

Nov. 24, 1925.

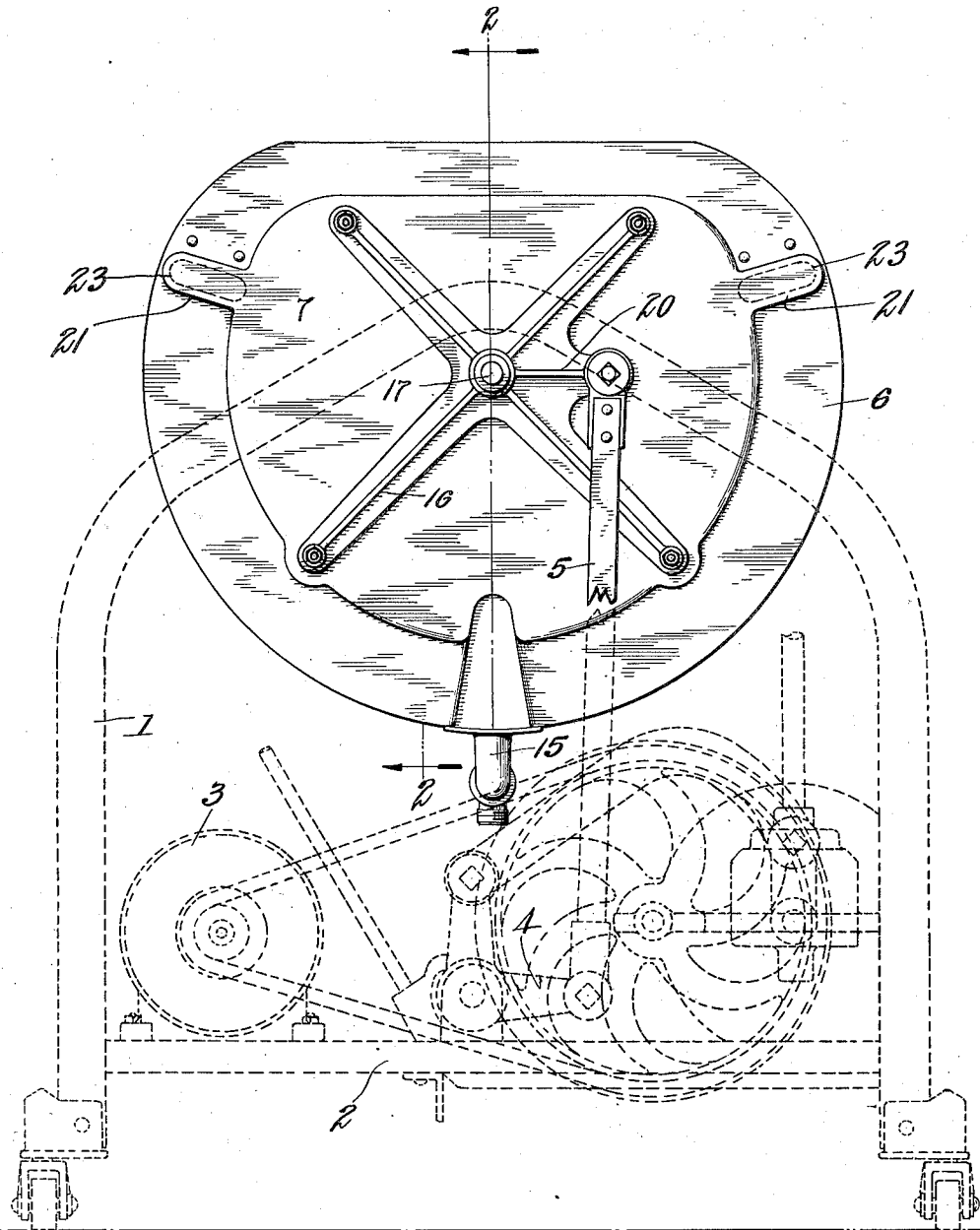
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A. W. ALTORFER

WASHING MACHINE

Filed Oct. 12., 1922

3 Sheets-Sheet 1



INVENTOR.

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Chas. K. Latour

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Nov. 24, 1925.

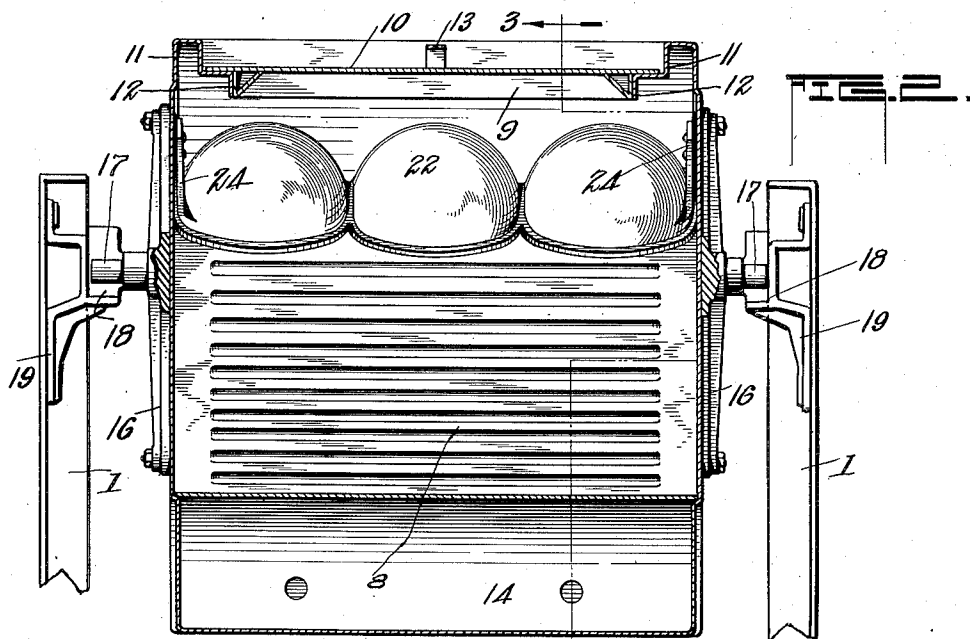
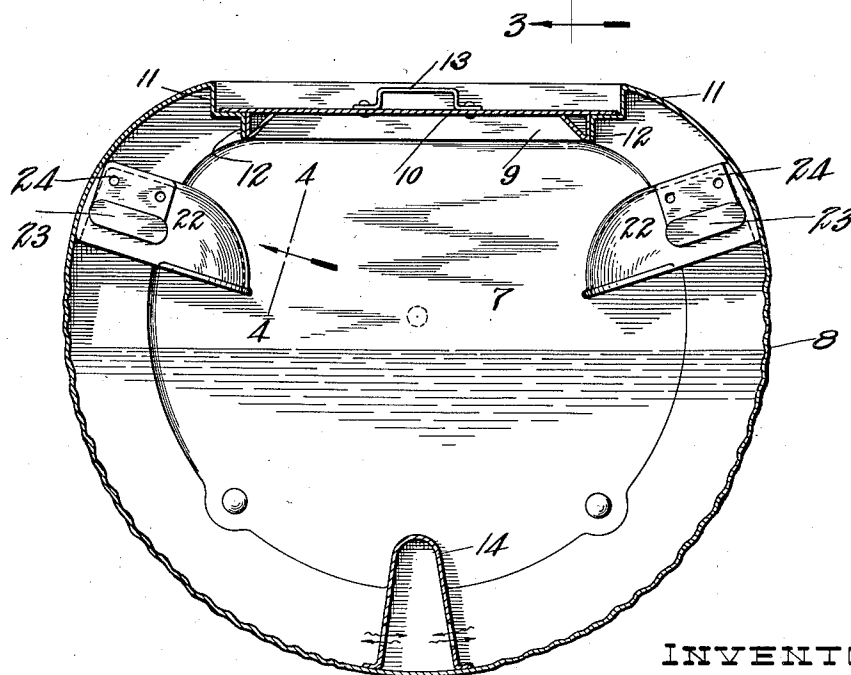
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A. W. ALTORFER

WASHING MACHINE

Filed Oct. 12, 1922

3 Sheets-Sheet 2



INVENTOR.

Alpheus W. Altorfer
Charles A. Lott

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Nov. 24, 1925.

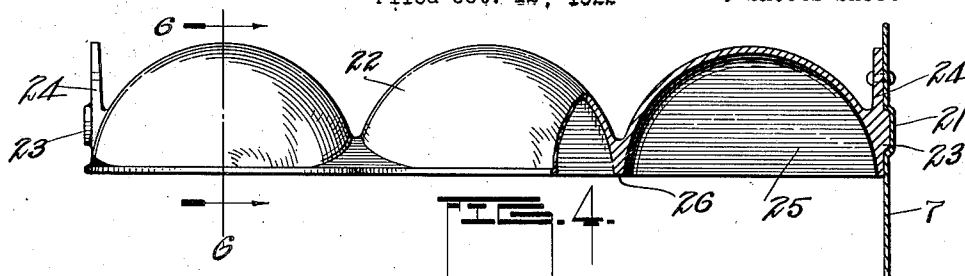
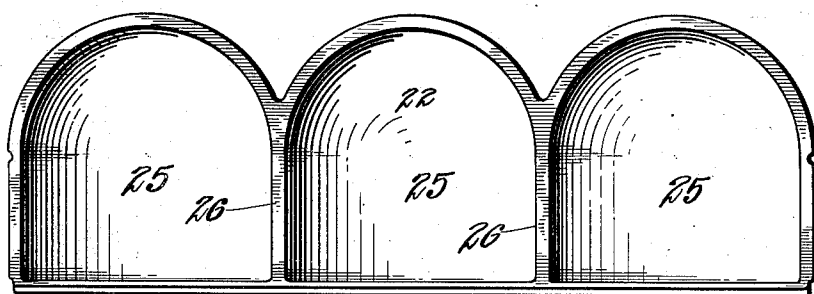
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A. W. ALTORFER

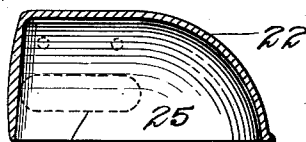
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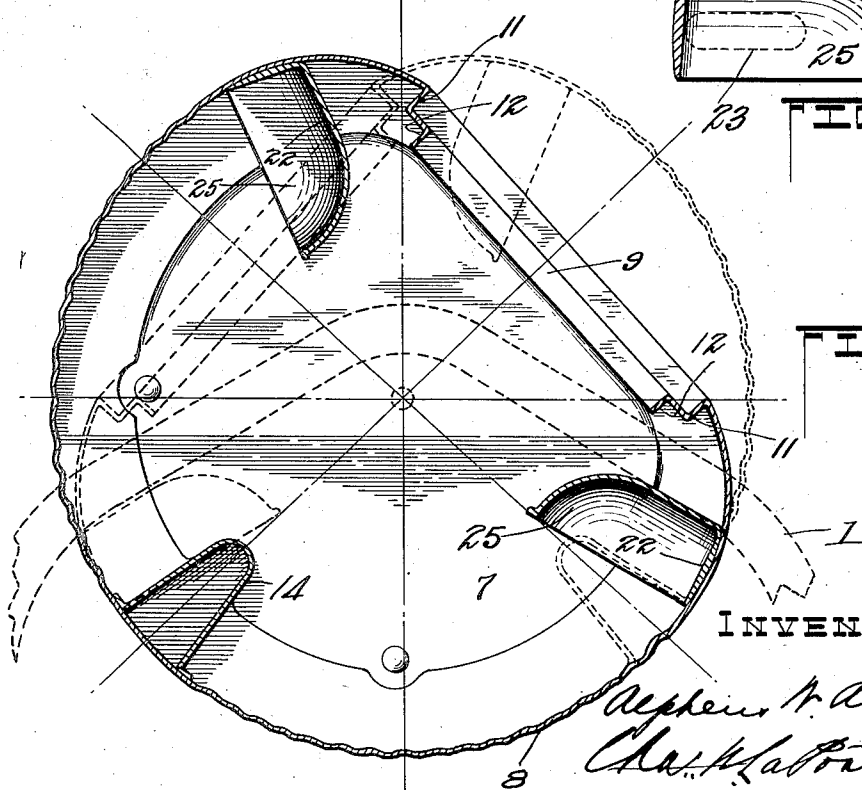
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16.5.



THE



Page 7

INVENTOR.

Stephen H. Altaner
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AIIT

UNITED STATES PATENT OFFICE.

ALPHEUS W. ALTORFER, OF PEORIA, ILLINOIS, ASSIGNOR TO ALTORFER BROS. COMPANY, OF EAST PEORIA, ILLINOIS, A CORPORATION OF ILLINOIS.

WASHING MACHINE.

Application filed October 12, 1922. Serial No. 594,019.

To all whom it may concern:

Be it known that I, ALPHEUS W. ALTORFER, a citizen of the United States, a resident of Peoria, in the county of Peoria and State of Illinois, have invented new and useful Improvements in Washing Machines, of which the following is a specification.

This invention has reference to washing machines and particularly to the domestic or household type machine.

The invention has for its principal object to combine in the oscillator tub type machine, the vacuum cup type machine; whereby the advantages embodied in oscillating and vacuum cup machines are contained in one machine.

A further object of the invention is to provide a clothes container for washing machines having connected thereto and arranged therein, two or more vacuum cups, or agitators, or suction cups, or pounders as some users are want to call vacuum cups; such cups being preferably disposed on opposite sides of the pivotal axis of the container and normally above the water line of said container.

A still further object of the invention is to construct a clothes container for oscillatory action, and to provide the same with oppositely disposed and transversely arranged vacuum cups, each cup being preferably constructed with a plurality of parallel disposed chambers separated by division walls; said cups being normally supported at an acute angle to a horizontal line passing through the pivotal axis of the tub.

That the invention may be more fully understood, reference is had to the accompanying drawings forming a part of the present description, illustrating a preferred embodiment of the invention, in which:—

Figure 1 is a side elevation of a washing machine, including an oscillatory tub embodying my invention, the frame structure and operating means being shown in dotted lines;

Figure 2 is a cross-section of the container as the same would appear if taken on

the line 2—2 Figure 1, the frame structure being shown in dotted lines;

Figure 3 is a cross-section of the container, as the same would appear if taken on the line 3—3 Figure 2;

Figure 4 is a front elevation of a cup, partly in section, as the same would appear on the line 4—4 Figure 3;

Figure 5 is a plan view of the under side of the cup;

Figure 6 is a cross-section through a cup as the same would appear, if taken on the line 6—6 Figure 4, and

Figure 7 is a diagrammatic cross-sectional view of the container, in full and dotted lines showing the same in its extreme oscillatory movements to the right and left, for the purpose of showing the action of the vacuum cups in forcing air into the water and through the fabrics being cleaned.

Like characters of reference denote corresponding parts throughout the figures.

Inasmuch as the invention is directed primarily to the clothes container, only a brief reference need be made to the frame structure and operating means, which has been likewise briefly shown.

The supporting structure may include side frames 1, 1, and a base frame 2 providing a mounting for suitable bearings for gearing and other operating parts of the machine. 3 is a motor adapted to operate a mechanism which includes a crank arm 4 having connected thereto a pitman or reach bar 5 for oscillating the clothes container or tub 6.

The container or tub 6 is preferably made of sheet metal and includes the side walls 7 joined by the curved preferably, corrugated or ribbed rubbing wall 8. The top, or clothes receiving and removing portion, is preferably flat with an opening 9 adapted to be closed by the removable cover or lid 10. This opening is formed by the off-set angular bends 11 and 12 of the wall 8, forming a rest for the closure 10 which fits snugly and close so as to prevent water

splashing from the tub when oscillated. The closure 10 has a handle 13. Extending transversely across the bottom of the container or tub 6 and suitably joined to the sides thereof is a partition or obstruction 14, being a sheet, preferably bent into the form of an inverted U to provide a compartment; the walls having openings there-through for the circulation of water in the tub, and for the passage of water to the drain pipe 15, when it is desired to drain the tub. To support the tub for oscillatory movement in the frame, castings 16 in the form of spiders are secured to the side walls 7, each having trunnions 17 journaled in bearings 18 removably mounted on brackets 19 secured to the frame supports 1, see Figure 2. One of the castings 16 has formed thereon or connected thereto an arm 20 and to said arm is pivotally connected the reciprocal, preferably vertically disposed pitman or reach bar 5.

The side walls 7 of the container or tub are stamped or otherwise suitably formed with seats or grooves 21 on their inner faces, and which are preferably disposed at an acute angle to a horizontal line passing through the pivotal axis of the tub, and preferably above the normal water line thereof.

The vacuum cups are designated 22, which extend cross-wise of the curved rubbing wall 8 and secured to the side walls 7, preferably by forming the cups with, or connecting thereto ribs 23 adapted to fit within the seats or grooves 21 in the side walls 7, see Figure 4, and by lips or ears 24 extending up from said ribs 23 and riveted or otherwise suitably secured to said side walls 7. The open faces of the cups lie parallel with the ribs 21 connected thereto which will dispose the cups at an acute angle to a horizontal line passing through the pivotal axis of the tub. I prefer to employ two vacuum cups within the container or tub, one on either side of a vertical line passing down through the pivotal axis of the tub and at a point above the normal water line, when the tub is stationary, and I also prefer that each vacuum cup shall extend from one side wall 7 to the other and to comprise a plurality of parallel disposed chambers 25 separated by the spacing or division walls 26. I realize that a vacuum cup might be constructed with only one chamber but its vacuum action will not be as effective as a cup formed of a plurality of chambers, as shown. Furthermore, I am not concerned about the shape of the cups in cross-section, as this may depend on the shape given to the container or tub, and naturally if the contour of the tub is changed it might require some modification in the shape of the cups. As the cups are now constructed they will act on the entire body of water, which on entering the cups, as the tub is oscillated will force the air out of the cups into the water and through the fabrics, resulting in a thorough cleansing of the fabrics. As the tub is oscillated, first in one direction then in an opposite direction the water and fabrics are agitated, moving the clothes or fabrics toward and away from the vacuum cups, the cups returning before the water and clothes or fabrics can recede and act to further agitate the same and forcing air therein and therethrough to facilitate in the cleansing action. The partition or obstruction 14 not only assists in the agitation of the water to force the same through the clothes and fabrics but also acts to keep the clothes or fabrics in agitation and to change the position thereof within the container or tub. The action last above described it is believed will be understood from Figure 7. Furthermore, the use of vacuum cups in an oscillatory tub or container has a suction effect on the fabrics as they are moved with the volume of water to the cups, and such suction will act to momentarily hold or retard the fabrics, as the water falls away due to the alternate action of the tub or container, and as the water falls or moves away it will pass down through the fabrics further facilitating the cleaning action.

The vacuum cups are each preferably made in one piece and may be stamped, cast or otherwise suitably formed.

I do not of course desire to be limited to the exact construction, arrangement and operation shown and described as changes and modifications are no doubt possible which would come within the scope of the invention.

What I claim is:—

1. In a washing machine, a clothes container provided with recessed side walls, and vacuum cups having ribs fitting within said recesses.
2. In a washing machine, a clothes container provided with recessed side walls, vacuum cups having ribs fitting within said recesses, and other means for securing said cups to the side walls of the container.
3. In a washing machine, a clothes container having vertical side walls provided with recesses, a curved rubbing wall connecting said side walls, and a pair of oppositely disposed vacuum cups extending between said side walls and having ribs fitting within said recesses, each cup including a plurality of parallel arranged chambers.
4. In a washing machine, in combination with a metallic clothes container of the oscillatory type, of vacuum cups for said container formed into a plurality of integrally adjoined chambers separated by dividing partitions, and the outside cups provided with attaching lips for securing the same to the wall of the container.

5. In a washing machine, in combination with a metallic clothes container of the oscillatory type, the opposite inside walls of which are provided with recesses, of vacuum cups for said container formed into a plurality of integrally adjoined chambers separated by dividing partitions, and the outside cups provided with attaching lips for securing the same to the wall of the container and with ribs fitting within said recesses. 10

In witness whereof, I have hereunto affixed my hand and seal this 7th day of October, 1922.

ALPHEUS W. ALTORFER. [L. s.]