

March 25, 1924.

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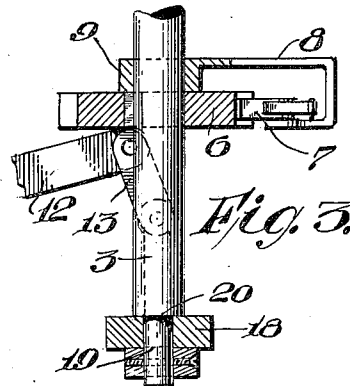
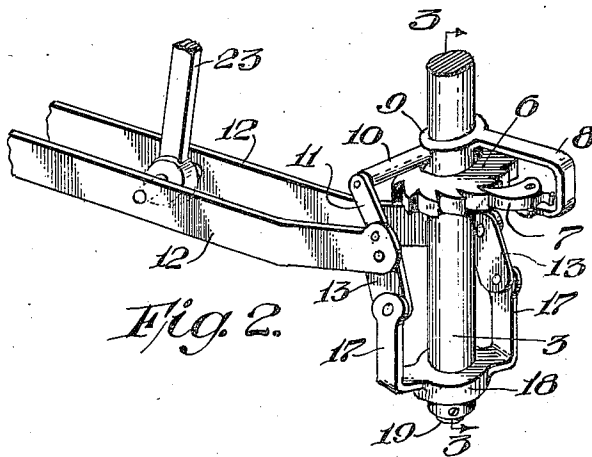
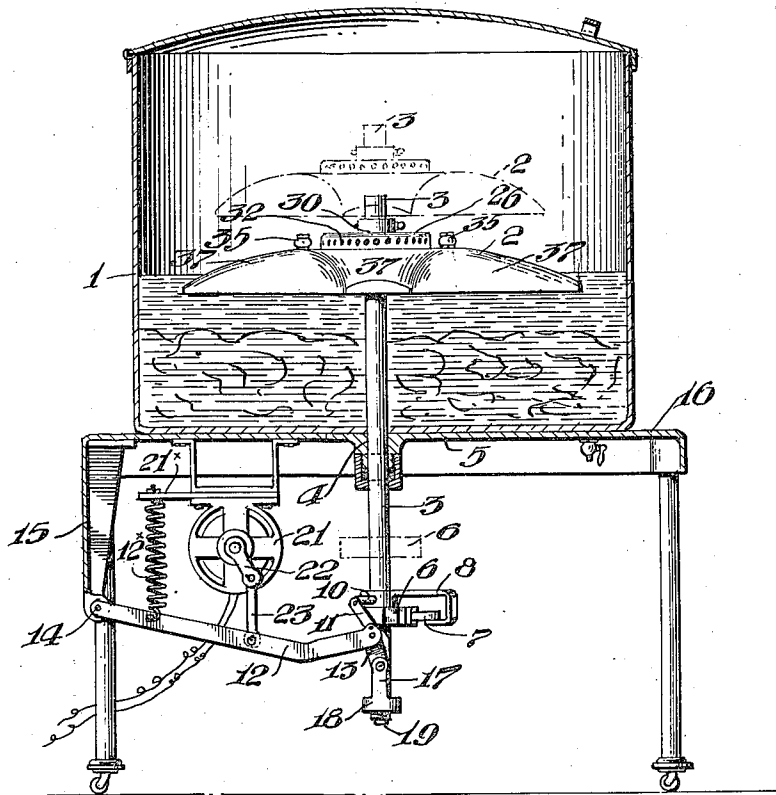
M. B. LATSHAW

WASHING MACHINE

Filed July 2, 1923

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Fig. 1.



INVENTOR:
Maudie B. Latshaw.
Wiederheim & Fairbanks
ATTORNEYS.

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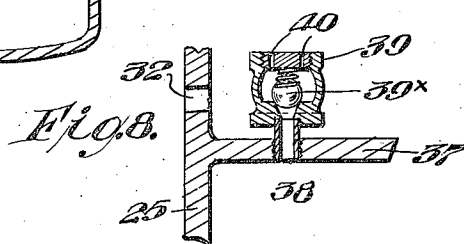
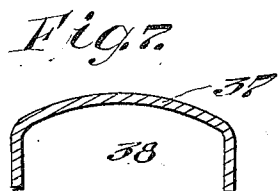
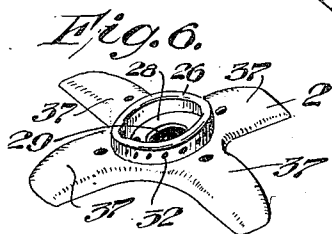
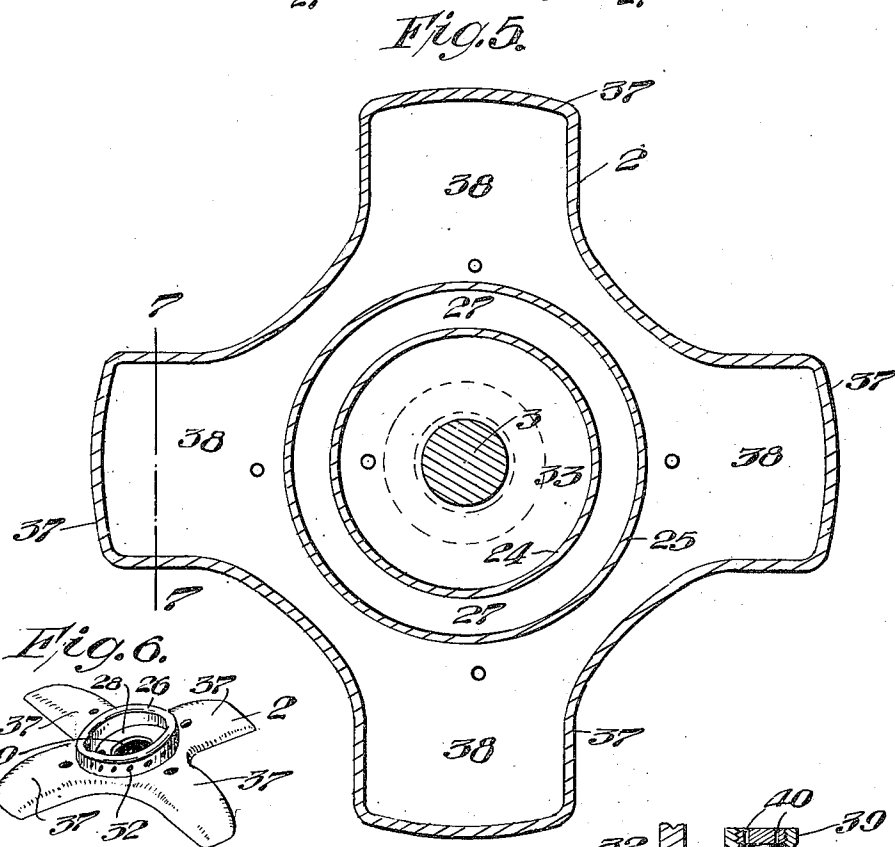
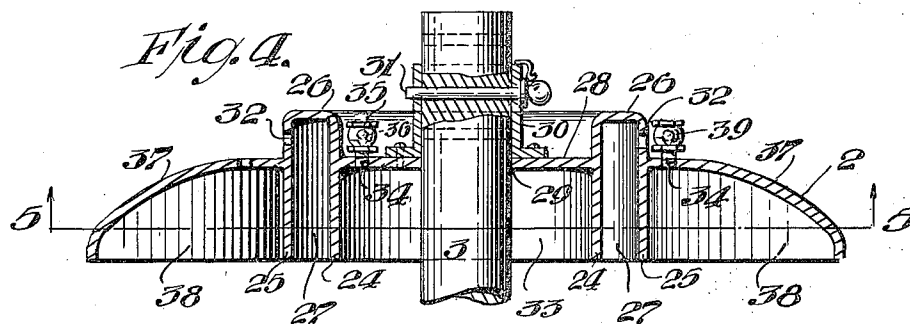
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WASHING MACHINE

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2 Sheets-Sheet 2



INVENTOR:
Maud B. Latshaw.
BY
Wiedersheim & Fairbanks
ATTORNEYS.

UNITED STATES PATENT OFFICE.

MAUDE B. LATSHAW, OF PHILADELPHIA, PENNSYLVANIA.

WASHING MACHINE.

Application filed July 2, 1923. Serial No. 648,862.

To all whom it may concern:

Be it known that I, MAUDE B. LATSHAW, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Washing Machine, of which the following is a specification.

My invention consists of a washing machine embodying a beater mechanism for raising, lowering and rotating the latter, and the provision of chambers in said beater where the clothes or articles to be washed are subjected to the pressure of air in said chambers, as well as the members of the beater itself, provision being further made for relieving said chambers of the excess of air in said chambers and forming vacuums in the latter so as to permit the beater to descend in the water to the extent of its motion so as to be eased in said motions.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific details shown and described, as long as they are within the scope of the claims.

Figure 1 represents a vertical section of a washing machine embodying my invention.

Figure 2 is a perspective view of the lower mechanism of the device on an enlarged scale.

Figure 3 represents a partial side elevation and partial vertical section on line 3—3 Figure 2.

Figure 4 represents a vertical section of the beater and appurtenances on an enlarged scale.

Figure 5 represents a horizontal section on line 5—5 Figure 4.

Figure 6 represents a perspective view of the beater on a reduced scale.

Figure 7 represents a transverse section of a portion on line 7—7 Figure 5.

Figure 8 represents a vertical section of a portion detached from the right hand side of Figure 4.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings,

1 designates a tub of suitable construction, and 2 designates a beater therein, said beater being connected with the rotatable and vertically movable shaft 3 which depends from the beater and is passed through an opening 4 in the bottom 5 of the tub and

extends below said bottom where it has secured to it the ratchet 6 whose teeth are adapted to be engaged by the pawl 7 which is mounted on the yoke 8, the inner end of the latter being secured to the collar 9 which freely encircles the shaft 3. Connected with said collar is the arm 10 on whose terminal is mounted the toggle-like lever 11 which depends from said terminal and with whose limbs are pivotally connected one of the swinging arms 12. Another swinging arm 12 is pivotally connected with the link 13 which latter and the lower limb of the toggle like lever 11 have their axes 14 on the bracket 15 which is secured to and depends from the table 16 on which the tub 1 is supported.

Pivotally connected with the lower limb of the toggle like lever 11 and with the lower end of the link 13 are the elbows 17 which rise from the cross head 18, the latter having centrally in it an opening through which passes freely the reduced neck 19 on the lower end of the shaft 3, said neck forming at the top the shoulder 20 against which bears freely the central portion of the cross head 18 whereby when the latter is raised it bears upwardly against the shoulder 20 and so elevates the shaft 3. Then as the pawl 7 and ratchet 6 are operated rotary motion is imparted to said shaft, the beater 2 following the motions of said shaft, as will be hereinafter more fully described.

Motion may be imparted to the arms 12 by means of an electric motor 21 whose shaft carries the crank 22 on which is mounted the bar 23, the latter being pivotally connected with the arms 12, and thus said arms will receive rising and lowering motions which are assisted by the spring 12* which is connected with said arms and the adjacent support 21* for the motor 21.

The beater 1 is a concave body, the central portion of which has therein the vertical walls 24 and 25, which are connected at the top by the wall 26, said walls being separated forming the circular air and water receiving chamber 27. The wall 24 is connected with the central horizontal wall 28 in which is an opening 29 for the reception of the adjacent portion of the shaft 3, around which opening rises the collar 30 which is bolted or screwed to said wall 28 and is secured to said shaft 3 by the pin 31 which is passed through said shaft and collar.

In the upper end of the wall 25 are

ports 32 for the exit of excess air and water in the chamber 27. The walls 24 and 28 form the central chamber 33 for the reception of air and water, it being noticed that the lower end of the chambers 27 and 34 are open at their lower ends so as to be in communication with the interior of the tub 1.

Connected with the wall 28 is the tubular nipple 34 which opens into the chamber 33 and is connected with the chamber 35 containing the spring pressed valve 36, and a seat therefor, said valve chamber having ports for the escape of the excess of air and water entering the chamber 33.

Extending laterally from the wall 28 of the chamber 27 are the wings 37 which are hollow forming the chambers 38 therein.

Connected with the upper walls of said wings by suitable nipples are the chambers 39, the same containing the spring pressed valves 39*, seats therefor, and ports 40 for the escape of the excess of air and water from said chambers 39.

It will be noticed that the valve, etc., for the chambers 33 shown in Figure 4 are substantially the same as the construction shown in Figure 8 for the wings 37 on an enlarged scale.

The operation is as follows, the tub having been properly supplied with water and soap, as in Figure 1.

The arms 12 receive up and down movements from the motor 21, and so causes the toggle like levers 11 to open and close usual in levers of the kind.

The arm 10 first receives motion in one direction and draws with it the yoke 8 when the pawl 7 rides freely over the teeth of the ratchet 6. Then as the levers 11 raise the elbows 17 and cross head 18 and then elevate the shaft 3 and consequently the beater 2, the latter is filled with air.

As the arms 12 descend owing to the intermediate members the pawl 7 engages a tooth of the ratchet 6 and so causes a rotation of the latter and consequently of the beater. The beater thus rotating then enters the water and rotates and agitates it and the suds therein. The clothes or other articles in the tub are carried around in the water and suds and highly subjected to the pressure or pounding action of the beater, it being noticed that the air in the several chambers of the beater also press against the water in the tub and the articles that are being washed therein and so assist in pressing and pounding said articles.

Now it is important to relieve the excess of pressure of the air and water in the chambers when the closing action of the valves is overcome and the latter are opened, and so the said excess escapes from the valve chambers and causes vacuums in said chambers, thus allowing the beater to descend more readily to a requisite extent in the

water and suds. Then the beater rises and descends when it turns and engages the articles at different places and further rotates the latter in the water and thus effectively washes the articles.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a washing machine, a beater, a rotatable and vertically movable shaft carrying said beater, a tub in which said beater is operative, said beater being formed of a body provided with a central chamber, a second chamber surrounding the central chamber, an auxiliary chamber surrounding said second mentioned chamber, and wings extending from said auxiliary chamber, said wings having chambers therein, the several chambers being open below in communication with the interior of the tub, and means for relieving said chambers of vacuum.

2. In a washing machine, a beater, a shaft carrying said beater, a tub in which said beater is operative, means for rotating, lowering and raising said shaft and beater, said beater being formed of a body provided with a central annular chamber, a second annular chamber surrounding the central chamber, an auxiliary chamber surrounding said second mentioned chamber, and wings extending from said auxiliary chamber, said wings having chambers therein, the several chambers being open below in communication with the interior of the tub, and means for relieving said chambers of vacuum.

3. In a washing machine, a beater formed of a body consisting of a central annular portion, an annular portion surrounding the same, a third portion surrounding said second annular portion provided with wing members extending from the last named portion, said portions including said wings forming chambers having open under sides, and outlet ports and valves in the upper walls of said portions and wings for the escape of air in said chambers during downward movement of the beater to relieve vacuum when created in the latter.

4. A washing machine having a clothes receptacle, a shaft movable vertically and in a rotatable manner through the bottom of said receptacle, mechanism for operating said shaft, a plunger fixed to said shaft said plunger being open at its bottom and having a central chamber, an intermediate chamber and an outer chamber, the latter chamber being provided with additional winged areas, at least some of said chambers being provided with vents for the escape of air in the downward operation of said plunger.

5. A washing machine having a clothes receptacle, a shaft movable vertically and in a rotatable manner through the bottom of said receptacle, mechanism for operating

said shaft, a plunger fixed to said shaft said plunger being open at its bottom and having a central, annular chamber, an intermediate, annular chamber arranged concentrically with said central chamber and an outer chamber having additional, winged areas, and valved outlets for at least some of

said chambers, the valves of which function to release air from said chambers during downward movement of the plunger.

MAUDE B. LATSHAW.

Witnesses:

ADOLPH B. CASPAR,
E. D. LATSHAW.