

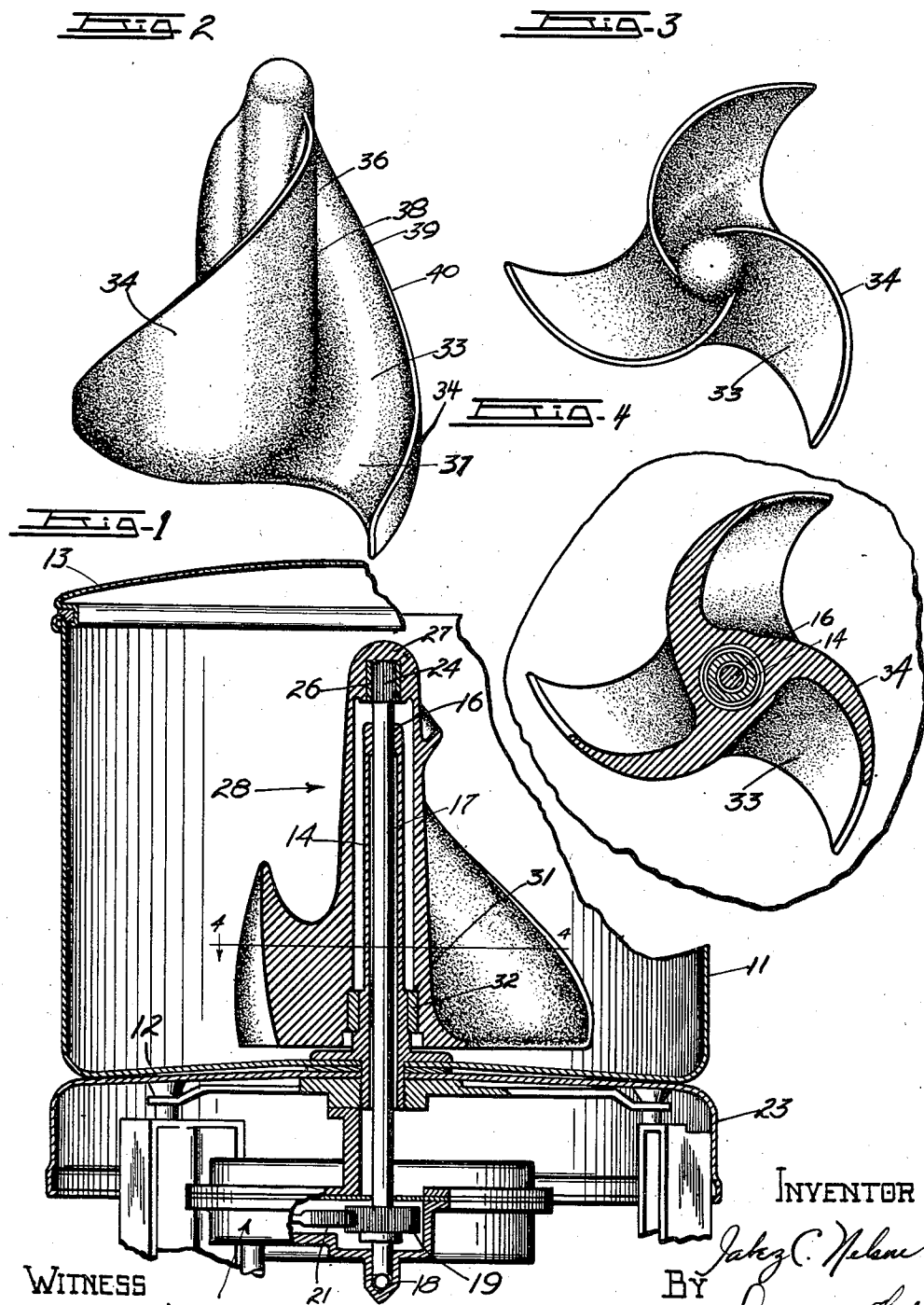
March 17, 1936.

J. C. NELSON

2,034,631

APPARATUS FOR WASHING CLOTHES

Filed Aug. 21, 1933



WITNESS
H. L. Meade. 22

INVENTOR
J. C. Nelson
By *Seaman & Thompson*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,034,631

APPARATUS FOR WASHING CLOTHES

Jabez C. Nelson, Syracuse, N. Y., assignor to Easy Washing Machine Corporation, Syracuse, N. Y., a corporation of Delaware

Application August 21, 1933, Serial No. 686,173

6 Claims. (Cl. 259—101)

This invention relates to new and useful improvements in apparatus for washing clothes and reference is hereby made to my copending application Serial No. 666,338 filed April 15, 1933.

5 In the above-mentioned copending application, I have described a novel method of and apparatus for washing clothes in which a dolly or agitator having a plurality of blades is mounted in a vat, the blades and central portion of the dolly being
10 so arranged that when the dolly is oscillated the contents of the vat are circulated in one general direction around the vat. As the clothes circulate around the outer circumference of the vat they rise upwardly toward the surface in a somewhat spiral curve and then are drawn inwardly
15 toward the center where the clothes are subjected to an action which I have characterized as an individual action on the clothes as distinguished from a collective action.

20 An object of my present invention is to provide an agitator of the general above described type adapted to circulate the contents of the vat in one general direction around the vat.

25 A further object of my invention is to provide an agitator having blades curved around a central post and curved laterally crosswise of the blades whereby upon oscillation of the agitator the contents of the vat are violently agitated and circulated around the vat in one general direction
30 and during the operation each article of clothing is individually separated and flexed.

Other objects and advantages relate to specific details of the invention all as will be more fully described in connection with the accompanying
35 drawing, in which

Figure 1 is a cross sectional view showing my novel dolly mounted in a washing vat.

Figure 2 is a perspective side view of my novel dolly;

40 Figure 3 is a top plan view of the dolly;

Figure 4 is a cross-sectional view taken on the line 4—4, Figure 1.

The dolly of my invention may be mounted in any suitable vat or tub, such as illustrated in the
45 drawing, having side walls 11, a bottom 12 and a cover 13. The bottom of the vat at substantially its central portion is provided with an opening for the reception of one end of an upstanding sleeve 14 secured to the bottom 12 of the vat in
50 any suitable watertight manner. This sleeve at its upper end is provided with a portion 16 of reduced internal diameter constituting an upper bearing for an oscillatable dolly shaft 17 which extends upwardly from a point without the vat
55 to a point above the bearing 16. The lower end

of the dolly shaft 17 may, as shown in the drawing, be provided with thrust bearing in the form of a contact ball 18.

Any usual and well known means may be provided for oscillating the dolly shaft through a
6 desirable arc as, for instance, 200 degrees more or less and there is here shown a gear 19 mounted on the shaft for rotation therewith and adapted to be driven in reverse directions by a segmental gear or rack 21 reciprocated by any suitable
10 mechanism well known in the art to which this invention applies generally indicated by the numeral 22. The mechanism for oscillating the dolly may be partially enclosed by an apron 23 depending from the washing vat and secured in
15 operative position in any suitable manner.

The dolly shaft 17 projects above the bearing 16 and is formed at its upper end with lengthwise splines or grooves 24 for inter-engagement with corresponding splines or grooves on a bearing member 26 permanently secured within the
20 upper closed end 27 of the dolly generally indicated by the numeral 28. As shown in the drawing, the dolly has a central hollow bore for the reception of, concentric therewith, the shaft 17
25 and the sleeve 14. The central bore is shouldered at 31 for reception of a lower bearing 32 which is fixed to the internal periphery of the dolly and rotates with respect to the sleeve 14. In this manner a driving connection and support
30 for the dolly is provided by means of the dolly shaft itself and the dolly is guided by the upper and lower guide bearings 16 and 32.

The dolly comprises preferably a substantially cylindrical upstanding central portion or stem
35 which rises substantially from the bottom of the vat to a point normally projecting some distance above the water level so that leakage of cleansing fluid along the shaft 17 is prevented.

A plurality of blades 33 extend outwardly from 40 the central portion and curve downwardly and around the central portion any desired amount preferably 180 degrees more or less to substantially the bottom thereof. In order to distinguish the surface of the blades designated, I have
45 termed one surface, indicated by the numeral 33, the leading surface, and the other surface, indicated by the numeral 34, the following surface. The blades constitute channels extending substantially from the normal level of the cleansing
50 fluid and increasing in width toward the bottom of the vat, for example, from a point indicated by the numeral 36 to a point indicated by the numeral 37. The leading surface of the blades adjacent the central portion as at 38 extend out-
55

wardly substantially normal to the central portion and gradually curve laterally and upwardly in the direction of the short axis of the blade toward the outer edge as at 39 forming what may be described as a scoop-shaped structure between the outer edge of the blades indicated by the numeral 40 and the following surface 34 of an adjacent blade. The following blade surfaces 34 preferably extend substantially parallel to the axis of the agitator and, in a direction perpendicular to the axis, curve around the central portion in the same direction as the leading surfaces so that when the dolly is rotated in a counter-clockwise direction, as shown in the drawing, because the curved following surface 34, is resisted but slightly by the contents of the vat but a slight reversal of flow of the contents of the vat occurs.

In operation, upon rotation of the dolly in a clockwise direction, the cleansing fluid and clothes are caught in the blades and are drawn downwardly and outwardly towards the bottom and sides the vat and circulated in a clockwise direction around the vat. Upon reversal, because of the curvature of the following surface 34, no substantial reversal of the contents of the vat occurs, the dolly tending to throw the clothes outwardly toward the sides of the vat and, to a certain extent, merely sliding through the water. Upon again reversing, a new batch of clothes is caught in the blades and hurled downwardly, outwardly and around the vat in a clockwise direction. As the clothes circulate around the vat, they gradually rise to the surface, the path of movement being somewhat spiral in form and upon reaching the surface they are drawn inwardly towards the center of the vat to be subsequently caught by the blades and thrown downwardly and outwardly as above described. As the clothes are drawn or circulated across the surface, the action more fully described in my co-pending application which I have characterized an individual action on the clothes as distinguished from a collective action occurs. Each article of clothing is individually caught by the blades, unfurled and flexed backwardly and forwardly by the reversals of the dolly, it usually requiring several reversals of the dolly before each article is entirely, so to speak, swallowed by the blades and thrown downwardly and outwardly.

Although I have shown and described a specific form and construction of apparatus as constituting an embodiment of the invention, I do not wish to restrict myself to the details shown, as various changes and modifications may be readily made, without departing from the scope of my invention as set forth in the appended claims.

I claim:

1. In a machine for washing clothes, an oscillatable agitator mounted therein, said agitator comprising a central axis and a plurality of blades extending from said axis, one surface of said blades being substantially normal to the bottom of the vat in a direction parallel to the axis and curved from a normal to the axis and the other surface being pocketed lengthwise of the blades, and means for oscillating the agitator.

2. In a machine for washing clothes, a vat, an oscillatable agitator mounted therein, said agi-

tator comprising a central axis, and a plurality of blades extending from said axis, one surface of said blades being substantially normal to the bottom of the vat in a direction parallel to the axis and curved from a normal to the axis, and the other surface being curved around the axis and curved crosswise of the blades whereby to form pockets extending lengthwise thereof, and means for oscillating said agitator.

3. In a machine for washing clothes, a vat having a normal surface level of cleansing fluid, an oscillatable agitator mounted therein, said agitator comprising an upstanding central portion, and a plurality of blades curved around the scurface of said central portion and forming channels extending from substantially the normal surface level of cleansing fluid to the bottom of the vat, said channels extending outwardly in a direction substantially normal to the central portion and increasing in width toward the bottom of the vat, and means for oscillating said agitator.

4. In a machine for washing clothes, a vat having a normal surface level of cleansing fluid, an oscillatable agitator mounted therein, said agitator comprising an upstanding central portion and a plurality of blades curved around the surface of said central portion and forming channels extending from substantially the normal surface level of cleansing fluid to the bottom of the vat, said channels being curved upwardly toward their outer edges and increasing in width toward the bottom of the vat, and means for oscillating said agitator.

5. In a machine for washing clothes, a vat having a normal surface level of cleansing fluid, an oscillatable agitator mounted in said vat, said agitator comprising a central portion, and a plurality of blades having leading and following surfaces, the leading surfaces being curved longitudinally and laterally and the following surfaces being curved circumferentially with respect to said central portion and said blades extending substantially from the normal surface level of cleansing fluid to the bottom of the vat, and means for oscillating said agitator.

6. In a machine for washing clothes, a vat for containing the washing fluid and clothes to be washed, an oscillatable agitator mounted in said vat, said agitator comprising a central portion extending upwardly from substantially the bottom of the vat to a point above the horizontal center of the vat and a plurality of blades extending outwardly from said central portion, said blades having a leading surface and a following surface, the leading surface being curved downwardly and advancing around the surface of said central portion and being curved crosswise of the blade and the following surface extending normal to the bottom of the vat and being curved from a normal to the axis in a direction toward the leading surface, and means for oscillating said agitator whereby the leading surface exerts a substantial impelling force on the fluid and clothes in the vat and the following surface slips through the washing fluid without exerting an appreciable impelling force on the fluid and clothes.

JABEZ C. NELSON.