

R. D. ROBINSON.
ELECTRIC WASHING MACHINE.
APPLICATION FILED JUNE 20, 1912.

1,059,071.

Patented Apr. 15, 1913.

2 SHEETS—SHEET 1.

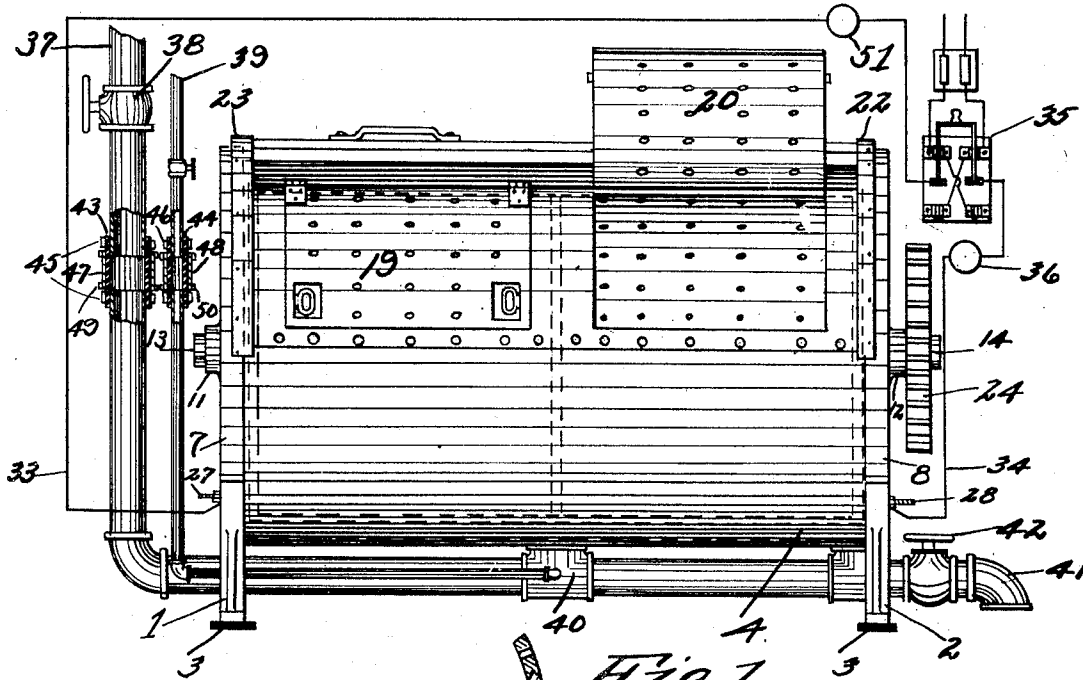


Fig. 1

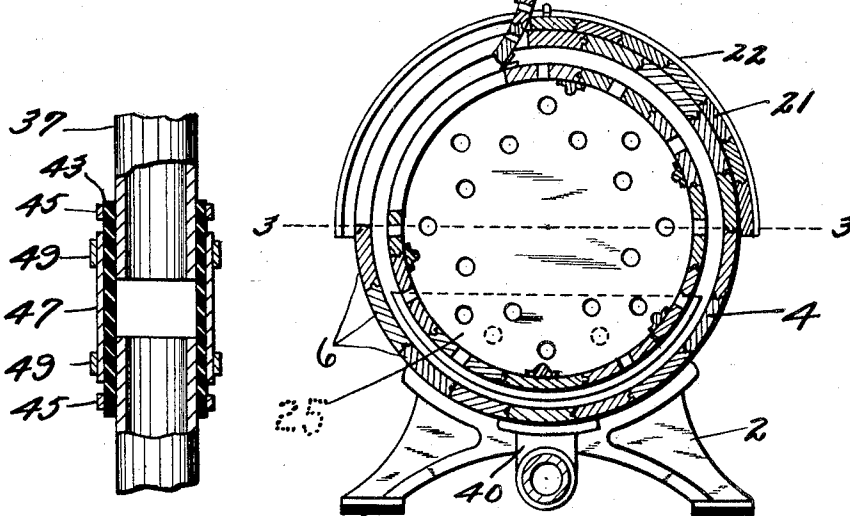


Fig. 2.

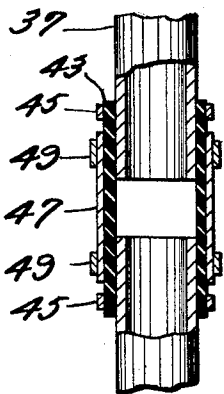


Fig. 3.

Inventor

Richard D. Robinson

Witnesses

H. M. Gillespie

A. L. Phelps

By

C. C. Shepherd

Attorney

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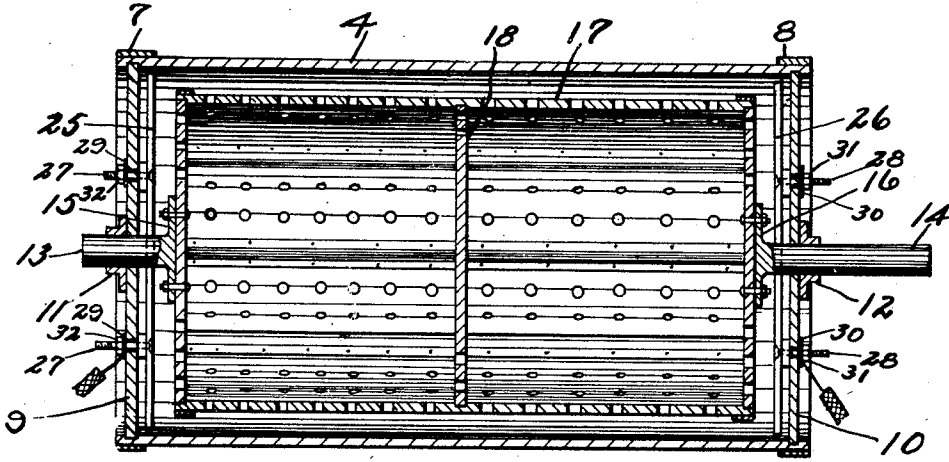


Fig. 4

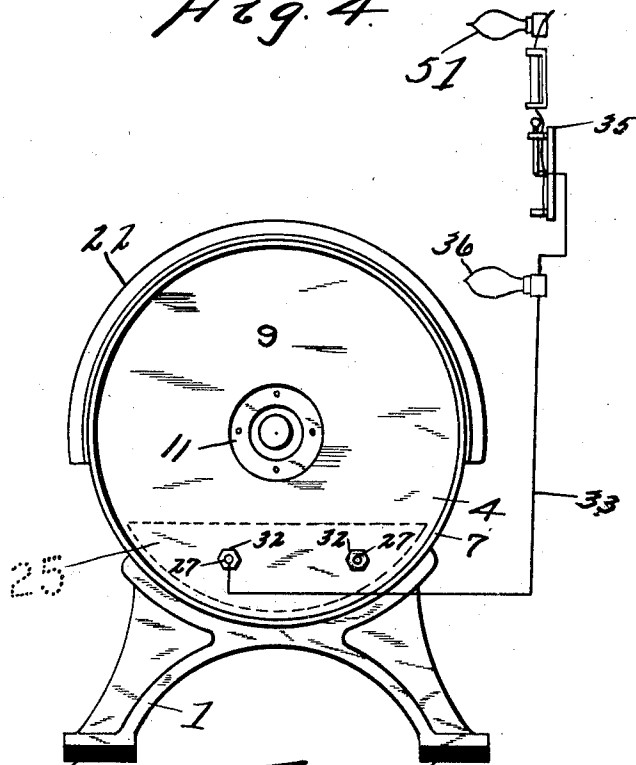


Fig. 5

Inventor
Richard D. Robinson

Witnesses
H. M. Gillespie
A. L. Phelps

334

C. C. Shepherd
Attorney

UNITED STATES PATENT OFFICE.

RICHARD D. ROBINSON, OF NEW YORK, N. Y.

ELECTRIC WASHING MACHINE.

1,059,071.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed June 20, 1912. Serial No. 704,858.

To all whom it may concern:

Be it known that I, RICHARD D. ROBINSON, a citizen of the United States, residing at New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Electric Washing-Machines, of which the following is a specification.

My invention relates to electric washing machines and is particularly directed to the provision of an attachment therefor which, in addition to assuring the passage of an electric current through the fluid contained in the machine, provides a means for automatically cleansing the electrodes of the machine from the deposit thereon due to the electrolytic action which is being carried on. When electric washing machines are utilized in connection with an alternating current of electricity, there is little difficulty due to deposit upon the electrodes, because of the constant reversal of the current. However, the majority of electric washing machines are used with direct current and after a reasonable amount of use, their efficiency deteriorates materially, due to the accumulation of extraneous matter upon one of the electrodes. To attain practical results in an electric washing machine wherein the current is passed through the solution contained in the machine, it is important that there be a maximum area of electrode surface below and within the fluid. When this is done in the usual washing machine, it is essentially difficult to remove these plates for cleansing without dismantling the washing machine. Furthermore, washing machines of the normal type and of the type to which my attachment is preferably applicable, do not afford sufficient space for rendering the plates accessible for cleansing. Thus, my improvement resides, first, in the provision of an automatic cleansing means for the electrodes.

In all washing machines of the type to which my invention is preferably applicable, there are pipes for introducing hot and cold water and steam. In those washing machines wherein there is utilized a conducting solution and an electric current passing therethrough, I have discovered that there is inevitably considerable leakage through these pipes and a part of my invention resides in the provision of a means

for producing an insulated break in these pipes above the normal water line.

In addition to the above features, I have found that there is a great waste of electricity in running electric washing machines, the reason of this being particularly apparent when it is considered that the various qualities of goods to be washed, differ in their strength and closeness of fiber and are consequently responsive to and cleansable by the passage of currents varying widely in amperage. Therefore, I have discovered that I can effect an immense saving by the use of a rheostat, preferably in the form of one or more indicating lamps placed in series for indicating when the required amperage is passing through the washing machine.

The preferred embodiment of my invention is shown in the accompanying drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 is a side elevation of an electric washing machine equipped with my improvements, Fig. 2 is a vertical transverse section of my improved washing machine, Fig. 3 is a detail view of the preferred type of insulation which I use for insulating the pipes of my washing machine, Fig. 4 is a horizontal longitudinal section of the casing and inner drum of my washing machine, and Fig. 5 is an end elevation of my washing machine with certain of the elements removed therefrom.

In the drawings, the washing machine is shown as comprising end supports 1 and 2 preferably mounted upon insulating blocks 3 and carrying a casing 4 preferably of cylindrical form and comprised of staves 6 bound together by end hoops or bands 7 and 8. This casing 4 is preferably formed in superimposed sections to facilitate the dismantling of the machine and at the point of juncture of the sections, the ends 9 and 10 carry trunnions 11 and 12 for the support of shafts 13 and 14. These shafts 13 and 14 are respectively provided at their inner ends with integral plates 15 and 16 to be bolted to the ends of the inner drum. This drum, designated 17, is desirably of perforated cylindrical form, having perforations both in its sides and in its end plates and being rigidly connected as stated to the plates 15

and 16 of the shafts 13 and 14. The drum is further desirably partitioned as at 18, although as many partitions as may be desired may be mounted therein. This partition forms compartments which are accessible through the medium of hinged doors 19 and 20. The casing 4 is preferably likewise provided with a door 21 concentrically mounted upon such casing and slidable in guideways 22 and 23. The inner drum may be rotated or oscillated by the use of any mechanism in connection with a gear wheel 24.

Means for sending an electric current through the washing machine, comprises electrode plates 25 and 26 which are mounted within the casing at either side thereof below the center of the driving shafts 13 and 14 and which are mounted upon the end plates by means of bolts 27 and 28 insulated as at 29 and 30 and clamped by nuts 31 and 32 operating against washers and forming means for clamping wires 33 and 34 in position to conduct a current to and from the said electrodes. The wires 33 extend to a double-throw switch 35, while the wire 34 passes through a lamp 36 to such double-throw switch. The position of the electrodes as shown in Fig. 4, makes it apparent that considerable difficulty would be had in cleansing such electrodes because of the difficulty of access thereto. However, my invention renders this unnecessary, for the reason that in the use of a direct current, the double throw switch may be changed as to position approximately once a day and this will effectively nullify the tendency toward the formation of a deposit upon their electrodes.

It will be understood that the current in leaving one electrode will pass through the solution within the tank, which may be and preferably is formed of water charged with sodium chlorid and the location of electrodes at either end of the tank, causes a complete passage of the current through the fluid from end to end of the tank, it being understood that the partition 18 is perforated.

An accurate check upon the current passing through the tank is given by the lamp 36, which may be of any candle power, since lamps of various sizes will permit the passing of correspondingly varying currents which may be very closely approximated by the luminosity of the lamp.

By the use of this improvement, it is possible at all times to regulate the amount of current directed into and through the tank and at the same time having a visual indication of the passage of the current.

The casing of my improved tank is desirably provided with a main feed pipe 37 which is desirably fed by hot and cold water pipes above the cock 38 which is preferably

disposed above the water line of the washing machine. Likewise, the pipe 37 is fed by a steam pipe 39 and the said pipe 37 enters the casing as at 40, being provided with a discharge nozzle 41 and a controlling cock 42. Above the water line of the casing, the pipes 37 and 39 are broken and connected together by insulating sleeves 43 and 44 which are held in relation by rings 45 and 46 and by metallic sleeves 47 and 48, further clamped by rings 49 and 50. These breaks in the pipes are disposed above the water level, for the reason that the fluid used in washing is operative to conduct a current and accordingly would otherwise bridge the break. As the device is shown, however, the washing machine proper is amply insulated from the feed pipes and all danger of leakage is obviated.

From the above, it will be apparent that I have provided an electric washing machine inherently superior in several respects to devices in the prior art and constituting a distinct advance over the prior art.

One of the peculiar advantages of my invention, resides in the fact that I am enabled to utilize chlorin as a bleaching element and to furthermore, produce the chlorin by the direct action of the current passing between the electrodes. Preferably, I accomplish this by introducing sodium chlorid in solution at a proper degree of heat and the inevitable result is the formation of chlorin, which acts directly upon the clothes or materials being washed. It will be understood, however, that though my invention is peculiarly adaptable to this formation of chlorin practically during the process of treatment of the articles, it is not limited in its application and is equally efficacious with various other solutions.

Under certain conditions, and particularly when there are a number of machines in operation in a plant, the "ground", from one machine to another or otherwise, is so heavy that there is great danger of fire caused by sparking. Therefore, I find it desirable to insert an extra lamp 51 in series in the circuit and in return wire 33. Thus it will be noted that I have a lamp in the return wire from the tub no matter in which direction the current is flowing. It is, of course, understood that these lamps control the amount of resistance in the circuit and consequently the amount of current passing through the tub. The lamp in the return circuit also takes the form of a detector in the sense, that if one lamp is burning bright and the other is not, the operator at once comes to the conclusion that the current is not returning by way of the return wire, but through a ground. As soon as the ground is found, the lamp will again become lighted.

What I claim is:

1. In an electric clothes washing machine, 130

a plurality of electrodes fed from a source of direct current supply, and means for cleansing said electrodes while in assembled condition with respect to the washing machine.

2. In an electric clothes washing machine, a plurality of electrodes fed from a source of direct current supply, means for cleansing said electrodes while in assembled condition with respect to the washing machine, and means for regulating the current flowing between said electrodes.

3. In an electric clothes washing machine, a plurality of electrodes fed from a source of current supply, and means for reversing the polarity of the electrodes.

4. In an electric clothes washing machine, electrodes fed from a source of current supply, and a double-throw switch controlling the passage of current to and from said electrodes.

5. In an electric clothes washing machine, electrodes fed from a source of current supply, means for reversing the polarity of the current passing to and from said electrodes, and means for regulating the amperage of such current.

6. In an electric clothes washing machine, electrodes fed from a source of current supply, a double throw switch for reversing the polarity of the current passing to and from

said electrodes, and means for regulating the amperage of such current.

7. In an electric clothes washing machine, a plurality of electrodes fed from a source of direct current supply, means for cleansing said electrodes while in assembled condition with respect to the washing machine, and means for insulating said machine against the straying of said current.

8. In an electric clothes washing machine, means for passing a current through a solution contained in said machine and pipes for feeding steam and water to said washing machine, all of said pipes in electrical contact with the solution having an insulated break above the solution level of the washing machine.

9. In an electric clothes washing machine, electrodes fed from a source of current supply, means in circuit with the return current conductor from said machine for indicating the existence of a ground, and means for cleansing said electrodes while in assembled condition with respect to the washing machine.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD D. ROBINSON.

Witnesses:

WALTER E. S. BOCK,
A. L. PHELPS.