S. E. SCHROEDER.

WASHING MACHINE.

APPLICATION FILED FEB. 14, 1917.

1,284,474.

Patented Nov. 12, 1918.

2 SHEETS—SHEET 1.

FIG. 1.

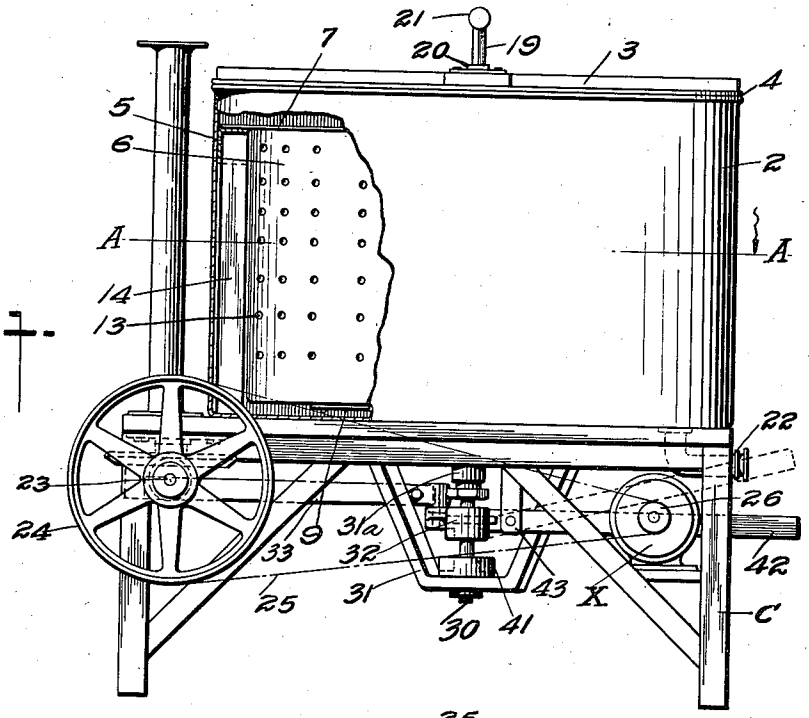
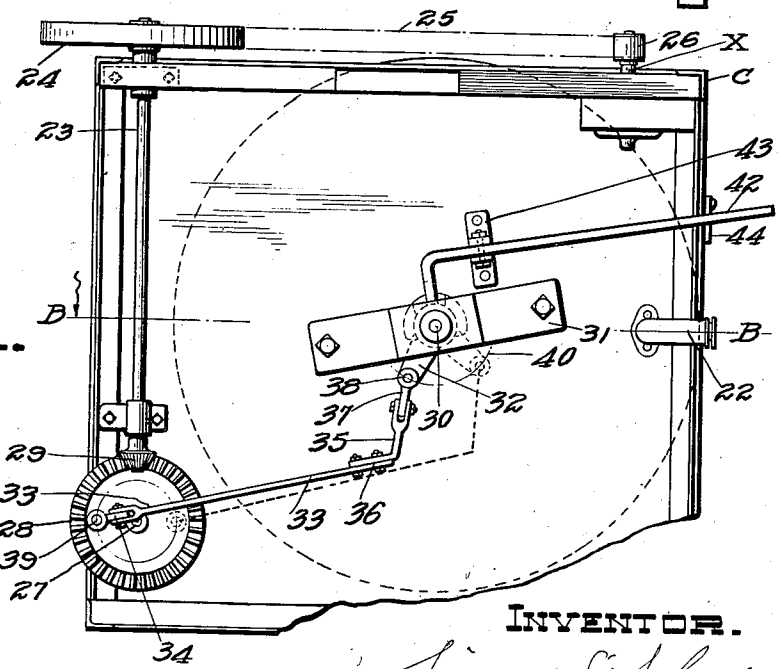


FIG. 2.



INVENTOR.

Simone E. Schroeder

By W. V. Leggett

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2 SHEETS—SHEET 2.

FIG. 3.

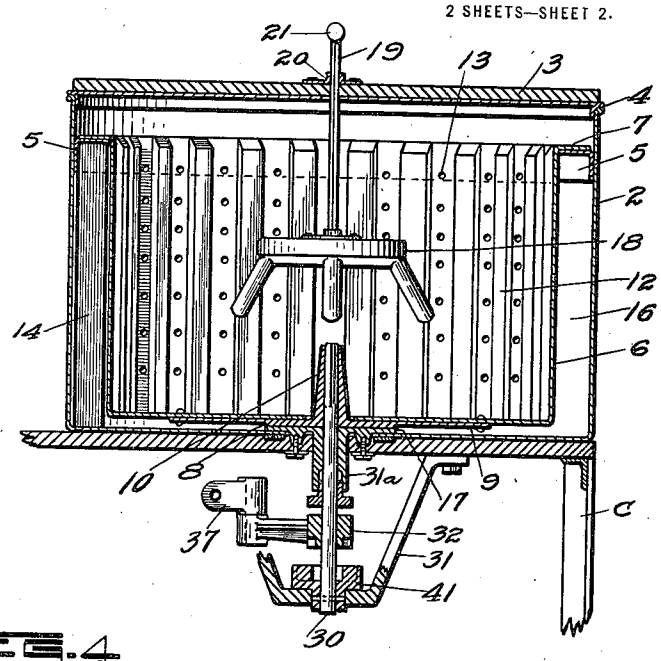
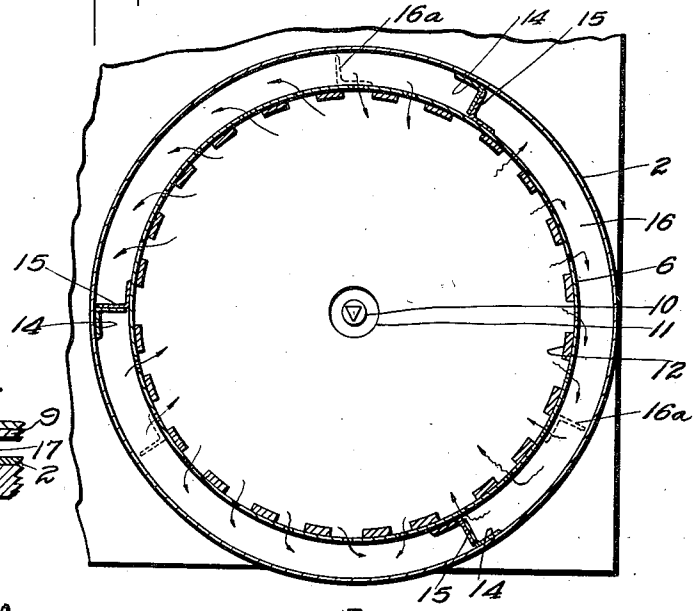


FIG. 4.



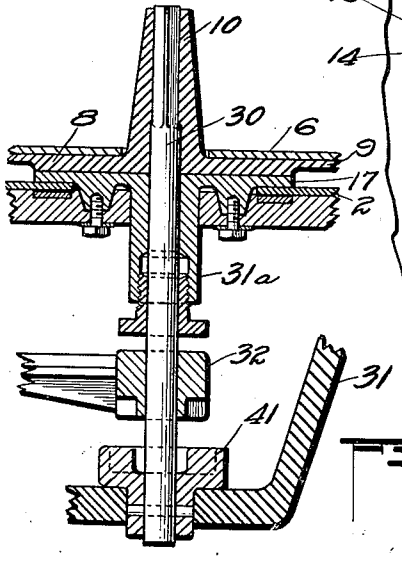


FIG. 5.

INVENTOR.

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UNITED STATES PATENT OFFICE.

SIMON E. SCHROEDER, OF MINIER, ILLINOIS.

WASHING-MACHINE.

1,284,474. Specification of Letters Patent. Patented Nov. 12, 1918.

Application filed February 14, 1917. Serial No. 148,606.

To all whom it may concern:

Be it known that I, SIMON E. SCHROEDER, a citizen of the United States, residing at Minier, in the county of Tazewell and State of Illinois, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to washing machines.

More particularly, my invention relates to a class of washing machines in which agitation within the washing receptacle is developed through the action of mechanical parts; to develop alternate compression and exhaustion or suction, for the purpose of forcing the water through the clothing within the receptacle. This class of machine is known as the vacuum type.

My invention consists in the relative arrangement of a general liquid container or tub; an inner receptacle adapted to contain clothing to be washed and turnable with relation to the general or stationary tub; of spaced wing or partition members on the tub, and on the inner container arranged relatively for normal coincidence, in pairs respectively; to details relative to the structure of the inner container like ribs and multiple perforations through the body of the container; to a nonrotatable dolly for normal positioning within the inner receptacle but adjustable vertically under force of materials in the receptacle during the washing operation, and to detailed driving connections to cause the inner receptacle to be turned within a limited arc for reciprocal action.

My invention includes the general structure above mentioned and detailed parts and combinations, hereinafter more particularly specified.

Referring to the drawings;

Figure 1 is a side view of a washing machine structure showing my improvements attached, a part being broken away to better illustrate detail parts.

Fig. 2 is a bottom view of the same subject matter disclosed in Fig. 1.

Fig. 3 is a vertical sectional view on the line B. B. of Fig. 2.

Fig. 4 is a horizontal sectional view on the line AA of Fig. 1.

Fig. 5 is an enlarged detail view of driving parts for the interior receptacle, the general connection being best shown in Fig. 3.

Referring to the drawings:

C refers generally to a platform for supporting washing machine parts, driving connections and driving unit and comprises as shown a platform, leg supports and braces.

2 is a receptacle or tub mounted on the top of the platform of the support. I prefer to make this tub of metal of some suitable sort.

3 is a cover for the tub which may be hinged as at 4 or may be attached in any manner or may be wholly detachable if desired.

5 is a flanged bracket attached to the inner face of the tub and extending entirely around the same.

6 is a receptacle which will hereinafter be referred to as an interior container, the same being preferably made of metal of some suitable sort.

7 is a circumferential outturned flange at upper edge of the interior container, said flange when said container is in proper adjustment with relation to the tub overlying the upper face of bracket member 5 but slightly in clearance thereof.

8 is a cast member including a circular plate portion 9 attached to the bottom of the interior container and the sleeve portion 10 extending upwardly through the opening 11 in the bottom of said container, said sleeve being designed to house, a driving shaft hereinafter referred to.

12 are raised portions or ribs arranged upon the interior of the container in spaced relation as shown.

13 are perforations arranged in rows and spaced apart between the ribs 12.

14 are wing or partition members arranged at spaced intervals (see Fig. 4) about the interior of the tub and secured thereto.

15 are similar partitions but attached to the outer surface of the interior container, said partitions being designed to extend within the confined area 16 between the tub and the interior container; but in operation the wing members 15 being designed to be swung to the positions indicated in dotted lines as at 16^a in Fig. 4.

17 is a plate fixed at the center of and in the bottom of tub 2 and serves as a support upon which the interior container rests and turns when the machine is operated.

18 is a dolly of the ordinary type and is fixed to the squared shaft 19, which said

shaft is suitably housed in bearing or plate 20 and is movable vertically through said plate that the dolly may be raised or lowered under the influence of pressure of materials within the container. The head 21 on shaft 19 serves as a stop to limit the downward movement of the dolly, and 22 is a drain pipe.

Referring now to the driving mechanism: X is a motor, 23 is a drive shaft to which is fixed band wheel 24 which connects belt 25 with band wheel 26 on the motor shaft.

27 is a vertical shaft suitably supported in connection with the frame of the machine; 28 is a combined eccentric and gear wheel fixed to said shaft; 29 is a bevel pinion on the shaft 23 which meshes with the gear part of wheel 28; 30 is a vertical shaft journaled and suitably supported in bracket 31, said bracket being attached to the lower surface of the platform, part of the general support C. 32 is a combined adjustable clutch and rocker arm member supported upon shaft 30. Shaft 30 enters a triangular opening in sleeve 10 of cast member 8 which serves when actuated, to turn said sleeve and with it, container 6. Shaft 30 is housed in sleeve member 31^a in a manner to support said shaft in proper position, and to permit it to turn. 33 refers generally to an arm or reach comprising members 34 and 35, and said members are joined as at 36 in a relation for adjustment longitudinally. 37 is an extension member of arm 33 and is pivoted to the outer end of the rocker arm portion of member 32 as at 38; the other end of arm 33 is pivoted as at 39 to wheel 28 and in eccentric relation to axis thereof. This driving connection between shaft 27 and shaft 30 will cause, when the machine is in operation, the rocker arm member 32 on shaft 30 to travel through an arc of a circle as for instance through the arc defined by line 40 in Fig. 2; this movement of the rocker arm of member 32 causing interior container 6 to move through a similar arc.

The reciprocal action of shaft 30 results from the engagement of the clutch part of the combined bracket arm and clutch 32 engaging with clutch member 41 fixed to shaft 30. To stop the action of shaft 30 clutch part of member 32 is disengaged from clutch member 41 through and by means of lever 42, which is connected at its inner end with member 37, which in turn has a pivotal connection with bracket arm and clutch 32, said lever 42 being pivotally connected with supporting arm 43, the latter being connected with the framework of the machine. By depressing the outer end of lever 42 the clutch members will be disengaged and the lever may be locked in position to maintain such disengagement through engagement with locking member 44 secured to the framework of the machine.

The operation of the device is as follows: The parts being arranged substantially as shown in the drawings, movement of shaft 23 is transmitted to wheel 28 causing reach 33 to be reciprocated, to cause the arm member attached to clutch member 32 to move in the arc of the circle 40. This movement of said arm will cause interior container 6 to be moved back and forth and with it the wing members 15. This will cause the water in advance of the wing members to be compressed within the space 16 and to force the same through the openings 13 into the container and the same movement of said wing members 15 will tend to create a vacuum at the rear of said wings which will serve to draw the water from the container through the perforations therein to be discharged into the space 16. The action is the same in the reverse movement of container 6. This movement of the container causes extreme agitation of the water therein and the dolly member 18 being stationary will serve to hold the clothes in the container against turning thus serving likewise to agitate the clothes and to quickly clean them.

Shaft 30 is thrown into operation by means of lever 42 as previously described, and is similarly released by opposite movement of said lever.

I have shown herein one form of embodiment of my invention and the principle upon which the device operates. However, the parts may be differently arranged, and different drive connections may be employed, and in fact, many changes may be made in the structure without departing from the spirit of my invention.

What I claim is:

1. In a washing machine, in combination, a support, a tub on said support provided with a lid or cover and with a plurality of wing members, disposed substantially vertically within the tub and attached to the inner face thereof, a perforated clothes container within the tub, its sides spaced from the sides of the tub, provided with a plurality of wing members fixed to its outer surface and in a position normally in coincidence with the wings attached to the tub, means overlying the space or way between the tub and container serving as a closure member and means for actuating the container in a reciprocal manner whereby the wing members thereof will alternately be moved to positions from and toward the respective matching wings on the tub.

2. In a washing machine, in combination, a support, a tub on said support provided with a lid, a plurality of wing members attached to the interior surface of the tub, a flange spaced between the top and bottom of the tub and extending thereabout, a container within the tub, its vertical side walls spaced from the side walls of the tub and

provided with an outwardly extending flange at its upper edge overlying the flange on the tub, said container also being provided with a plurality of perforations at intervals throughout the extent of its side walls, rib members on the interior of the container and a plurality of wing members secured to the exterior thereof and extending through the space between the bottom of the tub and the flange member of said tub and means for actuating the container alternately in reverse directions throughout a portion of one revolution.

3. In a washing machine, in combination, a support, a tub on the support provided with a lid, a flange spaced between the top and bottom of the tub and extending throughout the entire interior circumference thereof, a container within the tub, its vertical side wall spaced from the side wall of the tub and provided with a flange at its upper edge overlying the flange on the tub, and with perforations at intervals throughout its circumference, substantially vertically disposed rib members on the interior of the container spaced between the perforations therein and a plurality of wing members spaced about the container and secured thereto and extending outwardly substantially the width and depth of the space between the container and the tub, corresponding spaced wing members on the interior of the tub and means for actuating the container alternately in reverse direction throughout a portion of a revolution.

4. In a washing machine, in combination, a support, a tub on said support, a container within the tub spaced therefrom and provided with perforations in the side wall thereof, closure means for the space between the tub and container, means to effect relative reciprocation between the tub and container, wing members on both tub and container at spaced intervals thereabout respectively projecting into and extending substantially the depth and width of said space, whereby relative reciprocation will cause suction and compression pressure in the different spaced parts of the inclosed space between the tub and container that will cause water in the tub and container to be forced back and forth through the perforations in the container.

5. In a washing machine, in combination, a support, a tub on said support, a container within the tub spaced therefrom and provided with perforations in the side wall thereof, closure means for the space between the tub and container, means to effect relative reciprocation between the tub and container, wing members on both tub and container at spaced intervals thereabout respectively, projecting into and extending substantially the depth and width of said space and non-rotatable dolly within the container.

6. In a washing machine, in combination, a support, a tub on said support provided with a lid or cover and with a plurality of wing members attached to the interior thereof, a perforated clothes container within the tub its side portion spaced from the side of the tub provided with a plurality of wing members fixed to its outer face, means overlying the space between the tub and container serving as a closure member and means for actuating the container in a reciprocal manner, whereby the wing members thereon will alternately be moved to positions toward and from matching wing members on the tub and a dolly in the container supported from the lid or cover in a manner to prevent turning thereof.

7. In a washing machine, in combination, a support, a tub on said support provided with a lid or cover and within a plurality of wing members attached to the interior thereof, a perforated clothes container within the tub, its side portion spaced from the side of the tub, provided with a plurality of wing members fixed to its outer face, means overlying the space between the tub and container, serving as a closure member, whereby the wing members thereon will alternately be moved to positions toward and from matching wing members on the tub, a dolly in the container and a supporting member therefor connected with the lid or cover and so related to the dolly that the latter is prevented from turning as the container is reciprocated but may move vertically thereon.

In testimony whereof I affix my signature in presence of two witnesses.

SIMON E. SCHROEDER.

Witnesses:
D. H. KING,
C. J. THEIS.