



# UNITED STATES PATENT OFFICE.

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## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 413,400, dated October 22, 1889.

Application filed May 4, 1889. Serial No. 309,577. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH LACHANCE, of East Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Washing-Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in washing-machines, and has for its object to provide a machine of simple and durable construction and capable of being conveniently manipulated with comparatively little exertion on the part of the operator.

A further object of the invention is to provide a machine which will expeditiously and effectually wash the clothes without tearing or injuring the same.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter more fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in both the views.

Figure 1 is a central vertical section through the machine, and Fig. 2 is a plan view of the same with the top or upper section removed.

In carrying out the invention the body 10 of the machine is preferably made semicircular, as illustrated in Fig. 1. The sides of the body may, if desired, be made of wood; but the ends and bottom are preferably formed of one piece of galvanized sheet-iron or other suitable metal. The body is supported by legs 11, attached thereto at the sides, the opposed legs at each end being preferably connected with a suitable bar or rung 12. The body 10 is further provided with a top or cover 13, which rests upon the upper face and completely covers the same, as illustrated in positive lines in Fig. 1. To insert the clothes or to remove them from the body of the machine, this cover may be entirely removed; or the cover may be provided with a door 14 at one end, adapted to lift upward, as illustrated in dotted lines in Fig. 1, in which latter event, if in practice it is found desirable, the main portion of the cover may be attached to the

body and constitute virtually a portion thereof.

In the upper face of the lower semicircular portion 10 of the machine, at its center, a shaft or axle 15 is journaled, provided at one outer end with a spur-wheel 16, rigidly attached thereto, which spur-wheel meshes with a pinion 17, journaled in a suitable bracket 18, as illustrated in Fig. 2, the trunnion of the pinion having secured thereto a crank-arm 19, whereby the said pinion is revolved, and through the pinion the shaft or axle 15.

Within the body or semicircular portion 10 of the machine a rubber B is held to revolve, which rubber is rigidly secured to the axle or shaft 15, extending equidistant from each side of the same. The rubber B comprises two side pieces 20, preferably formed of metal and of greatest width at the center. The metal sides 20 are so shaped that the ends will curve in opposite directions, as illustrated at 21 and 22, whereby one extremity will curve upward and the other downward when the rubber is held in a horizontal position. Each extremity of the side pieces 20 of the rubber is connected by a slat 23, which slats conform to the shape of the side pieces, as best illustrated in Fig. 1. Consequently one face of the slats is concave and the opposed face is convex. Between the axle and the slats 23 a series of bars or rods 24 are secured in the side pieces 20, which rods may be either circular or polygonal in cross-section, as in practice may be found most desirable. The rods or bars 24, connecting the side pieces and completing the formation of the rubber, are arranged at each side of the axle or shaft 15 to form a semicircle, as is also best illustrated in Fig. 1, the semicircles at each side of the center of the rubber being eccentric—that is to say, the curve of the combined rods or bars follows the curve of the side pieces at the ends in which they are located. By this distribution of the rods or bars a space is formed between the inner bars and each side of the axle.

In conjunction with the rubber above described I employ a series of balls, spheres, or polygonal figures 25, preferably the former, which balls or figures are preferably turned

from a hard wood, such as lignum-vitæ; but they may be made of metal, if so desired.

In the bottom or side of the body 10, near the bottom, a faucet 26 is secured, or other equivalent device, whereby the suds or water contained in the body may be conveniently drawn off.

In operation the clothes are placed in the body 10 and any desired number of the balls or figures 25 are placed upon the clothes, the rubber being brought essentially to a horizontal position, and a corresponding number of balls are placed upon the upper concaved surface of the rubber, as illustrated in Fig. 1. By manipulating the crank-arm 19 the rubber is revolved, and as one end enters the body 10 it carries up with it the balls contained in the body and the clothes, and in the further revolution of the rubber the clothes, together with the balls, are dropped when the said rubber attains substantially a perpendicular position, at which point the lower end will take up any remaining clothes in the body and carry the same forward with another series of balls. In the outset but few clothes are introduced into the body, the clothes being preferably thrown in as the rubber is revolved. It will thus be observed that the clothes are beaten to an extent by the descending balls and rubbed upon the bars or rods 24 while the rubber is in motion by reason of the necessary movement of the balls during the said operation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the casing or body, of a rotary rubber journaled therein and having rigid oppositely-curved end portions, the concavities formed by said curved portions forming the open clothes-receiving spaces in the working-faces of the rubber, substantially as set forth.

2. In a washing-machine, the rubber consisting in the rigid spaced side pieces B, having curved recesses in their opposite faces at opposite sides, and the transverse series of rods 24, connecting the side pieces and conforming to the curvature of the recesses therein, substantially as set forth.

3. In a washing-machine, the combination, with the body and a rubber held to revolve in said body, comprising two spaced side pieces oppositely curved at their extremities, slats corresponding to the contour of the side pieces uniting the same at their ends, and a series of rods or bars, also connecting the side pieces, arranged in semicircular form at each side of the center of said side pieces, the two series of rods being eccentric, of a series of balls adapted to be carried by the said barred surfaces of the rubber, substantially as shown and described.

4. In a washing-machine, the combination, with a semi-cylindrical body, an axle or shaft journaled in the same, a rubber centrally secured to the said shaft, comprising side pieces oppositely curved at their extremities, slats uniting the said side pieces at the ends and corresponding to the contour of said ends, and a series of rods or bars arranged in a semicircle at each side of the shaft, the arc of the said series corresponding to the curve of the side pieces, whereby a space is obtained between the inner rods or bars and the axle, of a series of balls adapted to be carried by the curved surfaces of the rubber, and means, substantially as shown and described, for rotating the axle or shaft.

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Witnesses:

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