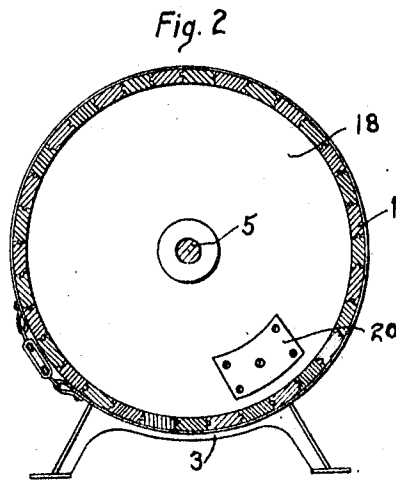
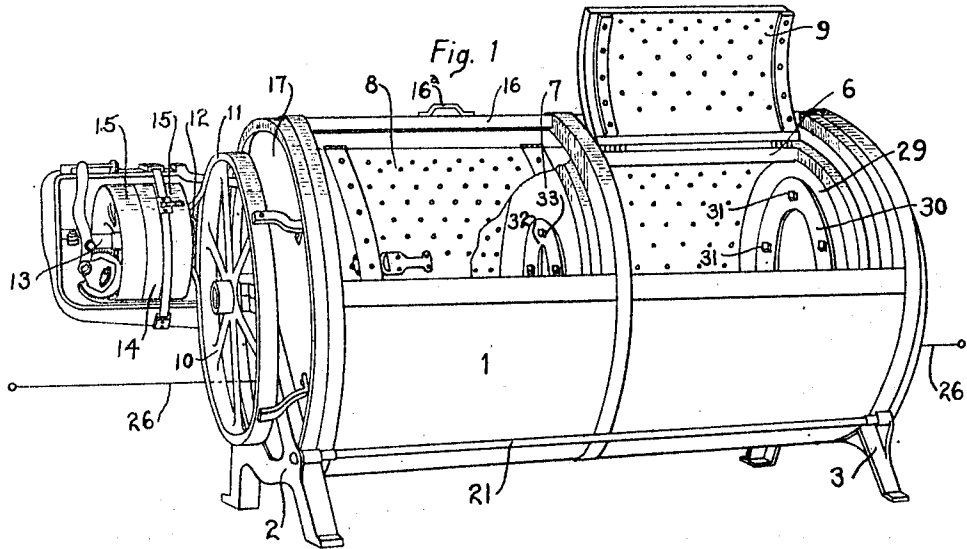


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WASHING MACHINE.  
APPLICATION FILED JULY 24, 1912.

1,040,370.

Patented Oct. 8, 1912.  
2 SHEETS—SHEET 1.



Inventor  
Paul Mc Dorman

Witnesses

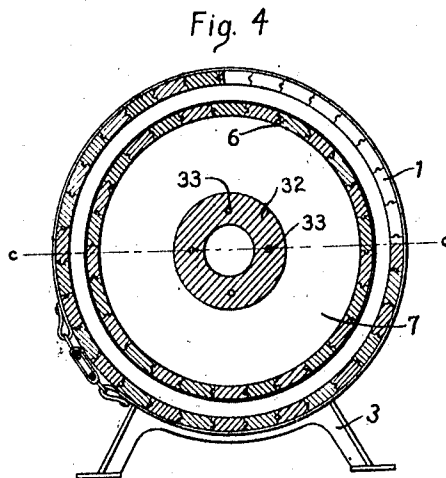
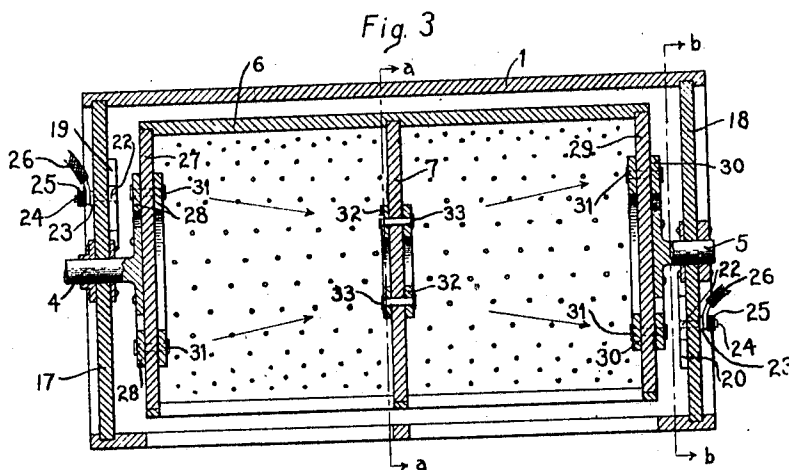
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# UNITED STATES PATENT OFFICE.

PAUL McDORMAN, OF DAYTON, OHIO, ASSIGNOR TO THE NATIONAL LAUNDRY MACHINERY COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

## WASHING-MACHINE.

1,040,370.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed July 24, 1912. Serial No. 711,224.

*To all whom it may concern:*

Be it known that I, PAUL McDORMAN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Washing-Machines, of which the following is a specification.

This invention relates to new and useful improvements in machines for cleansing and washing clothes, and particularly to that type of machine in which the cleansing is principally effected by electrolytic action.

In a machine of the above character it is necessary that there be a complete circulation of the electric current through the fluid employed for cleansing purposes.

The object of the invention, therefore, is to provide a washing machine comprising a tank and revoluble receptacle therein, in which both the tank and receptacle are equipped with electrodes mounted in different planes and at suitable distances from each other to effect a complete and thorough circulation of the current through the cleansing fluid.

With the above and other incidental objects in view, the invention consists in the novel arrangement and construction of parts hereinafter described in the following specification and particularly pointed out in the subjoined claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved washing machine, partly broken away. Fig. 2 is a vertical section of the same taken on the line *b-b* of Fig. 3. Fig. 3 is a longitudinal section taken on the line *c-c* of Fig. 4. And Fig. 4 is a vertical section taken on the line *a-a* of Fig. 3.

Throughout the specification and drawings similar reference characters denote corresponding parts.

In a detailed description of my invention, 1 designates an oval tank mounted upon castings or standards 2 and 3. This tank is preferably made of wood or other suitable non-conducting material. Suitably journaled in bearings provided in the castings 2 and 3 are shafts 4 and 5 respectively, which support a cylinder 6 adapted to rotate within the tank 1. This cylinder 6, which is preferably constructed of wood or other non-conducting material, is divided into two

compartments by a partition 7, and may be still further divided by the provision of additional partitions.

For the purpose of conveniently inserting and removing the material to be washed, the cylinder 6 is provided with an opening on each side of the partition 7, said openings being each covered by hinged doors 8 and 9, the hinged door 9 being shown in a raised position in Fig. 1. These doors are suitably perforated, as well as the shell of the cylinder 6, to admit the washing fluid to the interior of the cylinder when the doors are closed.

For the purpose of agitating the clothes therein, the cylinder 6 is rotated by the following mechanism. Mounted upon the outer end of the shaft 4 is a gear 10 protected by a gear guard 11 (see Fig. 1). The gear 10 meshes with a pinion 12 carried by the shaft 13 upon which a fast pulley 14 and loose pulleys 15 are also mounted. These pulleys are adapted to be connected with any suitable type of prime mover. The tank 1 is provided with openings of sufficient size to permit the openings in the rotating cylinder 6 to be readily accessible for the insertion and removal of the material to be cleansed. When the machine is in operation, the openings in the tank 1 are each closed or covered by a sliding door 16 provided with a handle 16<sup>a</sup>.

Suitably secured to the lower portion of each of the heads 17 and 18 of the tank 1, are electrodes 19 and 20 respectively. These electrodes may be made of any suitable material, and are secured to the heads 17 and 18 in such positions that they may at all times lie wholly within the cleansing fluid in order that the passage of current between them may not be interrupted for want of a conducting agent. The tie rods 21 which connect the castings 2 and 3 are preferably constructed of tough wood or other non-conducting material in order that the current may not pass through them instead of the fluid. The electrode 19 is so secured to the cylinder head 17 as to lie on the left hand side of the tank 1, while the electrode 20 is so placed on the cylinder head 18 as to lie on the right hand side of the machine. This positioning of the electrodes 19 and 20 permits a longer path of travel to the cur-

rent passing between them than would be the case if said electrodes were in horizontal alinement, and results in a wider circulation of said current through the cleansing fluid.

Extending from the electrodes 19 and 20 through the tank heads 17 and 18, are pole pieces 22 having flanged portions 23 fitting closely against the outer faces of said heads. These pole pieces have screw-threaded portions 24 which extend beyond the flanges 23 and which receive screw-threaded caps 25, said caps and flanges adapted to hold between them the terminals of service wires 26, thus establishing a connection between the electrodes 19 and 20 and the said wires.

In order that the circulation of the current through the cleansing fluid may be as thorough and complete as possible, the following electrodes are provided, which are so constructed and situated as to cooperate with the electrodes 19 and 20 in directing said current through a wide area of the cleansing fluid. Secured to the cylinder head 27, one on each side thereof, are electrodes 28, which are preferably circumferential metallic bands adapted to receive bolts 31 which not only serve as means for securing the electrodes to the cylinder head 27, but as electrical connections between them. Also secured to the cylinder head 29, one on each side thereof, are electrodes 30 similar to the electrodes 28 and similarly attached to said cylinder head by bolts 31. When the washing machine is ready for use, the tank 1 is filled to approximately half its depth with the cleansing fluid. Accordingly, in order that the electrodes 28 and 30 may at all times be in contact with the cleansing fluid during the rotation of the cylinder 6, said electrodes are made circular as hereinbefore described. Secured to the partition 7, one on each side of the central portion thereof, are electrodes 32 similar to the electrodes 28 and 30, but of much less diameter than the latter. Therefore, since the partition is made of non-conducting material with the exception of the bolts 33 and electrodes 32, the current will be deflected from the straight path it would otherwise take in passing through the solution between the electrodes 28 and 30. This inwardly and outwardly flaring path of the current through the cleansing fluid will be as follows, as indicated by the arrows in Fig. 3. When the electrodes 19 and 20 are connected, through the pole pieces 22, with the service wires 26, and the tank 1 filled to approximately half its depth with the cleansing fluid, the current will pass from the electrode 19, through the solution, to the outer electrode 28 carried by the cylinder head 27, and thence through the bolts 31 to the inner electrode 28 secured to said cylinder head. Since the cylinder 6 and parti-

tion 7 therein, are constructed of non-conducting material with the exception of the electrodes and connecting bolts, the only possible path of the current through the fluid in said cylinder will be from the inner electrode 28 of the cylinder head 27, through the electrodes 32 and connecting bolts 33, to the inner electrode 30 of the cylinder head 29. From thence it will flow through the bolts 31 to the outer electrode 30 of the cylinder head 29, and thence to the electrode 20. Since the electrodes 32 are materially smaller in size than the electrodes 28 and 30, they will deflect the current from the straight path it would otherwise take between the latter electrodes. This deflection in the path of the current effected by the difference in size and position of the electrodes 28 and 30, and the electrodes 32, makes possible a more thorough and complete circulation of the current through the cleansing solution than would be the case if such path were marked by unbroken straight lines. This wide distribution or circulation of the current through the cleansing fluid, thoroughly subjects the articles contained within the cylinder 6 to the cleansing action resulting from the decomposition of the fluid by the electric current. And this electrolytic action is the more effective in proportion to the amount of cleansing fluid presented to the electric current. To this end the electrodes 28, 30 and 32 cooperate with the electrodes 19 and 20 in effecting a wide circulation of the current through the cleansing solution. In addition they increase the number of electric poles from which the cleansing gases are given off. If only the two electrodes 19 and 20 are employed, there would be but one positive pole from which the cleansing gases would be given off, but by the provision of additional electrodes so positioned and constructed as are the electrodes 28, 30 and 32, more positive poles are created from which the cleansing or bleaching gases are emitted. In my invention I preferably employ a direct current of electricity of standard voltage, and a salt solution.

I do not wish to be limited to the particular embodiments of the invention herein shown and described, and any changes or modifications may be made therein within the scope of the subjoined claims.

Having described my invention, I claim:

1. In a machine for cleansing and washing clothes, a fluid-containing tank, an electrode secured to the inner face of each head thereof to receive electric current, a revolvable receptacle mounted within said tank, and electrodes mounted in said receptacle in different planes and at suitable distances apart to cooperate with the first named electrodes in effecting a thorough circulation of the current through the fluid and increasing the

number of electric poles from which the cleansing gases are given off, substantially as described.

2. In a machine for cleansing and washing  
5 clothes, a tank adapted to contain a fluid, an electrode secured to the inner face of each head of said tank to receive electric current, a revoluble cylinder mounted within said tank, a partition separating said cylinder  
10 into compartments, and electrodes secured to said partition and the cylinder heads to coöperate with the first named electrodes in effecting a thorough circulation of the current through the fluid and increasing the  
15 number of electric poles from which the cleansing gases are given off, substantially as described.

3. In a machine for cleansing and washing

clothes, a tank adapted to contain a fluid, an electrode secured to the inner face of each  
20 head of said tank, in positions wholly within the fluid, a revoluble cylinder mounted within said tank, a partition separating said cylinder into compartments, and circum-  
25 ferential electrodes mounted on said partition and the cylinder heads to coöperate with the first named electrodes in effecting a thorough circulation of the current through the fluid, substantially as described.

In testimony whereof I have hereunto set  
30 my hand this 22nd day of July, 1912.

PAUL McDORMAN.

Witnesses:

HOWARD S. SMITH,  
DAVID M. ROWE.