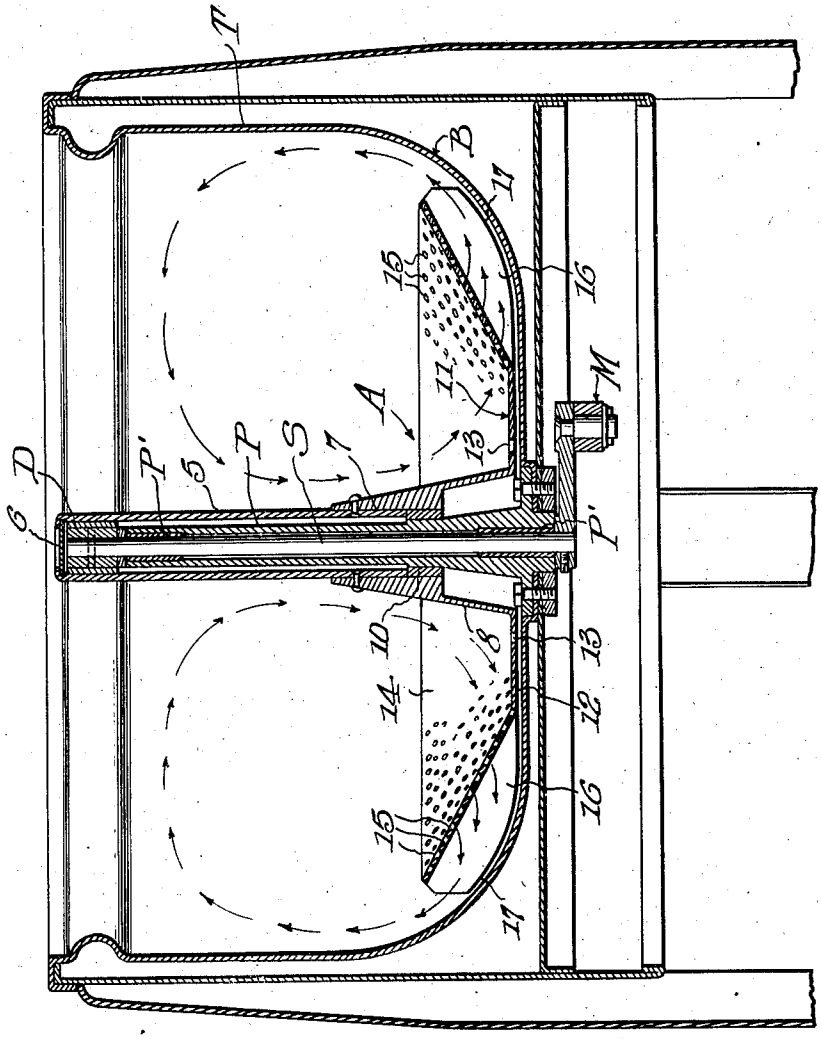
Feb. 17, 1942. R. B. BUKOLT 2,273,749

WASHING MACHINE

Filed Nov. 7, 1939 2 Sheets-Sheet 1

Fig. 1.



Inventor

Roman B. Bukolt

WITNESS

H. Woodside

By H. B. Wilson & Co Attorneys

Feb. 17, 1942. R. B. BUKOLT 2,273,749

WASHING MACHINE

Filed Nov. 7, 1939 2 Sheets-Sheet 2

Fig. 2.

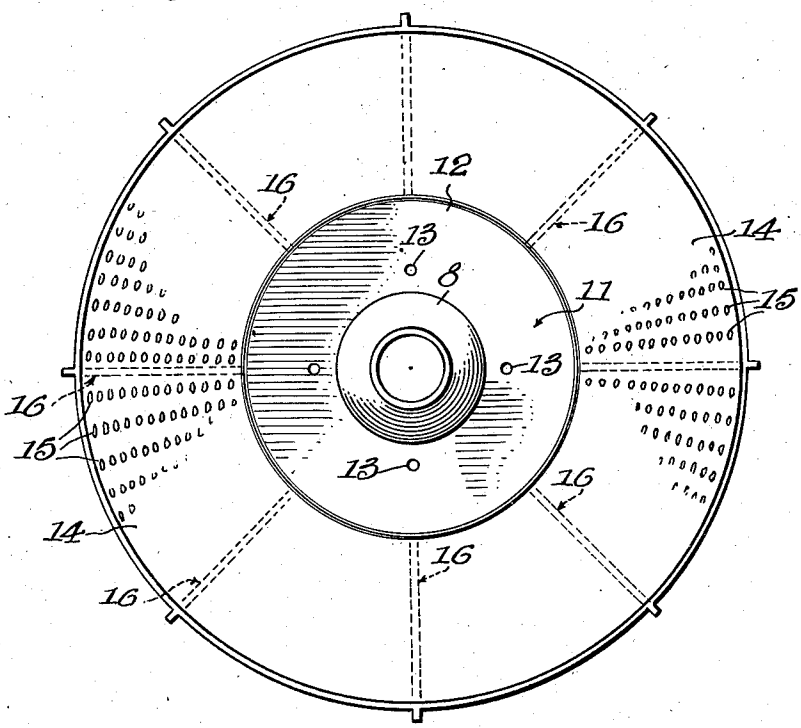
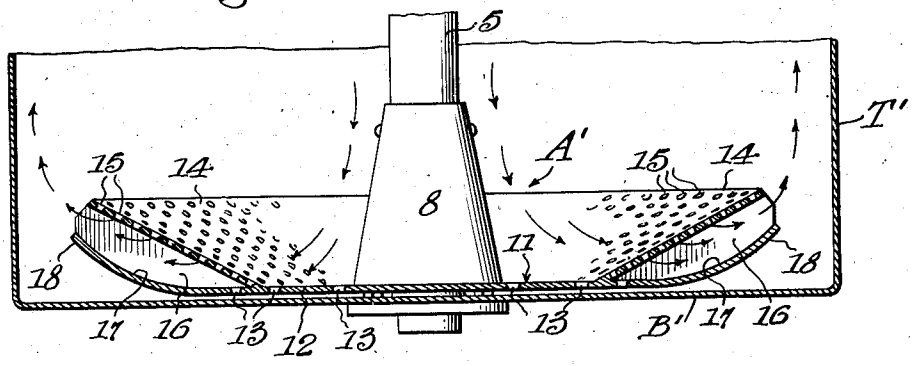


Fig. 3.



Inventor

Roman B. Bukolt

WITNESS

H. Woodard

By H. B. Wilson & Co Attorney

Patented Feb. 17, 1942

2,273,749

UNITED STATES PATENT OFFICE

2,273,749

WASHING MACHINE

Roman B. Bukolt, Stevens Point, Wis.

Application November 7, 1939, Serial No. 303,263

2 Claims. (Cl. 68—151)

The invention relates to improvements in washing machines of the general type in which an agitator is mounted for oscillation on a vertical axis within a tub, and it aims to provide a new and improved agitator or clothes rubbing member which will so move the wash water as to effectively circulate the same and cause repeated passage thereof through the articles being washed, at the same time gently pressing the articles against perforated rubbing surfaces, creating suction on the water to draw it through the fabric, and insuring light rubbing of the articles against the rubbing surface, thereby effectively loosening all dirt and thoroughly rinsing same from the fabric.

With the foregoing and minor objects in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Figure 1 is a vertical sectional view showing the improved agitator or rubbing member incorporated in a washing machine.

Figure 2 is a top plan view of the agitator or rubbing member.

Figure 3 is a vertical section partly in elevation showing a different form of construction.

The improved rubbing member or agitator A is shown centrally mounted within a tub T in Fig. 1, said tub having a bowl-like bottom B. In Fig. 3, a similar agitator A' is shown mounted within a tub T' having a flat bottom B'. The structural characteristics of the two agitators A and A' are so similar that one description will suffice, plus an explanation of the differences.

I have shown a tubular post P secured to the bottom of the tub and extending upwardly therefrom, said post having internal bearings P' for a vertical shaft S to be oscillated by any conventional mechanism, a portion of which is illustrated at M. The upper end of the shaft S has a splinded or other detachable connection D with a sleeve 5 forming part of the agitator, the upper end of said sleeve being closed at 6. The lower end of the sleeve 5 has a tightly pressed splined or other connection 7 with the hub 8 of the agitator, said hub being preferably of conical form. This hub may well be provided with an internal bearing collar 10 which rotatably surrounds the lower portion of the tubular post P, assisting in rotatably mounting the agitator and stabilizing same.

A disk 11 is centrally secured to the hub 8 and is provided with a relatively imperforate central portion 12 which portion, however, is provided with a small number of openings 13 which are merely drain openings to drain the disk when the tub is drained. The disk 11 is of bowl-shape and its side wall 14 is continuous, said side wall being inclined upwardly and outwardly from the central disk portion 12. This wall 14 is provided with a myriad of small perforations 15, the upper ends of which are countersunk, the perforated wall thus forming a gentle, yet positive rubbing surface for the clothes. Under the wall 14, I provide a plurality of radially disposed paddles 16 which are secured to said wall and have upwardly and outwardly curved lower edges 17 which, when the agitator is used in a bowl-like tub as in Fig. 1, conform to the tub bottom curvature. The paddles 16 centrifugally move the wash water as the agitator is oscillated, and the water and clothes circulate as indicated by the arrows. When the agitator is used in a flat-bottomed tub, a substantially imperforate rim 18 (Fig. 3) is disposed under the perforated wall 14 and the paddles 16 and is suitably secured to the disk 11, preferably forming a one piece structure with said paddles and disk. The rim 18 has its outer portion curved or inclined outwardly and upwardly to direct the water as indicated by the arrows.

When the tub is filled with water and clothes and the rubbing bowl or agitator A or A' is set in motion, the paddles 16 will expel the water in a lateral direction, causing the water to flow through the perforations 15 in the wall 14, from the inside to the outside, and this flow is converted to an upward movement as indicated by the arrows. The water which returns to the bottom of the tub at the central portion, causes the clothes to flow toward the perforated wall 14 and when the clothes reach this wall, the free flow of water through the perforations is stopped and a vacuum is developed on the outer side, which vacuum will apply the clothes to the inside surface of the wall 14 by atmospheric pressure. Due to the buoyancy and weight of the clothes and water, the clothes are not set into motion immediately with starting of the agitator or bowl in either direction, causing the latter to rub gently against the clothes to loosen dirt. As the clothes accelerate in speed with the rubbing bowl or agitator, a centrifugal force or pressure is additionally applied to press the clothes gently against the perforated wall 14, due to the lateral flow of the water at right angles to the axis of the agitator or the like. Thus the clothes are forced to move outwardly and upwardly over the perforated wall 14 and

are circulated with the water which returns to the bottom of the tub at the center thereof, effectively loosening all dirt and rinsing same from the clothes.

The machine operates on what I term a lateral flow vacuum and inertia pressure having the following advantages—providing more room in the tub for a larger amount of clothes; forcing the flow of water through the fabric of the clothes by the inertia pressure of water and vacuum; rubbing the fabric over the perforated wall of the rubbing bowl or agitator to loosen dirt while water flows through the fabric to wash out the dirt; effectively applying a strong, yet harmless washing operation to frail fabrics; and washing clothes cleaner in a relatively short time and without injury.

As excellent results have been obtained from the construction shown, it is preferably followed. However, within the scope of the invention as claimed, variations may be made.

While my pending U. S. application Serial No. 303,264, filed November 7, 1939, discloses a structure somewhat similar to that herein disclosed, no claim is herein made overlapping said application Serial No. 303,264.

I claim:

1. In a clothes washing machine, a tub to contain wash water and clothes, a shallow bowl-like disk in said tub mounted for oscillation on a vertical axis, said disk being provided with a substantially flat central portion of circular outline, and also having a circular outwardly inclined peripheral portion of uniform inclination throughout its circumference to upwardly direct the wash water and clothes when they are moved radially, said inclined peripheral portion having perforations through which some of the radially moved wash water may flow, and horizontally elongated paddles secured to and projecting downwardly from said perforated inclined peripheral portion and extending radially substantially throughout the width thereof, whereby said paddles will centrifugally displace the wash water under said perforated inclined peripheral portion and thus cause water within the confines of said perforated inclined peripheral portion to flow radially through said perforations and press the clothes against said perforated inclined peripheral portion while this portion is directing water and clothes upwardly.

2. A structure as specified in claim 1; said paddles having lower edges which incline outwardly, said disk being provided with an additional outwardly inclined peripheral portion of circular outline secured to said lower edges of said paddles and inclined in the same manner as said edges to upwardly direct the water which flows radially through said perforations of the aforesaid perforated inclined peripheral portion.

ROMAN B. BUKOLT.