

March 26, 1929.

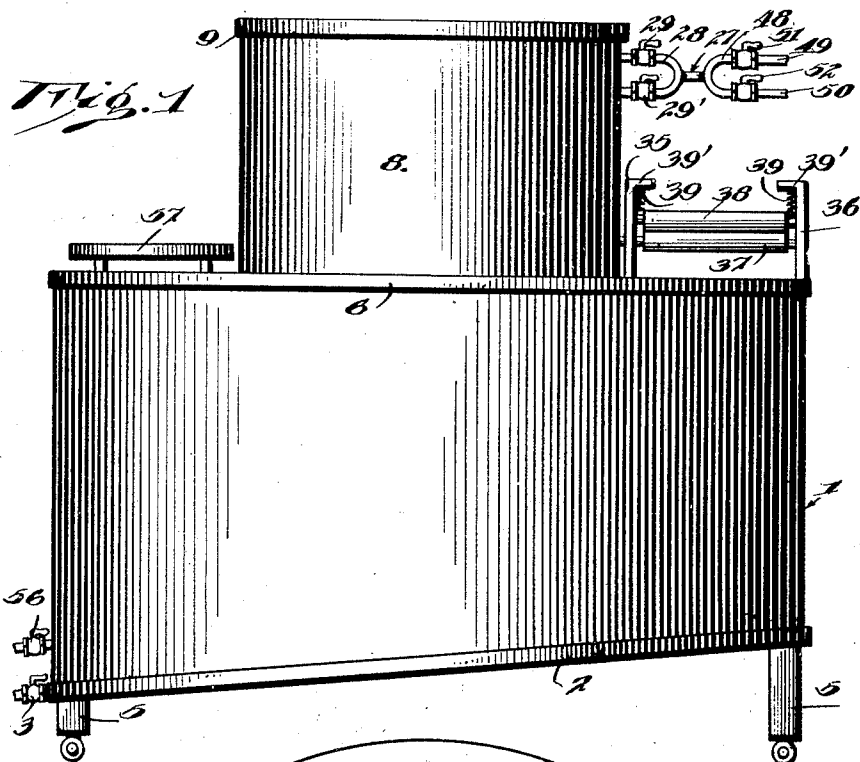
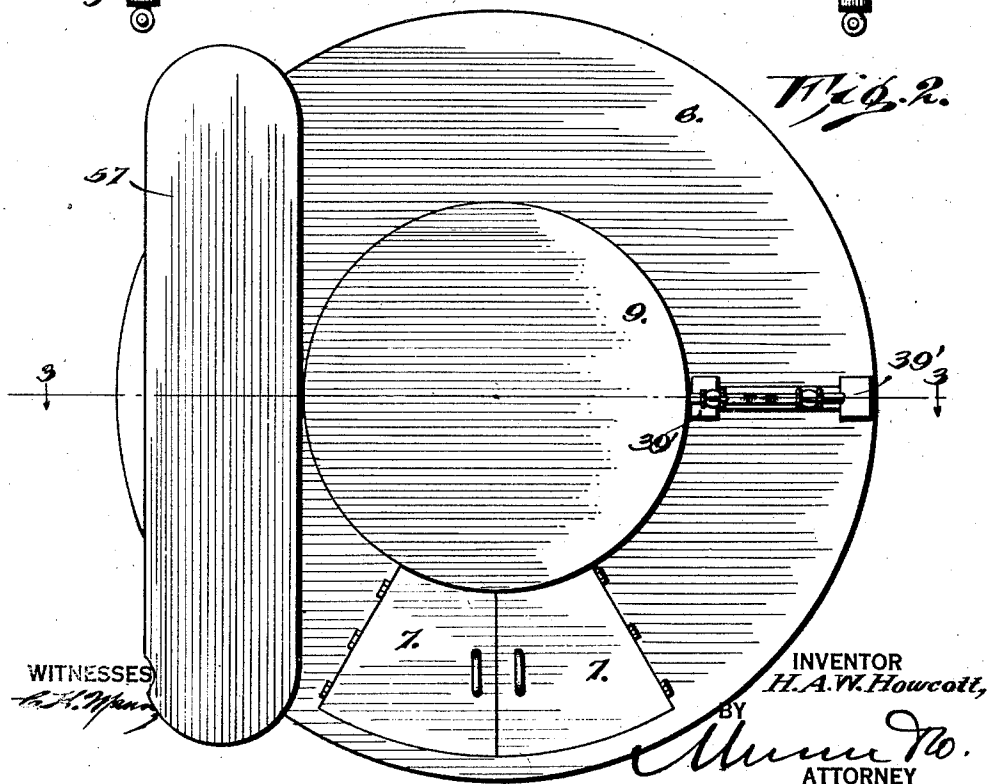
H. A. W. HOWCOTT

1,707,083

HYDRAULIC WASHING MACHINE

Filed July 5, 1928

3 Sheets-Sheet 1



WITNESSES

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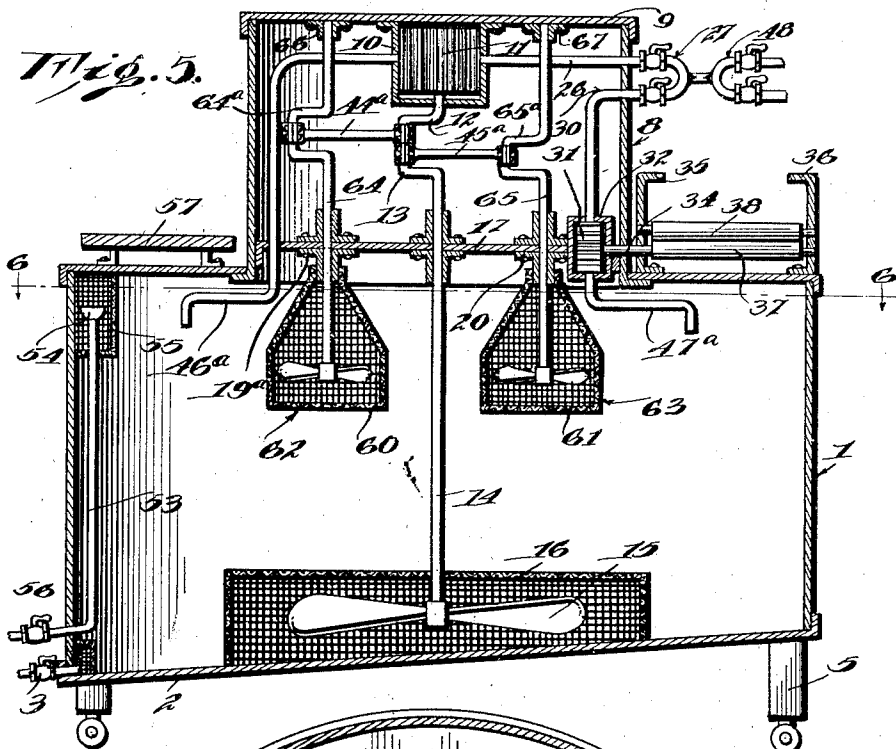
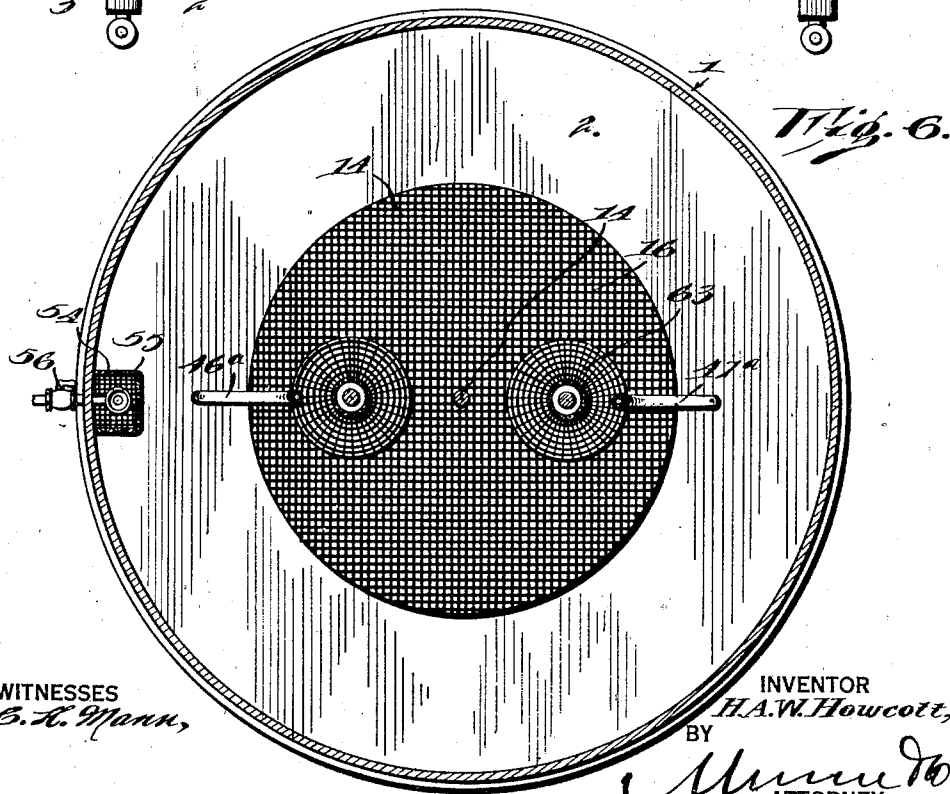
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HYDRAULIC WASHING MACHINE

Filed July 5, 1928

3 Sheets-Sheet 2



WITNESSES  
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**March 26, 1929.**

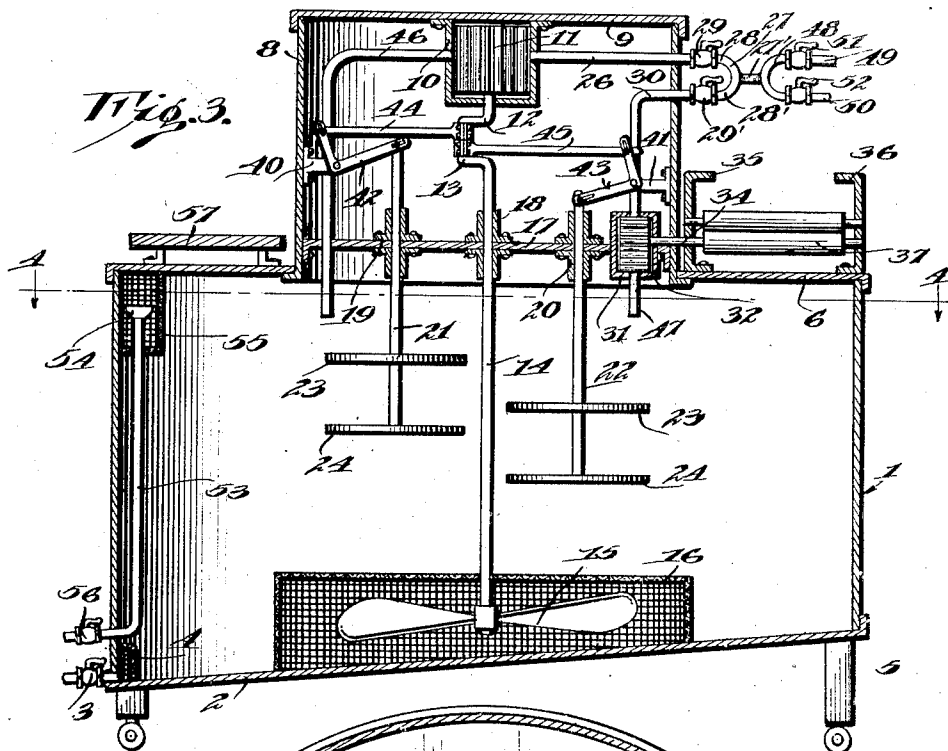
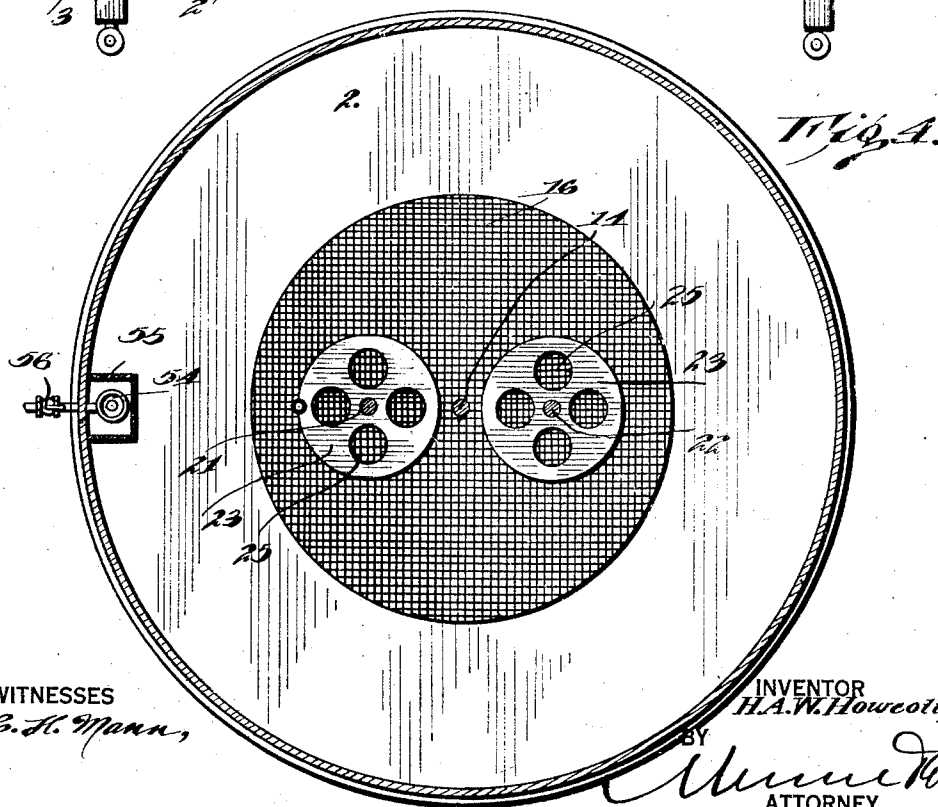
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## HYDRAULIC WASHING MACHINE

Filed July 5, 1928

3 Sheets-Sheet 3



WITNESSES  
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## UNITED STATES PATENT OFFICE.

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## HYDRAULIC WASHING MACHINE.

Application filed July 5, 1928. Serial No. 290,513.

This invention relates to hydraulic washing machines and a primary object thereof is to construct a machine of this character which may be connected by a hose to a house faucet or hydrant and either hot or cold water used for operating the machine and for cleansing the clothes and by means of which the fresh clean water will constantly pass through the machine in contact with the clothes so that they will be perfectly cleansed and rinsed.

Another object of the invention is to so construct a machine of this character that the operating parts will be housed and protected against water and so positioned that all danger of the clothing becoming entangled therewith is prevented.

Another object of the invention is to provide a machine of this character in which the operating parts are simple and yet effective and which is comparatively cheap in construction.

In carrying out these objects, the invention is susceptible of a wide range of modification without departing from the spirit or sacrificing any of the advantages of the claimed invention; there being shown in the drawings for illustrative purposes a preferred and practical form, in which:

Figure 1 represents a side elevation of a clothes washer constructed in accordance with this invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3;

Fig. 5 is a vertical section showing a slightly different form of the invention; and

Fig. 6 is a horizontal section taken on the line 6—6 of Fig. 5.

In the embodiment illustrated in Figs. 1 to 4 a tank or container 1 is shown which may be of any desired configuration being here shown cylindrical and which has a sloping floor or bottom 2 to provide for the draining off of water through a cock 3, the inner end of which is surrounded by a protective wire mesh cage 4.

This container or tank 1 is preferably mounted on castored legs 5 to adapt it to be moved readily from place to place.

A removable top 6 is securely fastened in any suitable manner on the container 1 and

is provided with outwardly swinging doors 7 to facilitate the entrance of the clothing without removing the top.

Rising at the center of the top 6 is an auxiliary container 8 designed to house and protect the operating mechanism of the machine. This container 8 is provided with a removable top 9 secured in any suitable manner to the container and depending from which is a water tight vessel or casing 10 in which is mounted a water wheel 11. The shaft 12 of this wheel passes through the bottom of the container 10 and has a crank portion 13 located in the container 8 and from which extends into the container 1 a straight portion 14 provided at its lower end with a propeller 15. This propeller 15 is surrounded by and protected by means of a wire mesh cage like casing 16 which permits the water to pass freely therethrough and yet prevents the clothing from becoming entangled with the propeller.

The floor or bottom 17 of the container 8 has a guide or water tight bushing surrounding the shaft 14 and is also equipped with similar bushings 19 and 20 through which pass shafts 21 and 22 which extend into the tank 1 and are designed to be reciprocated vertically in a manner presently to be described. These shafts 21 and 22 have mounted thereon spaced plungers or beaters 23 and 24 which are apertured or cut out as shown at 25.

A water inlet pipe 26 extends transversely through the wall of the container 8 and enters the container 10 and discharges against the water wheel 11 so that the force of the fluid entering through the pipe 26 will operate to drive the wheel 11 and impart motion to the shaft 12 which transmits its motion to the crank 13 and straight portion 14 thereby driving the propeller 15 and also operating to drive the plungers 23 and 24 in a manner presently to be described.

The pipe 26 on the outside of the container 8 is connected to a substantially Y-shaped pipe 27, the branch 28 thereof being connected by valved coupling 29 with the pipe 26 and by means of which the water is controlled through said pipe. A similar coupling 29' connects the branch 28' with another pipe 30 which extends through the side wall of the container 8 and has a depending portion 31 which enters a water

tight casing 32 located in the container 8 and in which is revolubly mounted a water wheel 33 against which the pipe 31 discharges and by means of which said wheel is driven by the water entering through said pipe. This wheel 33 has a shaft 34 which extends through the side wall of the container 8 and is journaled in supporting brackets 35 and 36 located on and rising from the top 6 of the tank 1. Secured to this shaft 34 between these brackets 35 and 36 is a roller 37 which cooperates with a similar roller 38 to form a clothes wringer. The roller 37 imparts motion to the roller 38 in a well known manner.

Coiled springs 39 are arranged between the journal of the roller 38 and laterally extending inturned flanges 39' of the brackets 35 and 36 and operate to resiliently hold the roller 38 in contact with the roller 37.

Two brackets 40 and 41 extend laterally inward from opposed side walls of the container 8 as shown in Fig. 3 and on which are fulcrumed bell crank levers 42 and 43, the lever 42 having one arm thereof loosely connected with a link 44 engaged with the crank portion 13 of the shaft 12 and its other arm loosely connected with the plunger rod 21. The lever 43 has one of its arms similarly connected with the link 45 connected with the crank portion 13 or shaft 12 and its other arm loosely connected with the plunger rod 22 so that on the rotation of the shaft 12 not only the propeller 15 will be driven but the plunger rods 21 and 22 will be reciprocated vertically in opposite directions thereby operating as beaters for cleansing the clothing contained in the tank 1 and to agitate the water therein.

A water outlet pipe 46 leads from the chamber 10 and discharges into the upper portion of the tank 1 while a similar pipe 47 leads from chamber 32 and discharges into the tank 1 also. These pipes, it will be understood, carry off the overflow water from the chambers 10 and 32 and discharge it to the tank where it may be used for cleansing the clothing therein.

The Y-shaped pipe 27 has a shank portion 27' thereof connected with an outwardly facing U-shaped pipe 48, the branches of which are connected with pipes 49 and 50, respectively, through which hot and cold water may be supplied to the container and which pipes are controlled by cocks 51 and 52 so that either hot or cold water may be supplied to the machine, or both.

An overflow pipe 53 is located within the tank 1 at the side where the bottom 2 is lowest and has its upper end 54 provided with a cup-shaped member enclosed with wire mesh casing 55 to protect it from contact with the clothing and which permits

the water, when it reaches a predetermined level within the tank, to flow out and be discharged through the lower end which extends through the side wall of the tank and is provided outside said tank with a regulating cock 56.

Located on the top 6 of the tank 1 preferably opposite the side on which the wringer is mounted is an ironing board 57.

In the form shown in Figs. 5 and 6 the construction is the same as that shown in the other figures except that instead of employing the vertically reciprocable plungers 23 and 24 rotary propellers 60 and 61 are provided in the upper portion of the tank 1 and housed within wire mesh casings 62 and 63 which protect the propellers against contact with the clothing. These casings 62 and 63 are shown secured to and depending from the guides or bushings 19<sup>a</sup> and 20<sup>a</sup> which are carried by the bottom 17 of the container 8.

The shafts 64 and 65 on which the propellers 60 and 61 are mounted extend through the bushings or guides 19<sup>a</sup> and 20<sup>a</sup> to the container 8 and are there provided with crank portions 64<sup>a</sup> and 65<sup>a</sup> with which the links 44<sup>a</sup> and 45<sup>a</sup> are connected at one end and at their other ends with the crank portion 13 of the shaft 12. The upper portions of these shafts 64 and 65 are journaled in bearings 66 and 67 carried by the lower face of the top 9 of the container 8. In all other respects the machine is the same as that described in Figs. 1 to 4 and consequently the same reference numerals have been employed on this form of the invention which correspond with those of the Figs. 1 to 4.

It will thus be seen that the water entering the chamber 10 through the pipe 26 will rotate the water wheel 11 thereby imparting rotary motion to the crank shaft 12 and operate to drive the propellers 15, 60 and 61 whereby the water within the tank will be kept constantly agitated and thrown out against the clothing contained therein to effect the cleansing thereof. The water which operates the wheel 11 passes out into the tank 1 through the pipe 46<sup>a</sup> and similarly the water which operates the wheel 31 to drive the ringer passes into said tank so that a constant supply of fresh water is fed to the tank 1 and passes out through the overflow pipe 53, it being understood that the drain cock pipe 3 is cut off unless it is desired to draw out all water from the tank 1.

The operation of the machine in this form is the same as that in the other form except that the propellers 60 and 61 revolve while in the form shown in Figs. 1 to 4 the beaters reciprocate vertically and alternately.

The downwardly inclining of the bottom 2 of the tank 1 toward one side provides for

the complete drainage of the water from the tank when desired.

It will be obvious that this machine may be quickly and easily connected with an ordinary house faucet or hydrant and in opening of the faucet will automatically actuate the machine so that after the clothing has once been placed therein no further attention will be necessary until it is desired to remove it when the cutting off of the water will effectively stop the machine and permit the manipulation of its contents.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will, of course, be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or its scope as claimed.

I claim:

1. In a clothes washer, a tank for the clothing to be cleansed and a cleansing fluid therefor, agitating means in said tank exposed to the body of the fluid in the tank, and a hydraulic motor for actuating said agitating means and for supplying cleansing fluid to the tank.

2. A washing machine comprising a container, an agitator therein, a chamber arranged above said container out of communication therewith, a water motor located in said chamber, means for supplying water to operate said motor, means for conducting the waste water from said motor to said container without contacting with the contents of the chamber, and a connection between said motor and said agitator whereby the latter is actuated by the former.

3. A washing machine comprising a container, an agitator therein, a water motor arranged above said container, a connection between said motor and said agitator whereby the agitator is actuated by the motor, means for supplying water under pressure to operate said motor, and a pipe connecting said motor with said container for conducting the waste water of the motor to the con-

tainer without contact of said water with the operating mechanism.

4. A washing machine comprising a container, an agitator therein, a water motor located above said container, a crank shaft connecting said motor with said agitator whereby the agitator is actuated by the motor, means for supplying water under pressure to operate the motor, a pipe leading from said motor to said container to conduct the waste water from the former to the latter, and an overflow pipe mounted in said container to conduct water therefrom after it reaches a predetermined point.

5. A washing machine comprising a container, a plurality of agitators located therein, a water motor arranged above said container, a crank shaft connected with said motor and with one of said agitators for imparting rotary motion to the agitator, a connection between said crank shaft and the other agitators for imparting a reciprocatory motion thereto, and means for supplying water under pressure to the motor for operating it.

6. A washing machine comprising a container having a bottom inclined downwardly toward one side thereof, an outlet pipe mounted in said side near the bottom to drain the container, an agitator in said container, a water motor connected to operate said agitator, a discharge pipe leading from said motor to said container whereby water is continuously supplied to the container during the operation of the motor, and means for discharging the water from the container.

7. A clothes washer comprising a tank for the clothing to be cleansed and a cleansing fluid therefor, fluid agitating means in said tank exposed to the body of fluid in the tank, fluid actuated means for operating said agitating means, and means for conducting the actuating fluid to the tank without its contact with the operating mechanism.

Signed at New Orleans, in the parish of Orleans and State of Louisiana, this 2nd day of July, 1928.

HARLEY A. W. HOWCOTT.