G. L. DAVIS.

AGITATOR FOR WASHING MACHINES.

APPLICATION FILED FEB. 29, 1916.

1,240,826. Patented Sept. 25, 1917.

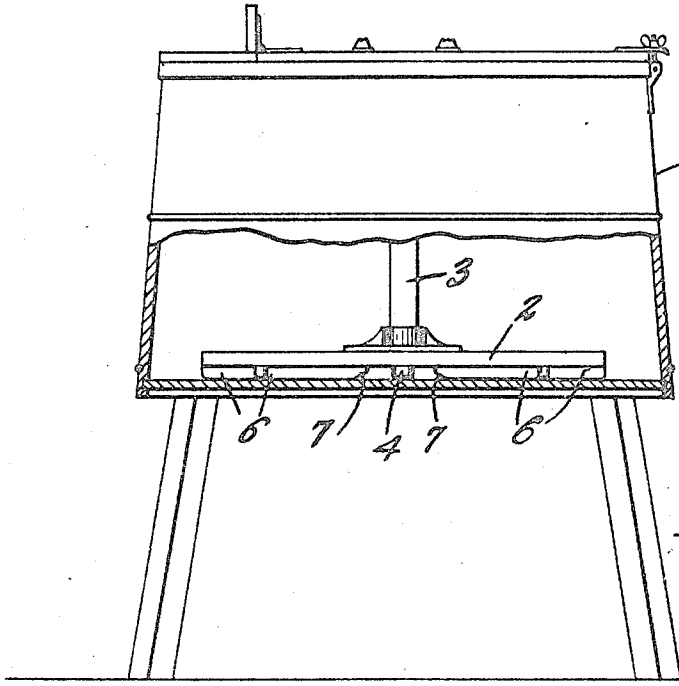


Fig. 1.

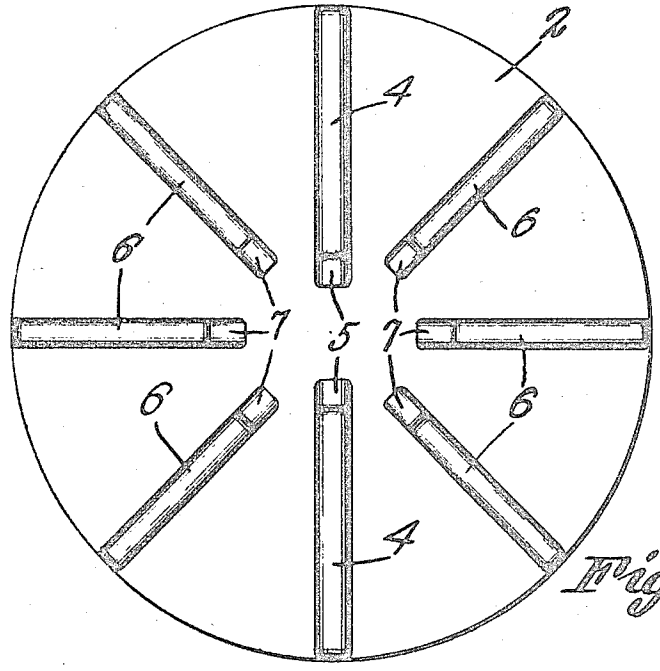


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE L. DAVIS, OF BINGHAMTON, NEW YORK.

AGITATOR FOR WASHING-MACHINES.

1,240,826. Specification of Letters Patent. Patented Sept. 25, 1917.

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To all whom it may concern:

Be it known that I, GEORGE L. DAVIS, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented a new and useful Agitator for Washing-Machines, of which the following is a specification.

This invention relates to agitators for washing machines, the same being of the disk type designed for rotation back and forth within the tub of a washing machine.

One of the objects of the invention is to provide an agitator having a novel arrangement of ribs or vanes on the lower or active face thereof and which operate to direct the water outwardly by centrifugal force, thereby setting up a circulation downwardly within the tub adjacent the wall thereof, and thence upwardly through the fabrics in the tub and to the center of the space below the agitator.

A further object is to provide an agitator designed to float upon the water contained within the tub and the ribs on which will not only serve to set up a circulation of water as stated, but will also rub lightly upon the fabrics without danger of injuring them.

A still further object of my invention is to provide means in connection with the agitator disk to prevent churning of the washing fluid, and other means also in connection with said disk to cause the fluid flow lines to substantially conform to the shape of an elongated loop depressed intermediate its ends.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—

Figure 1 is a view partly in side elevation and partly in section of a washing machine having the present improvements combined therewith.

Fig. 2 is a bottom plan view of the agitator.

Referring to the figures by characters of reference 1 designates a tub of the inverted type (of greater diameter at the bottom than at the top), and arranged within the tub so as to rotate backwardly and forwardly is a disk 2 which can be driven in any manner desired, as by means of a shaft 3 connected to a suitable motor, not shown. This disk is provided on its lower or active face with opposed alining ribs 4 having their inner ends beveled as at 5, while their outer ends are substantially flush with the margin of the disk 2. Arranged at opposed sides of the ribs 4 and groups of radiating ribs 6 regularly spaced and having their inner ends beveled as at 7 while their outer ends are substantially flush with the margin of the disk 2. The inner ends of these ribs 6 are arranged in the arc of a circle, while the opposed ribs 4 extend inwardly closer to the center of the disk and are somewhat wider than the ribs 6. Thus the inner ends of the ribs 4 act as blades for engaging liquid contained within the circle defined by the inner ends of the ribs 6. Because of this peculiar arrangement of ribs 4 and 6, the fluid is caused to flow in lines similar in shape to an elongated loop depressed intermediate its extremities. The constancy of such flow lines eliminates eddies and other current irregularities preventive of a high degree of efficiency. It will be apparent that all of the spaces formed between the ribs on the disk communicate adjacent the center of the disk between the inner ends of the ribs, and that the lower face of the disk is flat and free of obstructions or projections other than the ribs. The beveled inner terminals of ribs 4 and 6 indicate the substantial configuration of an inverted bowl presenting no acute obstructions to the fluid flow lines consequent of rib depression and centrifugal force.

In using the agitator the tub is partly filled with water, after which the disk 2 is placed above the fabrics in the tub so as to float upon the water. The disk is then rotated backwardly and forwardly and during this movement the ribs 4 and 6 will have two functions. First they will throw the upper portion of the water by centrifugal force toward the wall of the tub, thus creating a suction under the center of the disk, with the result that the water displaced upwardly by this suction will force its way through the fabrics and will create a circulation inwardly adjacent the bottom of the tub and downwardly adjacent the wall thereof.

Thus the fabrics will be thoroughly cleaned without being pulled and distorted, the circulation of the water through the fabrics resulting in the removal of the dirt therefrom. In addition to the foregoing the ribs will act as rubbing elements inasmuch as they will engage lightly with the fabrics thereunder.

As has heretofore been pointed out, importance is attached to the particular construction and arrangement of the ribs on the disk. With this arrangement the shorter ribs 6 operate to throw the water outwardly by centrifugal force, creating a suction into the central space between the inner ends of the ribs. The water brought into this central space is engaged and thrown outwardly by the inner ends of the ribs 4 so that the centrifugal action of the agitator is materially increased by this particular arrangement.

What is claimed is:—

In a washing machine the combination with a tub, of an agitating disk mounted to float on water in the tub, radial vanes upon the lower face of the disk adapted, when the disk is rotated, to direct the upper portion of the water outwardly by centrifugal force toward the wall of the tub and to draw water upwardly from the center of the bottom thereof, and a driving shaft for actuating the disk, said disk being freely movable vertically.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE L. DAVIS.

Witnesses:
ORD A. BRAZIL,
A. B. SMITH.