Feb. 28, 1933. A. FAIRGRIEVE 1,899,459

WASHING MACHINE

Filed Jan. 21, 1931

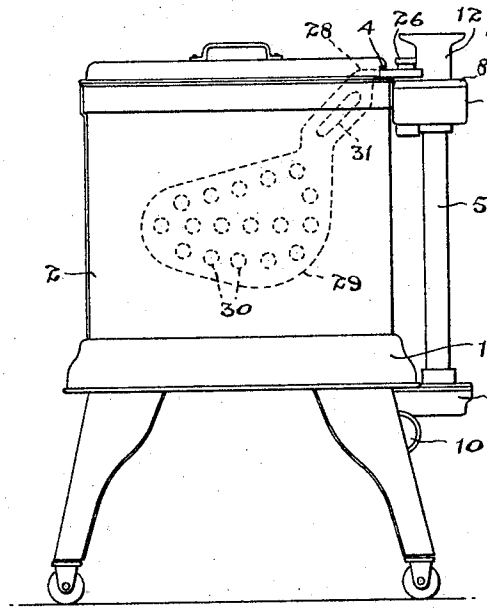


Fig. 1.

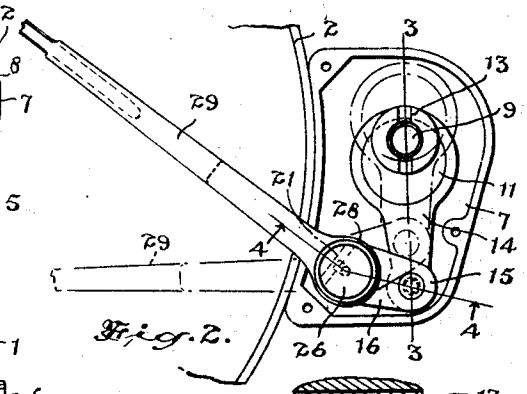


Fig. 2.

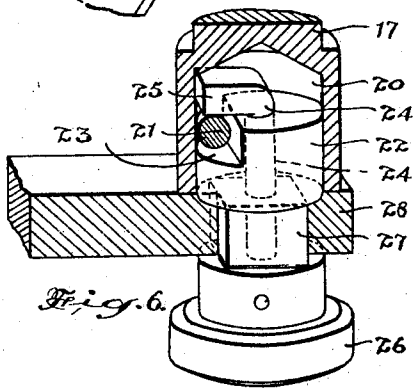


Fig. 6.

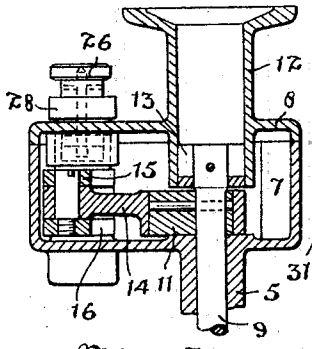


Fig. 3.

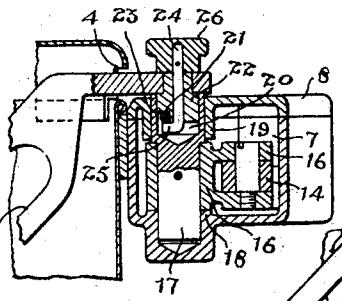


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE

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WASHING MACHINE

Application filed January 21, 1931. Serial No. 510,159.

The principal objects of this invention are to devise a very simple type of power operated washer which will be quite efficient in its operation, will be very simple to manipulate and which may be produced at extremely low cost.

The principal feature of the invention consists in the novel construction and arrangement of parts whereby an oscillatable member detachably connected to a power-driven member extends into and operates within a stationary tub.

In the accompanying drawing, Figure 1 is an elevational view of my improved washing machine.

Figure 2 is an enlarged plan view of the oscillatable member and the means for operating same.

Figure 3 is an enlarged vertical sectional view taken on the line 3—3 of Figure 2 with a cap for closing in the operating mechanism in place.

Figure 4 is an enlarged vertical sectional view of the operating mechanism taken on the line 4—4 of Figure 2.

Figure 5 is an enlarged elevational view of the oscillating member and illustrating its manner of mounting in the tub.

Figure 6 is a much enlarged perspective detail, (shown in an inverted position) taken from the bottom side of the means for locking the oscillating member in its operating position.

In the power driven washing machine art a very extensive development has occurred in connection with the operation of rotatable gyrators and reciprocable members. The structures are expensive and considerably beyond the means of a great number of people to procure and the prime object of this invention is to provide a power washer which will be available to a less affluent market.

In the construction herein shown a suitable base 1, preferably portable, is adapted to support a stationary tub 2 preferably of a plain cylindrical form which is provided with a cover which is formed with a slot 4 at one side of the rim.

A tubular standard 5 rigidly conected with a gear case 6 mounted on the base 1 extends vertically upward alongside of the tub 2 and has formed on its upper end a chamber 7 which is enclosed by a cap 8.

A vertical shaft 9 extends through the standard 5 from the gear case 6, the gears of which are operated in a suitable manner by a suitable type of electric motor 10.

The upper end of the shaft 9 has keyed thereto within the chamber 7 an eccentric block 11 and the upper end of said shaft extends into a cylindrical extension 12 which is open at the top and is adapted to receive the wringer standard, which is not shown.

Keyed to the upper end of the shaft within the extension 12 is a transversely slotted cylindrical block 13 adapted to be engaged by the key end of the wringer shaft.

A connecting rod 14 is mounted on the eccentric sheave 11 and its free end is connected in the jaw end 15 of an arm 16 which is keyed upon a pin 17 vertically mounted at one end of the chamber 7 and having its lower end journalled in a step bearing 18 and its upper end journalled in a bearing 19 formed in the cover 3.

The upper end of the pin 17 is slightly enlarged and is formed with a cylindrical recess 20 in the top and a key 21 in the form of a cross pin extends across the recess 20 to one side of the center.

A block 22 formed with a cylindrical end adapted to fit into the recess 20 is formed with a notch 23 at one side thereof, into which the key 21 extends when the block is placed in position, said key engaging the flat side of the notch so that the block becomes rigidly connected with the pin 17.

A rod 24 rotatably mounted axially of the block 22 is provided with a laterally turned end 25 adapted to hook under the cross key 21 to hold the block rigidly in position or to be turned to clear the pin to allow the block to be removed.

A knob 26 is rigidly connected to the upper end of the rod 24.

The block 22 has a squared portion 27 extending above the pin 17 and rigidly mounted thereon and held in place by the knob 26 is the upper end 28 of a paddle-shaped blade mem-

ber 29 which extends angularly downward therefrom into the tub 2.

The blade 29 is provided with a plurality of holes 30 adapted to allow the water to wash therethrough freely as the blade oscillates within the tub. The blade is provided with a slot 31 in the upper portion to form a handle by means of which the blade may be placed in position or removed from the tub.

The operation of this device is extremely simple. By turning the knob 26 the locking rod 24 is disengaged from the key pin 21 in the vertical pin 17 which is motor driven through the eccentric operation connections described and as the oscillator blade 29 is connected with the cylindrical block 22 and knob 26, it may be readily removed to permit the handling of the tub in any desired manner, or to be out of the way when handling the clothes while passing through the wringer or otherwise.

The blade 29 is as easily replaced by simply inserting the block 22 into the recess 20, pressing it down and swinging it until the key 21 engages the notch 23, then the knob is turned to lock it in position.

The rotation of the shaft 9 operates the eccentric sheave and connecting rod to rock the pin 17 in its vertical bearing. The blade 29 being rigidly connected with the pin 17, swings with an oscillating motion within the tub and the clothes placed within the tub are pushed back and forth in such a manner that the washing water is forced through the fabrics, the water flowing easily through the holes in the blade.

It has been found in practice that a washing machine constructed as described operates quite successfully in the cleansing of the clothes, is very easily handled, and as all the operating parts are external to the tub and have no mechanical connection therewith, many difficulties found in other machines, both as to cost of manufacture and operation are eliminated, and a simple, cheap and efficient washing machine is produced.

What I claim as my invention is:

1. In a washing machine, the combination of a tub, a standard rigidly mounted beside said tub having a vertically disposed power driven shaft therein, said standard being enlarged at its upper end to form a casing, a pin vertically journalled in said casing, means in said casing operatively connecting said shaft and pin to oscillate the latter, and a blade arranged in said tub having an upwardly and outwardly extending arm portion extending out over the top edge of said tub an detachably connected with said pin to be oscillated thereby, said blade being oscillated transversely of the tub axis from side to side of the tub.

2. In a washing machine, the combination of a tub, agitator-operating mechanism, confined solely exterior to said tub, and an agitator in said tub having an operating arm extending from said tub, said arm having a quick detachable operative connection with said operating mechanism at its outer end, said agitator being adapted to be lifted bodily from said tub, said arm being slotted intermediate of its length to receive the hand and facilitate the removal and replacement of said agitator.

ARCHIBALD FAIRGRIEVE.