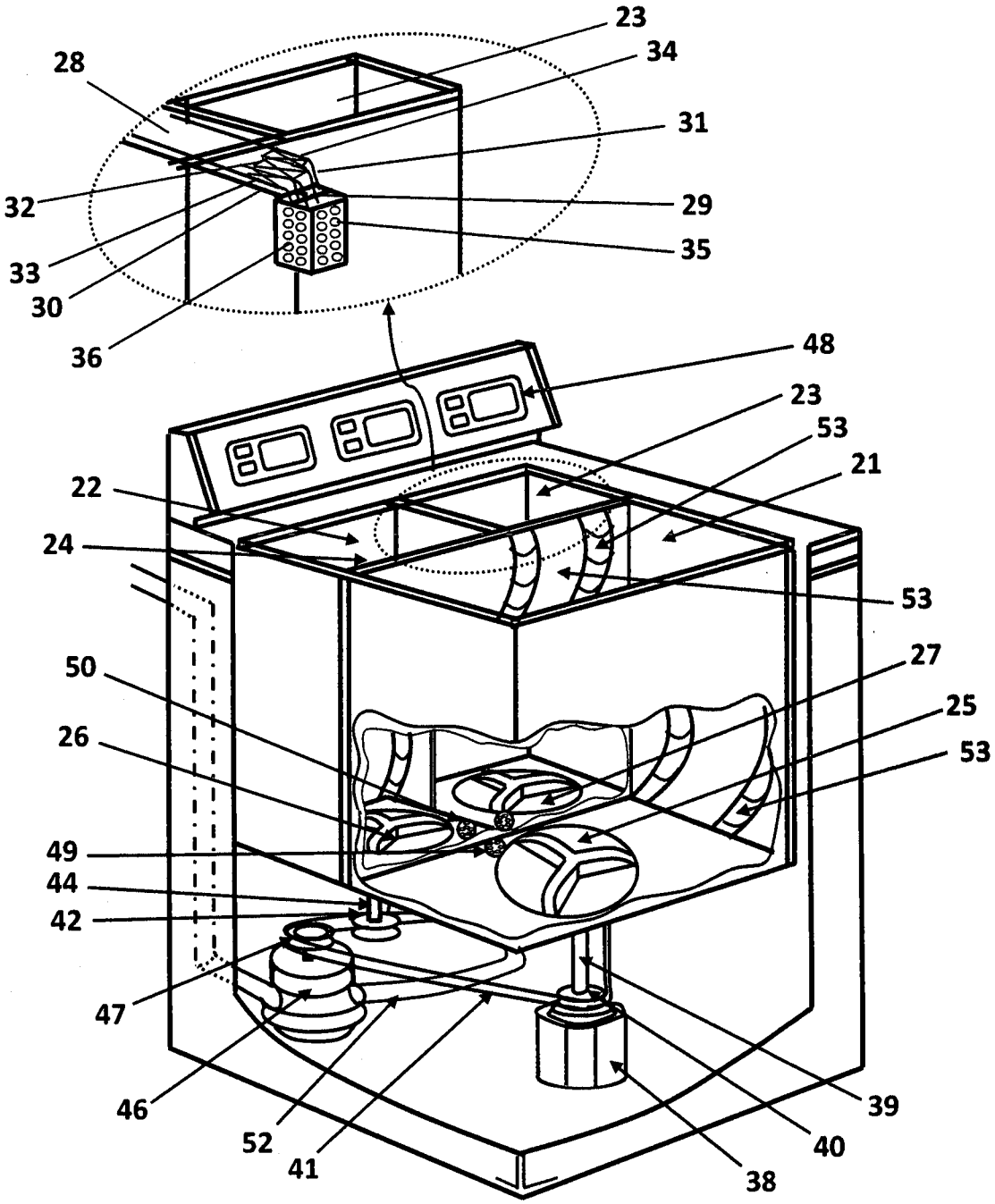
23
34
28
31
32
29
35
33
30
36
48
23
53
21
22
24
53
27
50
25
26
53
49
44
42
47
46
52
41
39
40
38

FIG. 1

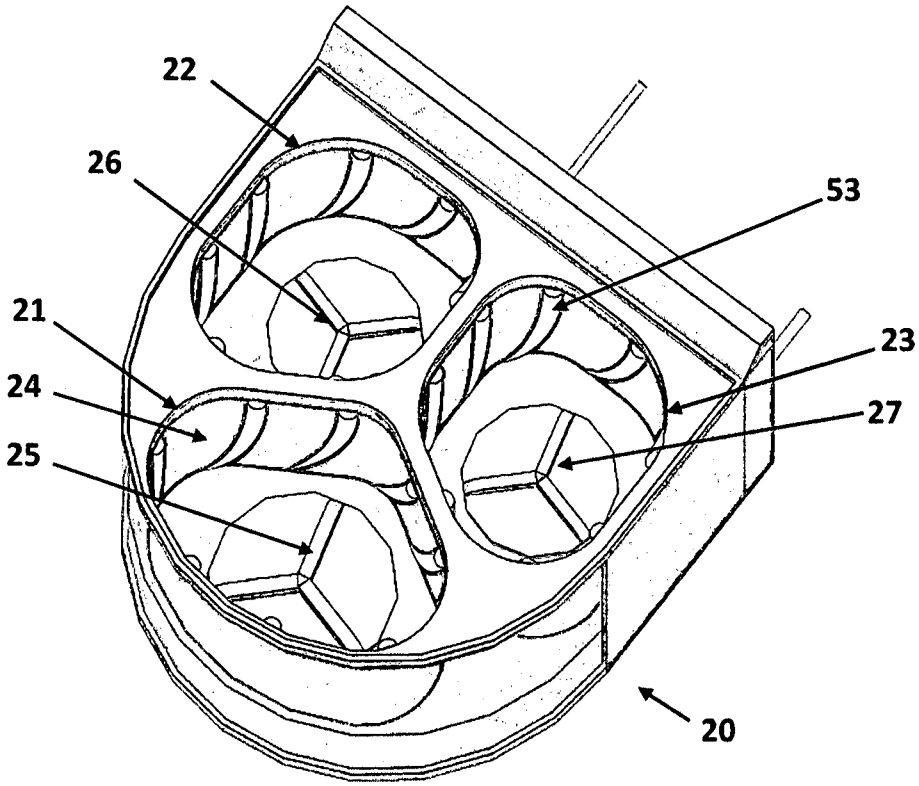

FIG. 2

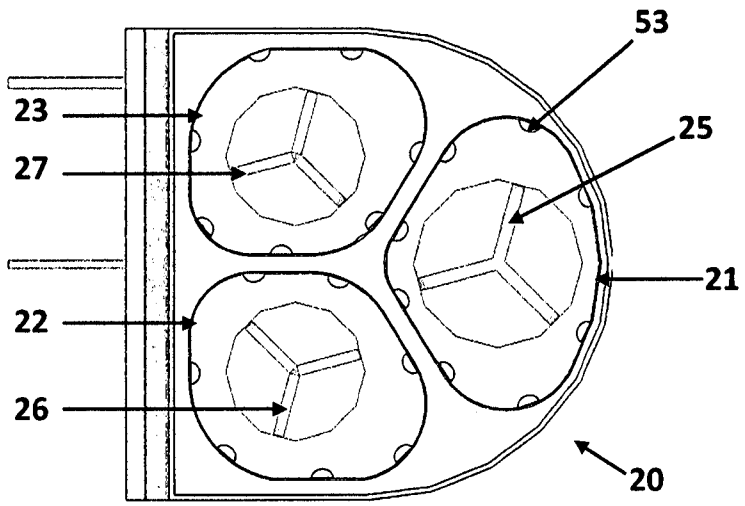

FIG. 3

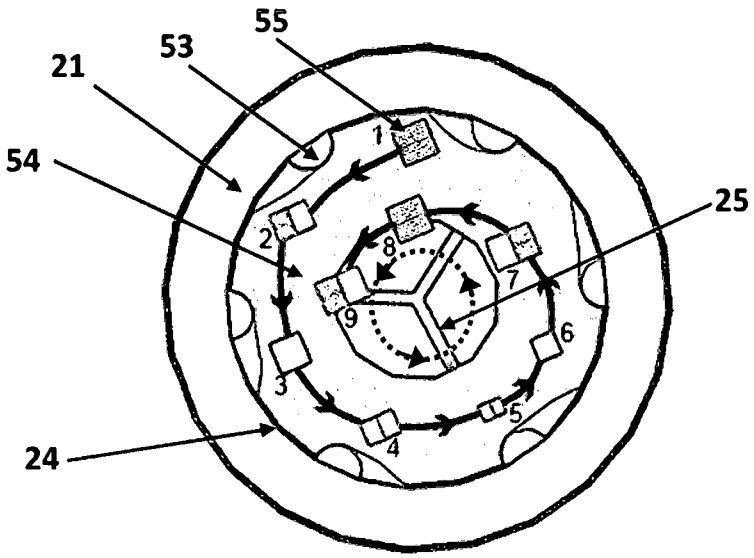

FIG. 4- A

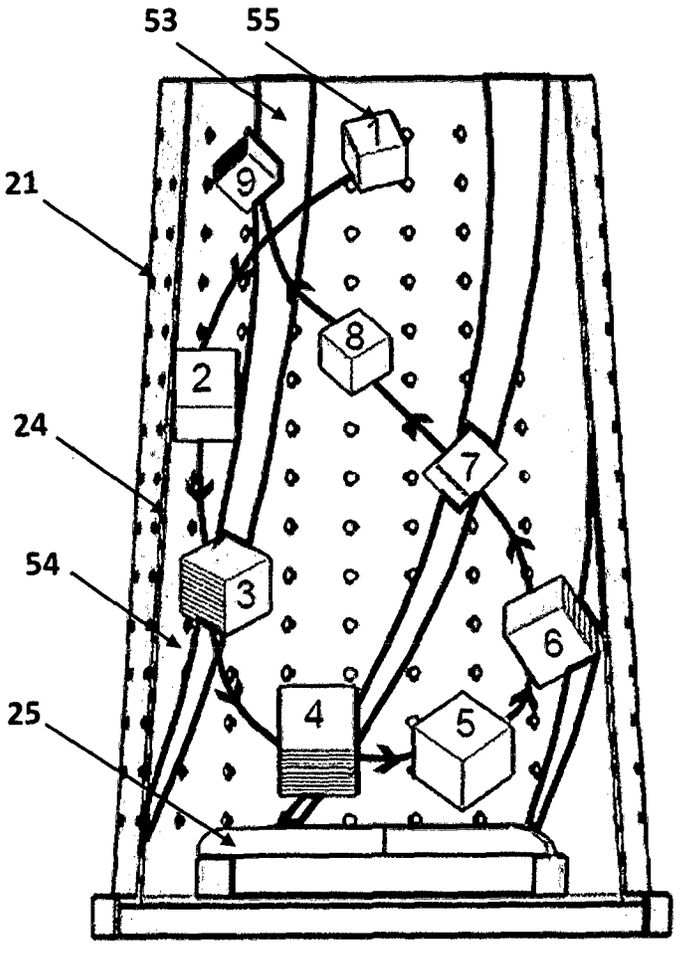

FIG. 4- B