

May 2, 1939.

P. K. MISENHIMER ET AL

2,156,541

PORTABLE WASHING MACHINE

Filed Dec. 15, 1936

Fig. 1.

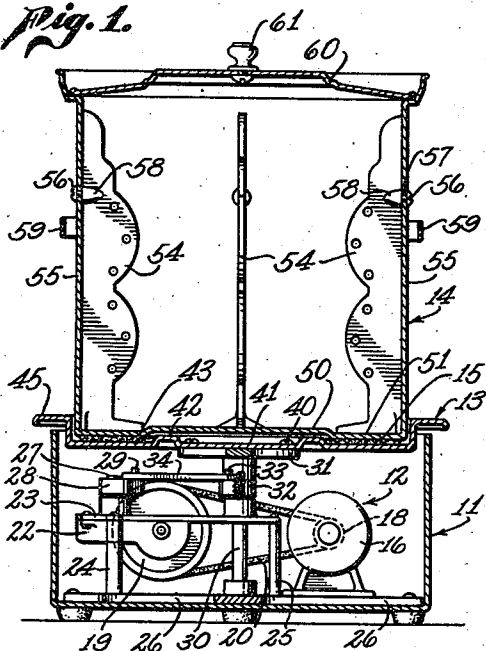


Fig. 2.

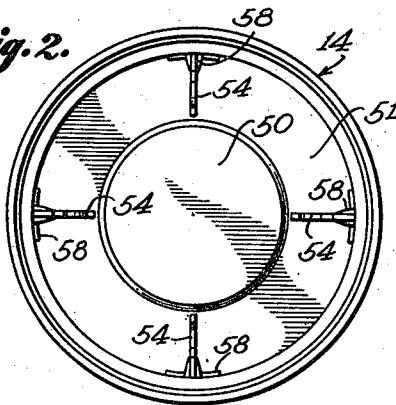


Fig. 4.

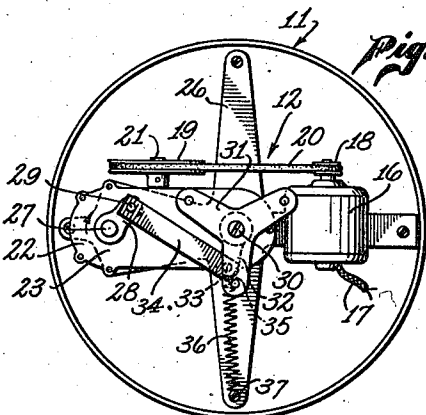
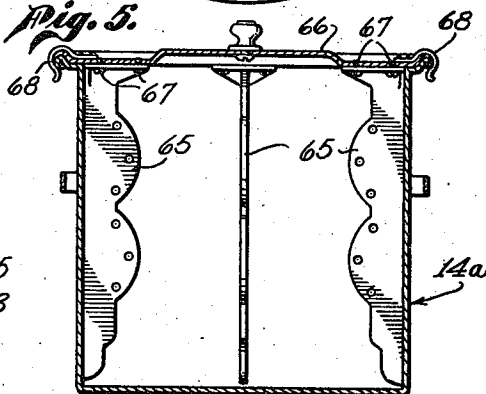


Fig. 5.



Inventor

Paul K. Misenhimer
William A. Williams

Fig. 3.

By *Paul K. Misenhimer*
Attorney

UNITED STATES PATENT OFFICE

2,156,541

PORTABLE WASHING MACHINE

Paul K. Misenhimer, Los Angeles, and William A. Williams, Tujunga, Calif.

Application December 15, 1936, Serial No. 115,930

2 Claims. (Cl. 74—75)

This invention relates to clothes washing machines and particularly to portable washing machines which are designed for apartment house use and for use in other households having confined living quarters. The invention is further particularly related to washing machines having de-mountable washtubs.

Ordinary washing machines are usually large and heavy, making it very difficult to move them about. Furthermore, the tub is usually attached to the machine and not designed to be removed for the purpose of placing over a fire to heat the washing fluid contained in the tub, or if it is designed to be removed it is usually too large to be moved when containing washing fluid. Such machines are obviously unsuitable for use in living quarters where floor space is at a premium and where, if a washing machine is to be used, it must of necessity be stored away in some closet when not in use.

It therefore becomes a primary object of this invention to provide a small, light weight, easily portable clothes washing machine of durable construction which is designed principally for household use, and which is effective to wash clothes placed therein by agitation of the clothes with the washing fluid.

It is a further object of this invention to provide a portable washing machine having an easily detachable or demountable washtub which may be readily lifted off the rest of the machine so that it may be placed on a stove to heat water or water and clothes in the tub. In this connection it is an object of this invention to provide a washing machine having the clothes tub supported on and driven by a pan which is adapted to be oscillated by a suitable motor and connecting means located below the pan, a friction ring being interposed between the tub and the pan. It is a still further object to provide this aforementioned pan with such a design that it protects the driving mechanism from any water or washing fluid which may spill over the tub.

Fig. 1 is a sectional elevation of the portable washing machine of our invention showing a preferred form of tub construction.

Fig. 2 is a plan view of the clothes tub of Fig. 1 with the cover removed.

Fig. 3 is an exploded view of the invention with all but the lower portion of the housing and agitator unit in section, showing the relation of the parts of the invention.

Fig. 4 is a plan view of the agitator unit and housing.

Fig. 5 is a sectional elevation of a modified form of clothes tub.

The invention comprises generally a clothes tub supported upon and normally positioned in a driving pan, a friction ring being interposed between a portion of the pan and the tub, and a housing containing an agitator unit adapted to support and oscillate the pan. In accordance with the object of this invention to provide a portable washing machine of light weight, these elements are all of comparatively small size and of light weight construction, the tub being preferably formed of aluminium.

Referring to the drawing, reference numeral 11 indicates an open top housing in which is mounted an agitator unit generally indicated by 12, upon which is carried a driving pan 13 in which the clothes tub 14 is normally positioned. A friction ring 15 of rubber or other suitable material rests upon the pan 13 and is thus interposed between it and the tub 14. More particularly describing the agitator unit 12, this unit consists of an electric motor 16 having a cord 17 for connection to a suitable source of electricity. The motor 16 is provided with a pulley 18 which is connected to a larger pulley 19 by means of a belt 20. The pulley 19 is mounted on a shaft 21 which is journaled in a gear box 22 integral with and below a plate 23 which is mounted on suitable posts 24 and 25 which in turn are carried by a base plate 26 on the bottom of housing 11. This shaft 21 is connected by suitable gear means (not shown) in the gear box 22 to a vertical shaft 27 on the upper end of which is mounted a crank 28 having a crank pin 29 at its outer end. Journaled in the plates 26 and 23 is a vertically extending shaft 30 upon which is mounted a spider 31 keyed thereto at its upper end. Shaft 30 also carries a crank 32 having a crank pin 33. This pin 33 and pin 29 of the crank 28 are connected by means of a connecting rod 34. The connecting rod 34 has a hole 35 in its end in which is attached a spring 36 connected downwardly to the plate 26 at point 37. This spring, although not an essential part of the invention, serves to steady the connecting rod on the two pins on which it is carried, with consequent smoother operation of the machine.

By means of suitable screws 40, which cooperate with the spider 31, a driving pan 13 is mounted on the spider. This driving pan has a central circular depressed portion 41, having holes therein to accommodate the screws 40, the depressed portion being surrounded by an annular raised portion 42. The raised portion is

in turn surrounded by an annular depressed face 43. The edge of the pan is formed with an outwardly and downwardly extending flange 45. This construction provides a pan which fits freely within the housing 11 and extends upwardly and over and beyond the housing 11, thus protecting the agitator unit 12 from any fluid which may escape from the wash tub.

Adapted to be positioned in and driven by this driving pan is a clothes tub 14, the bottom of which is formed with a central circular raised portion 50 surrounded by a depressed annular portion 51. Interposed between the tub and pan is a friction ring 15.

From this description it will be understood that rotation of motor 16 serves to rotate, by means of belt 20, the pulley 19 which, through gear means (not shown) rotates shaft 27, thus rotating the crank arm 28 on which is pivotally mounted the connecting rod 34. Movement of the connecting rod causes crank 32 to oscillate, thus rotatively reciprocating or oscillating the shaft 30 and spider 31 thereon. The impartation of movement to the spider 31 is effective to oscillate the pan 13 which is attached thereto and thus, through the medium of the friction ring 15, upon which tub 14 rests, the tub is oscillated, thus providing an agitation of water and clothes therein and thus providing a washing action which is effective in cleaning clothes.

This tub 14 is preferably constructed with a plurality of radially inwardly extending perforated vanes 54. In Figs. 1, 2, and 3, four of these vanes have been shown and they are mounted on the tub wall 55 by means of screws 56 extending through holes 57 in the tub. The screws are threaded into an enlarged portion 58 of the vanes. Suitable handles 59 are provided on the tub so that it may be readily lifted from its support. The tub has a cover member 60 and handle 61 therefor.

From this construction it can be seen that the clothes tub 14 is removably mounted in the driving pan 13 and is oscillated by the driving pan through the medium of the friction ring 15 interposed between the two members. The weight of the water and clothes in the tub is sufficient to hold the tub in engagement with the ring 15 during agitation and is sufficient to prevent any slippage of the tub relative to the driving pan. The tub may be removed at any time from the pan by merely lifting it therefrom, no clamps or other attaching means be-

ing necessary in this invention as between the tub and the tub supporting and agitating means. Thus the tub may be placed upon a stove to heat water therein and then subsequently placed upon the machine for agitation of the wash fluid with the clothes to be washed.

Fig. 5 illustrates a modified construction of the tub in which the vanes, here indicated as 65, are fastened to the cover 66 of the tub by means of suitable screws 67 which are threaded into the cover. This construction necessitates the use of clamps of any ordinary type such as those shown at 68 in order to hold the cover to the tub when the machine is being run, as the force exerted against the vanes 65 by the clothes and washing fluid tends to cause rotation of the tub relative to the cover. Without the clamps the tub would reciprocate while the vanes and the cover would tend to remain substantially stationary.

We claim as our invention:

1. For use in combination with a wash tub, tub supporting and driving means comprising: an open top housing; a vertical shaft rotatably mounted in said housing; a motor in said housing; means connecting said motor and said shaft for imparting an oscillating motion to said shaft; and a driving pan mounted on said shaft adapted to accommodate a wash tub, the main portion of said pan being within said housing, said pan having a peripheral flange extending over and beyond said housing, thereby forming a cover for said housing and acting to prevent entrance of liquid into said housing.

2. For use in combination with a wash tub, tub supporting and driving means comprising: an open top housing; a vertical shaft rotatably mounted in said housing; a motor in said housing; means connecting said motor and said shaft for imparting an oscillating motion to said shaft; a driving pan mounted on said shaft adapted to accommodate a wash tub, said pan having an annular raised portion, having an annular depressed portion surrounding said raised portion and terminating in an upwardly extending wall portion, said pan having an outwardly extending flange beyond said upwardly extending wall portion, said flange being adapted to extend over and beyond said housing; and an annular body of friction material disposed in said annular depressed portion.

WILLIAM A. WILLIAMS.
PAUL K. MISENHIMER.