E. F. WITTHUHN.

WASHING MACHINE.

APPLICATION FILED AUG. 14, 1919.

1,358,601. Patented Nov. 9, 1920.

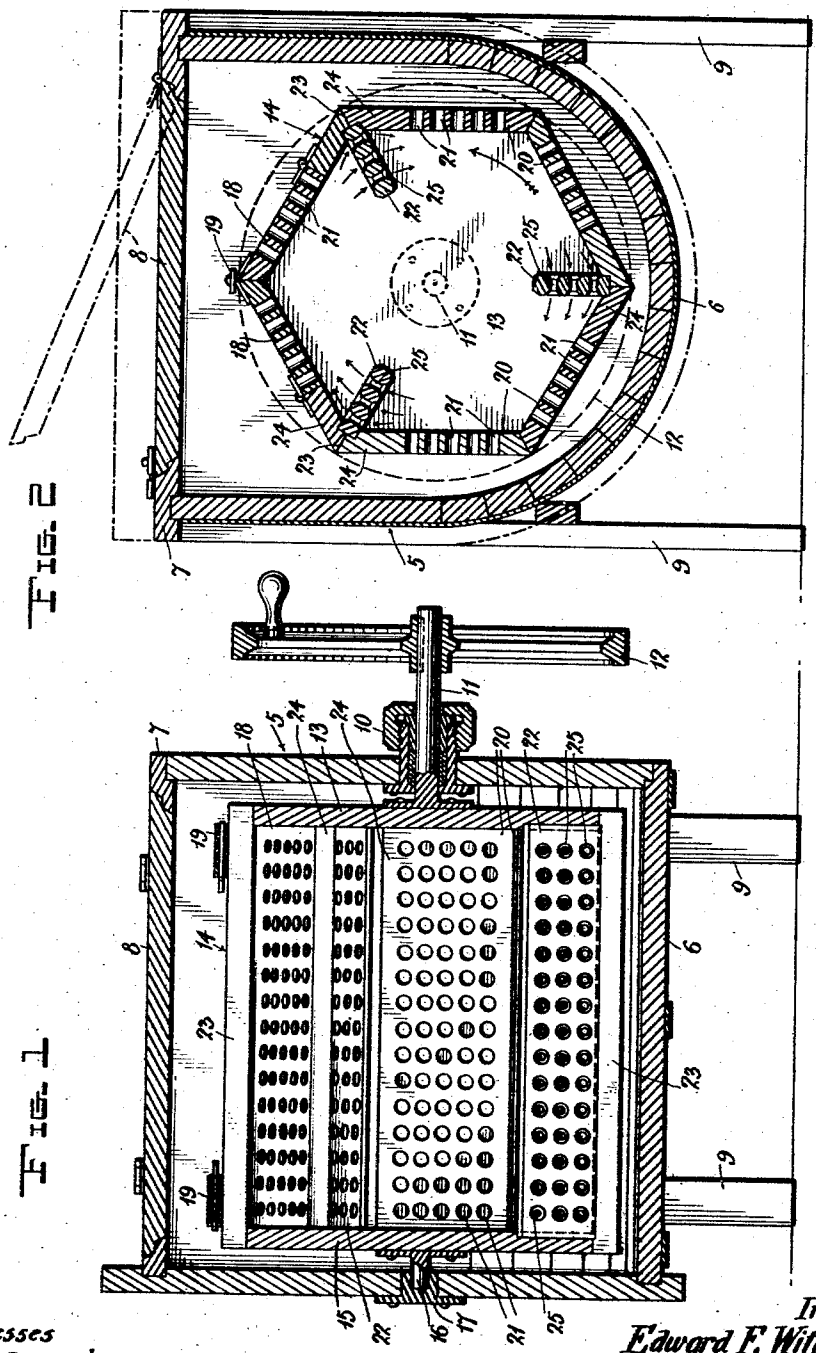


Fig. 2

Fig. 1

Witnesses

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WASHING-MACHINE.

1,358,601. Specification of Letters Patent. Patented Nov. 9, 1920.

Application filed August 14, 1919. Serial No. 317,445.

To all whom it may concern:

Be it known that I, EDWARD F. WITTHUHN, a citizen of the United States, residing at Appleton, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to improvements in washing machines and particularly to a rotatable drum or cylinder forming the essential part of this class of machines, and the primary object of the improvement is to provide means for effectively loosening and eradicating dirt and stains from articles of clothing or other articles that may be disposed in the drum through the special operation and action of structural features which will be hereinafter explained and which are the essentials of the present improvements, such cleaning operation of the drum or cylinder being carried on without the least injury to the articles treated thereby, and with material advantages in facilitating laundry and thorough cleaning operations.

With this and other objects and advantages in view, the invention consists in the construction and arrangement of the several parts which will be more fully hereinafter described and claimed in preferred form.

In the drawing:

Figure 1 is a longitudinal vertical section of a washing machine embodying the features of the invention.

Fig. 2 is a transverse vertical section through the machine between the opposite ends of the drum or cylinder.

The numeral 5 designates the main casing, inclosure or stationary tub of the improved washing machine having a curved bottom 6 and a flat top 7 with a suitably hinged door or closure 8 for gaining access to the interior of the casing. The casing is provided with suitable legs 9 for supporting the same, and extending into one end thereof through a water tight bearing 10 is an operating shaft 11 having a band or other wheel 12 secured on the outer end thereof and adapted to be operated by power or hand, as may be desired. The inner end of the shaft 11 is secured to one head 13 of a drum or cylinder 14 embodying the essential features of the invention, the opposite head 15 of the said drum or cylinder having a center trunnion 16 engaging a suitable bearing 17 in the opposite end of the casing, as clearly shown by Fig. 1.

The essential feature of the invention resides in the drum or cylinder 14 which is of polygonal shape of any suitable number of sides, a portion of the sides being provided with hinged sections or doors 18 adapted to be locked closed by suitable locking means 19 as shown by Fig. 2. The sides 20 of the drum or cylinder 14 are formed with a plurality of perforations or openings 21 to permit the water to freely circulate inwardly into and outwardly from the said drum or cylinder during the operation of the latter. At intervals within the drum and projecting radially with relation thereto are cleaning members 22 or lifting boards, the said boards projecting inwardly from the angular intersections 23 of a portion of the sides 20 of the drum, and where these lifting boards 22 are located the adjacent parts of the sides are closed or imperforate, as at 24. In the preparation and operation of the improved washing machine, a suitable quantity of water is placed within the casing or tub 5 and said water may be treated saponaceously or otherwise to render the same effective in cleansing articles of clothing or other articles. The articles of clothing or other articles are inserted within the drum or cylinder 14 by opening the sections or doors 18 and when the said articles have been deposited in the drum the sections 18 are closed and locked and the top closure 8 of the casing or tub 5 is also closed and locked. The drum or cylinder 14 is then rapidly rotated within the casing or tub 5 and the articles of clothing or other articles are subjected to a cleansing action and to a particular operation through the medium of the lifting boards 22. The purpose and particular operation of the boards are as follows: As each board 22 passes upwardly through the water it engages a portion of the clothes or articles and carries said clothes upwardly through the liquid or water which causes the water to be forced through the clothes and then through a plurality of conical openings 25 formed at intervals in each board. This action of the water in passing through the clothes and boards loosens the dirt and draws and sucks the latter from the clothes or articles and the dirt thus liberated is drawn back into the water. During the elevation of the boards 22 above the water and having clothes thereon, the water from

the clothes is more or less drained through the openings 25 of each board and when the boards turn over above the water or liquid at a certain angle, the clothes or articles fall therefrom downwardly into the water or liquid and the impact of the falling articles or clothes on the water spreads the articles or clothes and a further effective dirt loosening and eradicating operation ensues. When the clothes or articles again absorb a certain amount of water, they settle to the bottom of the cylinder and are again caught up by the adjacent up-going board and these operations are repeated with similar results and eventually all of the dirt and spots in clothing or articles subjected to this particular treatment become washed out and removed. The boards are of such length as to be effective in raising or lifting the clothing or articles treated within the drum or cylinder, but at the same time ample clear space is left at the center of the drum or cylinder to permit the clothes or articles lifted by the boards 22 to readily fall back or downwardly into the water. By using a polygonal form of drum the outer flat or straight faces thereof are brought regularly into contact with and through the water in the inclosure or tub 5, and, moreover, the intersecting angles of the polygonal drum provide means for facilitating the radial application of the cleaning members 22. The cleaning members 22 are disposed in connection with alternate angles of the drum for the purpose of giving the said members freedom of action in performing their function of lifting the articles of clothing in the drum and for automatic disengagement of the said articles from the members, when the latter reach a certain elevation, without interference. If the members 22 were disposed at each angle of the drum they would be in such close relation as to interfere with the full carrying up of the articles of clothing and the dropping back of the latter into the lower portion of the drum by reason of their adjacency or too close arrangement. Moreover, if there was a cleaning member 22 projecting inwardly from each angle of the drum, the articles of clothing would not be permitted to fall completely back toward the bottom of the drum, but would be caught up before passing fully downward to the drum bottom, and by this means the cleansing of the articles of clothing would not be as thorough, or the lifting action on the said articles too quickly performed. By constructing the intersecting angles of the drum at the points where the lifting members are located without perforations provides for a more positive engagement of the articles of clothing with the successive members and a movement of the clothing by each of the members uppermost in view of the fact that inflowing currents of water adjacent to the said lifting members are prevented, and by thus obstructing the inflowing currents the articles of clothing are undisturbed when engaged by the members or will not be forced away therefrom by the said currents. In other words the imperforate portions of the drum adjacent to the lifting members 22 provide as it were gathering pockets for the drum and a retention of the articles of clothing in movable association with the members.

The improved washing machine and especially the drum embodying the essential features will be found very effective in performing the functions for which it has been devised and in view of the simplicity of the improved features, they may be economically manufactured and installed in operative position. It is proposed to construct the drums and supply them for application to any washing machine now in use, and to adapt the improved drums or cylinders to these various applications, it is proposed to change the dimensions and proportions as well as the general contour thereof without in the least departing from the spirit of the invention. The conical openings 25 in each board 22 have a sucking effect on the clothes lifted thereby to more completely eradicate the dirt and facilitate the washing operation, it being observed that the said openings are enlarged at opposite sides of each board, or are constricted at their center portions within the body of the board.

What is claimed is:—

In a washing machine, the combination with a water containing inclosure, of an interiorly accessible polygonal drum rotatably mounted therein and provided with sides having perforations therethrough and imperforate ends, and perforated lifting members with parallel flat sides extending radially inwardly into the interior of the drum from alternate angles of intersection of the sides of the drum, the intersecting portions of the sides of the drum adjacent to the lifting members being imperforate, and the lifting members having straight transverse openings therethrough provided with enlarged terminal portions at opposite sides of said members.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD F. WITTHUHN.

Witnesses:
JOHN F. HINTZ,
WILLIAM J. MILLER.