June 9, 1931. C. L. MINER 1,809,177

WASHING MACHINE

Filed May 9, 1928

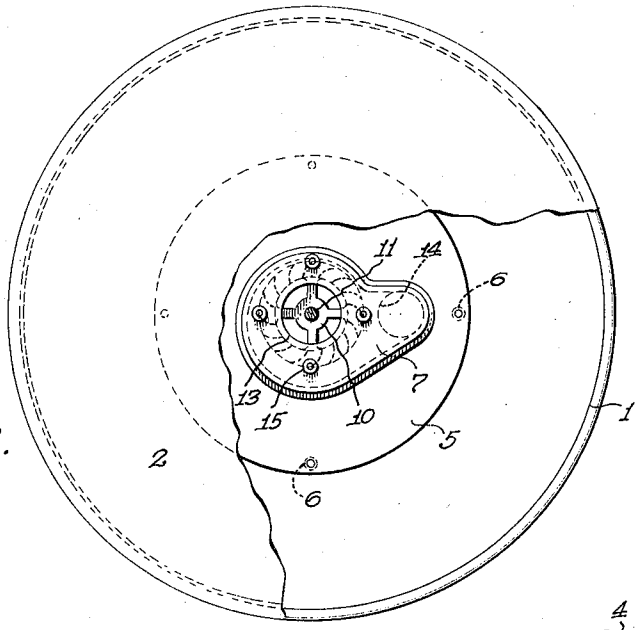


Fig. 2.

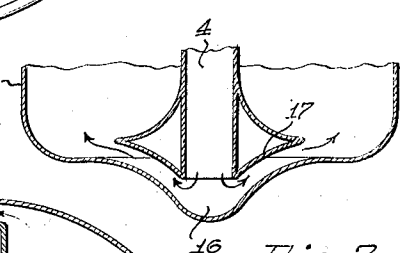


Fig. 3.

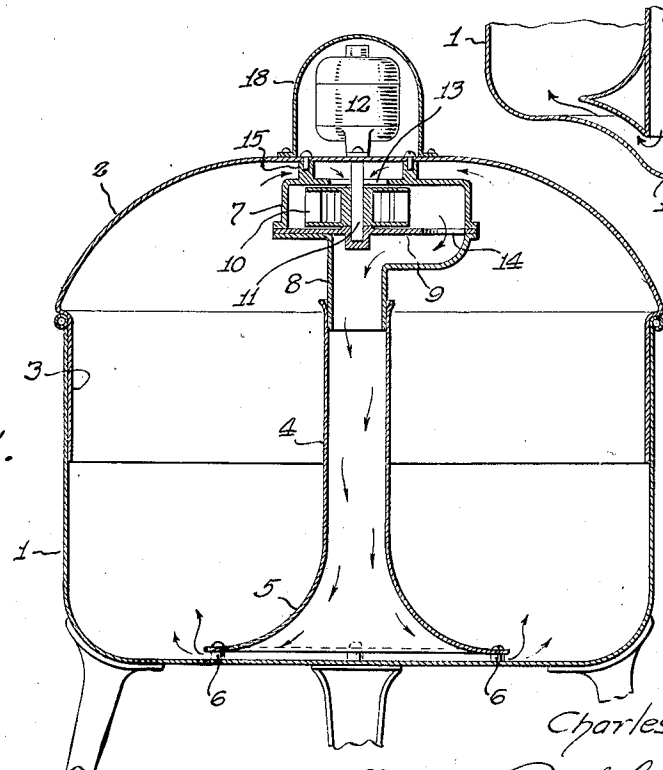


Fig. 1.

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# UNITED STATES PATENT OFFICE

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## WASHING MACHINE

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This invention relates to a device for cleansing articles by a flow of air under pressure through a body of cleansing fluid within which the articles are immersed, and more particularly to a machine adapted for washing clothing, dishes, or other articles which may be placed within a suitable water receptacle.

An object of the invention is to provide a machine for the purpose which is simple in construction, efficient in operation, and may be cheaply manufactured. It is also an object to provide a machine, the construction of which is such that it may be manufactured in small sizes, particularly adapted for use in apartment houses, to be placed upon or within a sink and small quantities of clothing or dishes washed therein with facility and thoroughness.

Other objects of the invention will more fully appear as the description of the invention proceeds.

With the above and other ends in view, the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which

Fig. 1 is a transverse vertical section through a device illustrative of an embodiment of the present invention;

Fig. 2 is a plan view of the same with portions broken away and in section to more clearly disclose the construction, and

Fig. 3 is a sectional detail of the lower end portion of the water receptacle and central air tube therein, showing a slightly modified construction.

In the drawings 1 indicates a receptacle, tub or basin of desired size and form adapted to hold a quantity of cleansing water in which the articles to be cleansed are immersed, and 2 is a suitable cover for closing this receptacle to make the same practically air tight, this cover being formed with a comparatively wide flange 3 which fits closely within the upper end of the receptacle 1 so that very little or no air can escape from the interior of the receptacle past this flange and the flange will make a water tight joint with the upper part of the receptacle.

The receptacle 1 is preferably of circular form in plan view and supported centrally within this receptacle is an air tube 4 having its upper end substantially in the plane of the upper edge of the receptacle and its lower end flared or formed bell shape, as at 5, with this end supported upon blocks or studs 6 in spaced relation to the bottom of the receptacle. Screws or other suitable means secure the tube firmly in place upon the studs and the annular space between the bell mouth of the tube and the bottom of the receptacle is comparatively narrow, restricting the escape of air passing down the tube and causing this air to flow toward the outer wall of the receptacle.

Depending from the cover 2 is a casing 7 and this casing is formed with a downwardly extending tubular portion 8 adapted to engage within the upper end of the tube 4. The casing is also provided with a transverse partition 9 and mounted upon this partition is a rotary wheel or blower 10 which is secured to a shaft 11 of a motor 12 mounted on top of the cover 2 within an auxiliary casing 18 secured upon the cover.

In the upper side of the casing 7 is an air inlet opening 13 and a discharge opening 14 is provided at one side of the casing in the partition 9 so that rotation of the blower wheel 10 will draw air in through the opening 13 and discharge it peripherally and out through the opening 14 from which it passes laterally into the extension 8 and thence down the air tube 4. The casing 7 is suspended from the cover 2 by means of suitable spacing lugs 15 on the casing so that a space is provided between the casing and the cover through which air may be drawn by the fan 10 from the interior of the receptacle. The motor 12 is preferably a small electric motor so that the cover 2 with the motor and fan or blower mounted thereon may be readily handled and placed upon the receptacle 1 after water and articles to be washed are placed within the receptacle.

The fan or blower 10 is driven at a high speed by the motor and draws in air and

hot steam rising from the hot water within the receptacle and forces this steam and air with considerable force downwardly through the air pipe 4 where it is discharged at the bottom of the receptacle through the narrow space between the bell of the tube and the bottom of the receptacle and passes laterally toward the outer wall of the receptacle and up through the body of hot water and through the clothing or other articles immersed therein, setting up extreme agitation of the water and thus thoroughly cleansing the articles. As the cover fits tightly upon the receptacle, practically no air or steam can get into or out of the receptacle and this air and steam is therefore circulated over and over again through the body of water and articles therein being cleaned. A rapid cleansing is therefore effected.

In the modification shown in Fig. 3, the lower end of the air tube 4 is supported within and adjacent to a depression 16 in the bottom of the receptacle, said bottom being curved outwardly and upwardly from said depression with a sweeping curve, and the lower end portion of the tube is provided with a curved deflector 17 spaced from the curved bottom of the receptacle a short distance so that the air passing down the tube 4 is discharged into the depression 16 and then is deflected outwardly through the narrow passage between the deflector 17 and the bottom of the receptacle, toward the outer annular wall of the receptacle, the air under pressure is therefore directed toward the outer wall of the receptacle, and distributed through the body of water, agitating all parts of the clothing in the water and causing flow of water through the clothing.

Because of its construction, the device is easy to handle and the motor and fan are carried by the cover and housed therein so that these parts are removed as a unit from the receptacle to permit the placing of water and articles to be cleansed within the receptacle.

The particular form of motor and blower and arrangement thereof, may be varied according to the type of device which it is desired to use, and other changes in the construction and arrangement of parts, within the scope of the appended claims, may be made without departing from the spirit of the invention, and I do not therefore limit myself to the particular construction shown.

Having thus fully described my invention, what I claim is:—

1. A washing machine comprising a cylindrical receptacle, a cover for tightly closing said receptacle, a vertical air tube arranged axially within the receptacle and secured to the bottom thereof, said lower end being flared outwardly toward the side walls of the receptacle with the edge thereof spaced therefrom and from the bottom of the receptacle for directing air passing down the tube laterally toward the outer vertical wall of the receptacle, a blower casing suspended within the cover with a space between the casing and top of the cover providing passageways leading to an air intake opening in the casing, a blower wheel within the casing, a tubular downwardly extending air discharge member on the casing adapted to engage within the upper end of the air tube in the receptacle, a motor mounted upon the cover with its shaft extending downwardly into the blower casing with the blower wheel secured thereto, and a casing for enclosing the motor.

2 A washing machine comprising a receptacle, a cover for tightly closing said receptacle, a vertical axial tube in said receptacle supported at its lower end upon the bottom of the receptacle and having its lower outlet end spaced from the bottom of the receptacle and its upper end adjacent the plane of the top of the receptacle, air propelling means, a casing for said propelling means wholly within and suspended from the cover having an air inlet and having an outlet detachably engaging the upper end of said tube, and a motor outside of and upon the cover at the center thereof and having a shaft extending downwardly through the cover for driving said air propelling means to force air downwardly into and from said tube.

In testimony whereof I affix my signature.

CHARLES L. MINER.