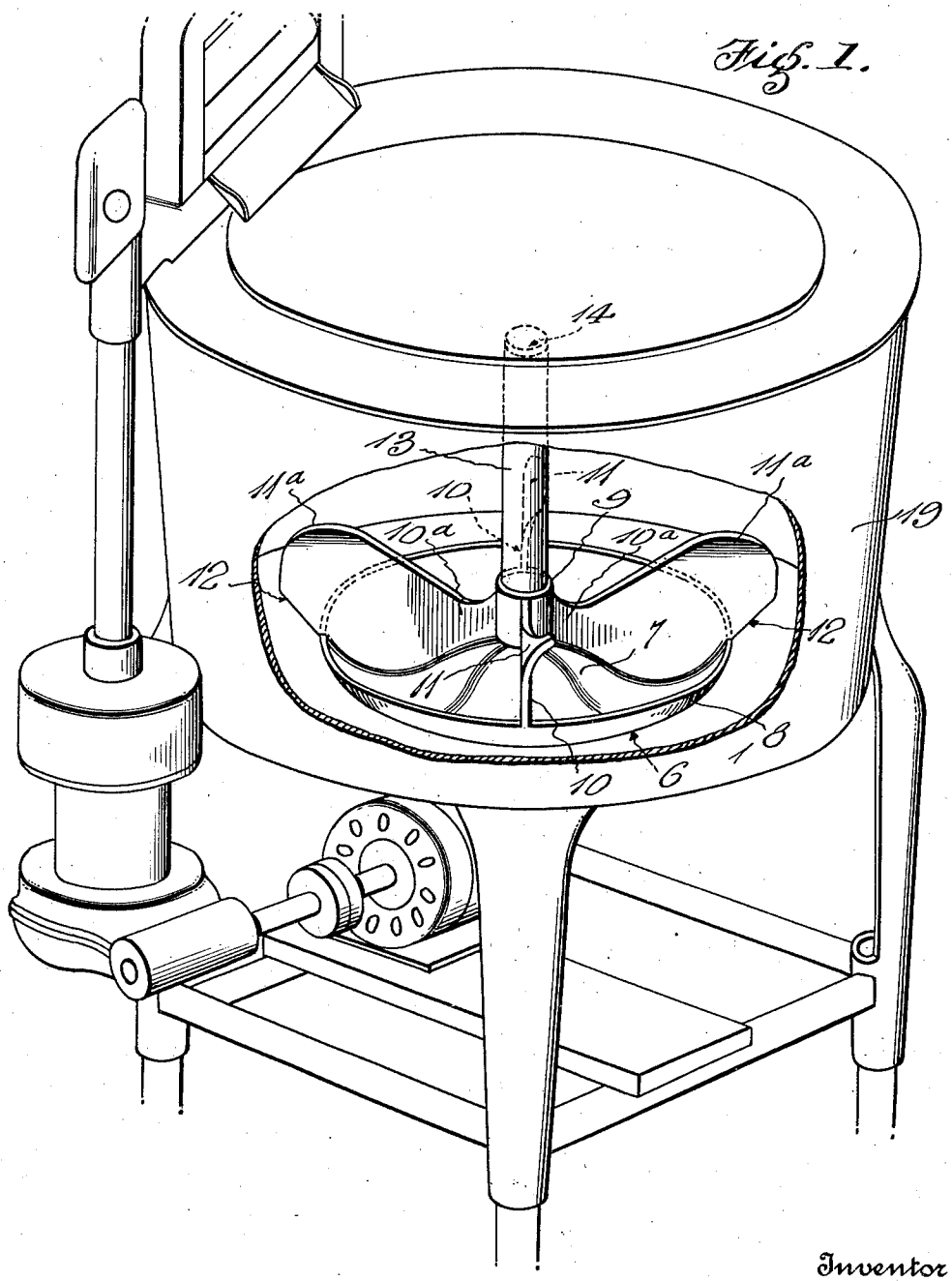
April 15, 1930. R. J. HOLZHAUSEN 1,754,626

WASHING MACHINE IMPELLER

Filed Jan. 3, 1930 2 Sheets-Sheet 1

Fig. 1.



Witness
H. Woodard

Inventor
R. J. Holzhausen

By Howson & Howson
Attorneys

April 15, 1930. R. J. HOLZHAUSEN 1,754,626

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Fig. 2.

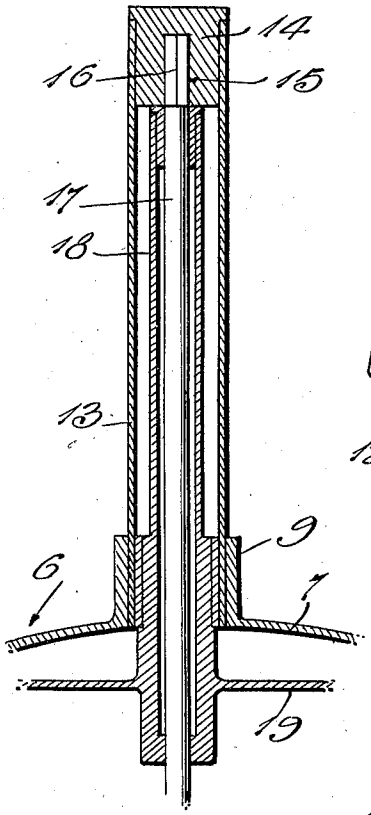


Fig. 4.

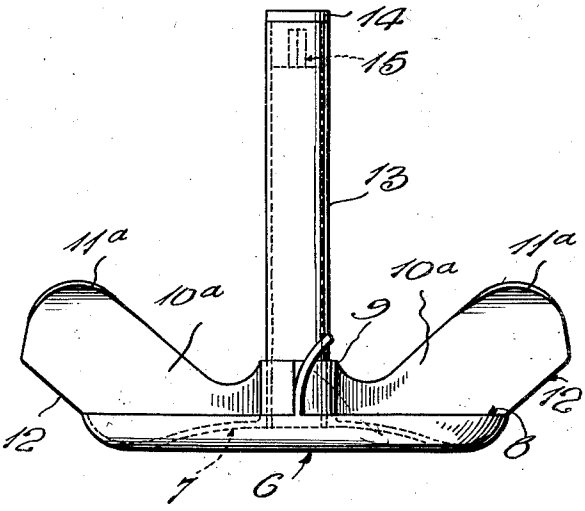


Fig. 3.

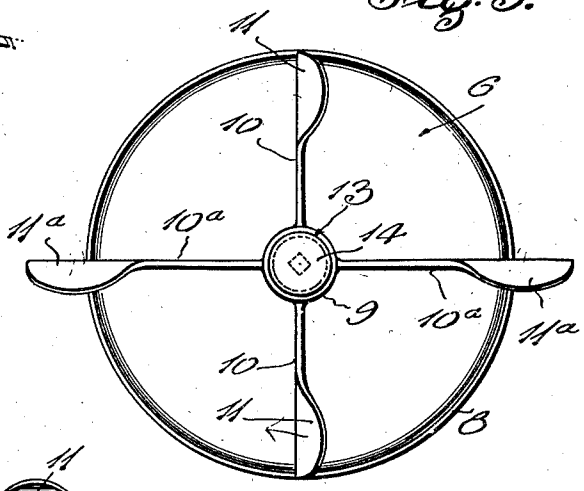
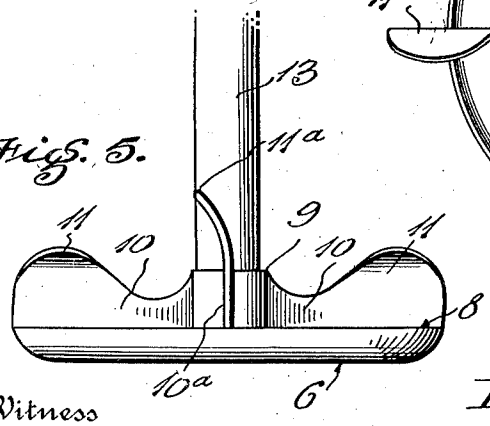


Fig. 5.



Witness
H. Woodard

Inventor
R. J. Holzhausen

By H. B. Williamson & Co.
Attorneys

Patented Apr. 15, 1930 1,754,626

UNITED STATES PATENT OFFICE

RICHARD J. HOLZHAUSEN, OF WESTPORT, CONNECTICUT

WASHING-MACHINE IMPELLER

Application filed January 3, 1930. Serial No. 418,327.

The invention relates to improvements in oscillatory, vertical axis impellers for washing machines, and it aims to provide a generally improved construction which will cause vertical movements of the water in the washing machine tub and will have a tendency to keep the clothes entirely submerged, thereby hastening and generally facilitating the washing operation.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawings.

Fig. 1 is a perspective view partly broken away, illustrating a conventional type of washing machine embodying the invention.

Fig. 2 is a detail vertical sectional view through the central portion of the impeller and associated washer construction.

Fig. 3 is a top plan view of the impeller.

Figs. 4 and 5 are side elevations looking in two directions at right angles to each other.

In the drawings above briefly described, 6 denotes a horizontal disk whose major portion 7 is of shallow dome shape, while its peripheral portion 8 is curved upwardly, the center of said disk being provided with an integral upstanding hub 9. Radiating from this hub and disposed in diametrically opposite relation with each other, are two blades 10 whose inner ends are integral with said hub, the lower edges of said blades being integral with the disk 6. These blades terminate even with the peripheral edge of the disk and at their outer ends are widened to provide wings 11 which are oppositely pitched with regard to either direction of movement of the oscillatory impeller.

At right angles to the blades 10, are two relatively long blades 10^a which are also diametrically opposed. The inner ends of these blades are integral with the hub 9, their lower edges are integral with the disk 6, and their outer ends project radially beyond the disk, said outer ends being widened to provide wings 11^a of considerably greater height than the wings 11, said wings 11^a being oppositely pitched with regard to either direction of movement of the oscillatory impeller. The lower edges of the blades 10^a, beyond the disk 6, preferably decline to the peripheral edge of said disk, as indicated at 12.

The disk 7 overcomes the possibility of any of the clothes being wedged between the impeller blades and the tub bottom and in addition to moving the clothes alternately in opposite directions, the blades 10 and 10^a create substantially vertical currents of water which aid in keeping the clothes submerged and also hasten the washing operation. Whenever the impeller is turning in one direction, one of the wings 11 and one of the wings 11^a create downward currents of water at one side of the impeller axis, while the other wings 11 and 11^a tend to create upward currents, and reversal of these currents takes place as the impeller moves in the other direction.

Secured within and rising from the hub 9, is a tube 13 whose upper end is closed by a plug 14 suitably secured therein, said plug having a driving socket 15 which receives the squared upper end 16 of the impeller driving shaft 17 of a washing machine, said shaft being within a fixed vertical tube 18 which is joined to and rises from the bottom of the washer tub 19. Tube 18 extends to a point above the normal water level of the tub and said tube is surrounded by the tube 13. Hence, the construction is such as to require no packing around the shaft 17.

It will be seen from the foregoing that a generally improved and very simple construction has been provided. Attention however, is invited to the fact that while only one embodiment of the invention has been illustrated, variations may be made within the scope of the invention as claimed.

I claim:—

1. An oscillatory washing machine impeller mounted on a vertical axis and embodying substantially radial blades at least two of which are pitched oppositely; whereby upon turning of the impeller in either direction, one of said blades will create downward movement of water and the other will create upward movement of water.

2. A washing machine impeller comprising a horizontal disk having a central hub, and a plurality of substantially radial blades hav-

ing their inner ends joined to said hub, the lower edges of said blades being joined to the upper side of said disk, the outer ends of said blades having integral, inclined wings adapted to create vertical movement of water.

3. A washing machine impeller comprising a horizontal disk having a central hub, two diametrically opposed substantially radial blades joined to said disk and hub and terminating at the edge of the latter, and two longer diametrically opposed substantially radial blades joined to said hub and disk and projecting beyond the edge of the latter.

4. A washing machine impeller comprising a horizontal disk having a central hub, two diametrically opposed substantially radial blades joined to said disk and hub and extending to the edge of the latter, and two longer diametrically opposed substantially radial blades joined to said hub and disk and projecting beyond the edge of the latter, the outer ends of said blades having integral inclined wings adapted to create vertical movement of water.

5. A washing machine impeller comprising a horizontal disk having a central hub, the major portion of said disk being of shallow dome shape and the peripheral portion of said disk being curved upwardly, and a plurality of substantially radial blades having their inner ends joined to said hub, the lower edges of said blades being joined to the upper side of said disk, the outer ends of said blades having integral inclined wings adapted to create vertical movement of water.

6. A washing machine impeller comprising a horizontal disk having a central hub, the major portion of said disk being of shallow dome shape and the peripheral portion of said disk being curved upwardly, two diametrically opposed substantially radial blades joined to said hub and disk and extending to the edge of the latter, and two longer diametrically opposed substantially radial blades joined to said hub and disk and projecting beyond the edge of the latter.

7. A washing machine impeller comprising a horizontal disk having a central hub, the major portion of said disk being of shallow dome shape and the peripheral portion of said disk being curved upwardly, two diametrically opposed substantially radial blades joined to said hub and disk and extending to the edge of the latter, and two longer diametrically opposed substantially radial blades joined to said hub and disk and projecting beyond the edge of the latter, the outer ends of said blades having integral inclined wings adapted to create vertical movement of water.

In testimony whereof I have hereunto affixed my signature.

RICHARD J. HOLZHAUSEN.