July 6, 1926. 1,591,506

G. S. BLAKESLEE

WASHING MACHINE

Filed March 29, 1920

Fig. 1.

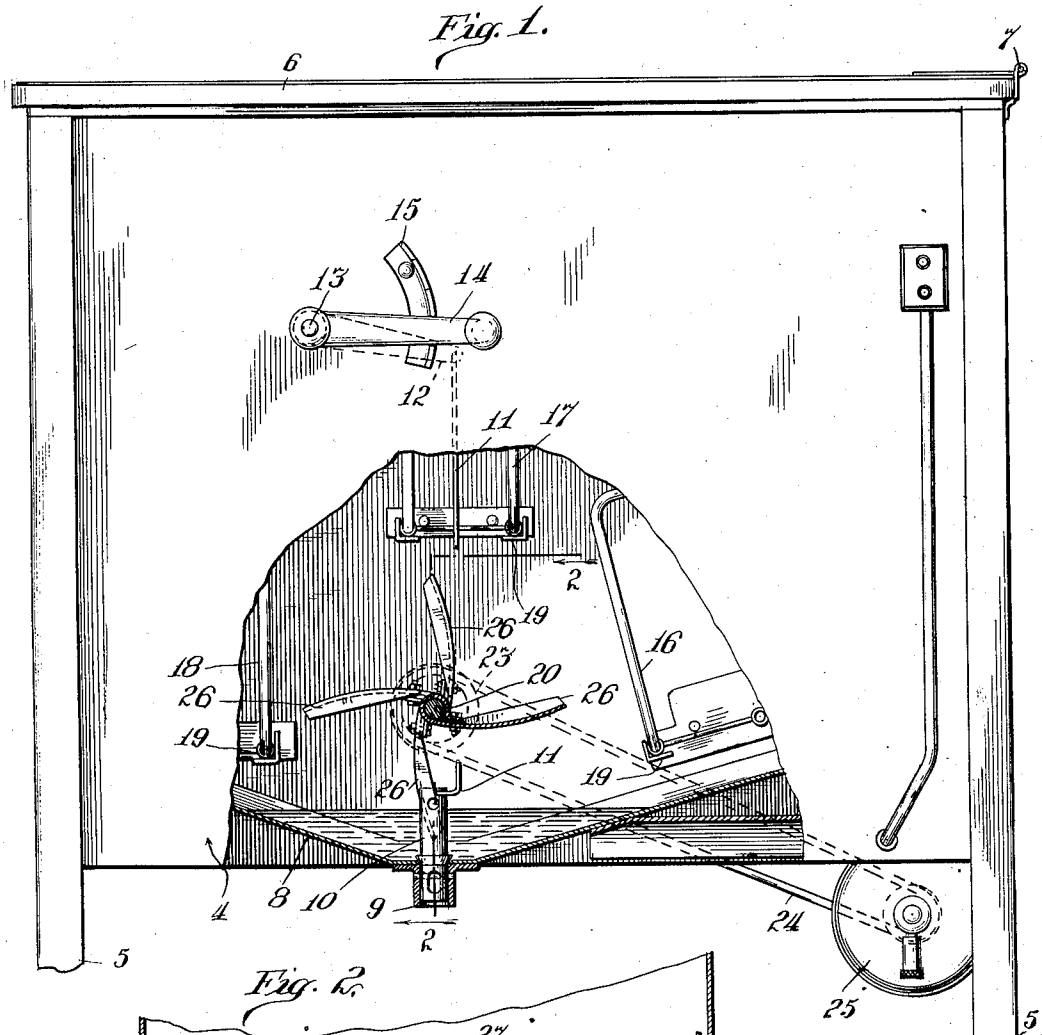


Fig. 2.

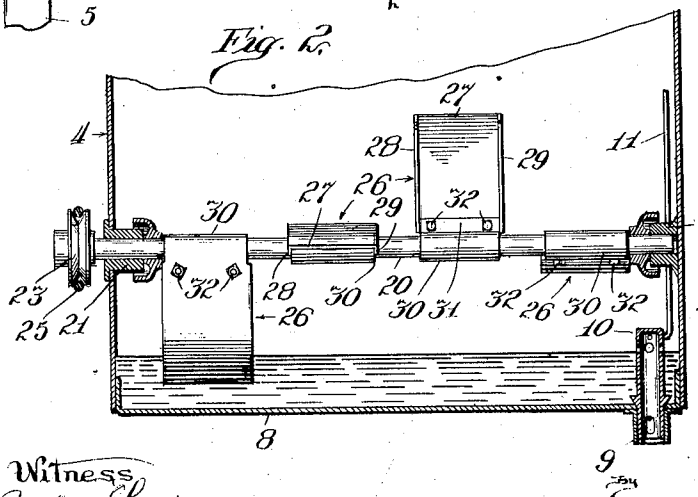
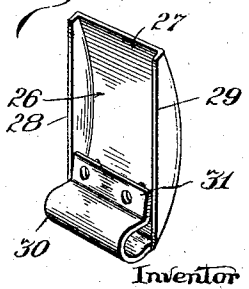


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WASHING MACHINE.

Application filed March 29, 1920. Serial No. 369,741.

My invention relates to machines for washing dishes and other articles, in which the washing or rinsing water is thrown forcibly against and over the articles to be washed by means of a paddle wheel, the blades of which dip into a body of water contained in a suitable tank. The improvements which form the subject-matter of my present application have more particularly to do with the construction of the paddle wheel, my object being to provide an improved paddle wheel which will be well adapted for use in washing machines designed for household use, in which the articles to be washed are placed in racks or on other suitable supports adapted to be introduced into the upper portion of a tank, the bottom of which serves as a reservoir for a comparatively small body of water, the paddle wheel being arranged under the articles to be washed and over the body of water so that by its rotation its blades will dip into the water and will take up and distribute the water throughout the tank, throwing it forcibly against and over the contents of the tank. To operate efficiently in a machine of this character, it is desirable that the paddle wheel be rotatable at comparatively high speed with a small expenditure of power, and that its blades be so constructed that they will enter the water smoothly and with least resistance, and will take up the water and throw it in the form of a shower throughout the upper portion of the tank so that it will impinge against the dishes or other articles with sufficient force to cleanse them properly. It is also desirable that the blades of the paddle wheel be so constructed that they may readily be mounted upon or removed from a supporting shaft, and will be cheap and substantial in construction. These ends are accomplished by my improved construction, as will be apparent from the following description thereof and the illustration given in the drawings, in which I have shown my improvements as embodied in a machine having the construction shown and described in my pending application, Serial No. 348,723, filed January 2, 1920. It should be understood, however, that my present invention may also be applied to any machine to which it is adapted.

In the accompanying drawings,—

Fig. 1 is a side elevation of a washing machine, some parts being broken away to show the interior thereof;

Fig. 2 is a partial vertical section on line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of one of the paddle wheel blades or buckets.

Referring to the drawings,—4 indicates a tank which forms the main portion of the machine, and in the construction shown is a rectangular tank supported on legs 5 and having a closely fitting cover 6 connected to the body of the tank by a hinge 7 so that it may readily be opened and closed. 8 indicates the bottom of the tank, which, as shown in Fig. 1, is inclined in opposite directions toward the center to form a trough or well adapted to contain a body of water for washing or rinsing purposes. At its lowest point the bottom 8 is provided with a discharge pipe or outlet 9 in which is fitted an overflow plug 10 designed to maintain the water in the tank at a predetermined level, and also to permit the water in the tank to be drawn off when desired. This plug is manipulated by means of a rod 11 connected to an arm 12 carried by a shaft 13 which is rocked by means of a lever 14 at the outside of the tank, as shown in Fig. 1. A segmental rack 15 is provided in connection with the lever 14 for locking said lever in its different positions of adjustment. 16, 17, 18 indicate a series of racks which are adapted to be supported at different points in the tank by means of suitably-disposed brackets 19 secured to the opposite inner surfaces of the walls of the tank so that the racks or baskets 16, 17, 18 extend across the tank, the intermediate portion of which is open so that said racks may be readily introduced or removed.

20 indicates a paddle wheel shaft which is mounted in suitable bearings 21, 22 at opposite sides of the tank a short distance above the water level, as shown in Figs. 1 and 2. One end of this shaft extends out of the tank and is provided with a pulley 23 so that said shaft may be rotated by a

belt 24 driven by an electric motor 25. Mounted on the shaft 20 are a series of paddles or buckets 26 which are placed a short distance apart along the length of the shaft and at right angles to one another so that no two paddles enter the water at the same time. Preferably they are arranged in spiral form so that they enter the water consecutively according to their respective positions on the shaft.

Each of these blades or paddles comprises a bottom portion 27, which is curved throughout its length, and side flanges 28, 29 at opposite sides of said bottom portion, the upper margins of said side flanges being substantially straight so that said flanges rise higher above the bottom portion at the intermediate portion thereof than at its end portions. The inner end of the bottom portion 27 is extended beyond the inner ends of the side flanges 28, 29 to form an attaching portion or sleeve 30 in the form of a clip which is adapted to embrace and clamp the shaft 20. This is accomplished in the construction shown by bending the inner projecting end of the bottom portion up and over upon itself and bending its end margin back at an angle to form a lip 31 which may be secured to the bottom portion 27 by bolts 32. Thus the clip 30 may be clamped tightly down upon the shaft 20, thereby securing the blade firmly in position. The blades, however, may readily be removed or adjusted by loosening the bolts 32. By constructing the blades 26 in the manner described, they enter the water smoothly and easily as the paddle wheel rotates and take up a considerable quantity of water, which, by centrifugal force is thrown upward throughout the upper portion of the tank and against the articles carried by the several racks therein, so that when the machine is in operation the interior thereof is filled with flying water which thoroughly washes and scours the articles therein. By constructing the paddles in the manner described they are comparatively inexpensive to manufacture, and are very strong and durable. It will be noted that as clearly shown in Fig. 1 the attaching clip 30 merges into the bottom portion 27 without the formation of an angle or sharp bend, and consequently the blade has no tendency to break at the juncture of the attaching portion and the blade proper. This construction also permits the blades to be mounted tangentially with reference to the shaft 20 so that they operate at a more favorable angle than if they were radially disposed with reference to said shaft.

While I prefer to provide a paddle wheel having four blades arranged in the manner described, my invention is not limited in this respect, as any desired number of blades may be used and they may be arranged otherwise than as illustrated.

What I claim as my invention and desire to secure by Letters Patent, is—

1. A paddle wheel for washing machines, comprising a rotary shaft and a blade having a bottom portion curved throughout its length, longitudinally extending side flanges at opposite sides of said bottom portion, and means at the inner end of said bottom portion for attaching the blade directly to said rotary shaft.

2. A paddle wheel for washing machines, comprising a rotary shaft and a blade having a bottom portion curved throughout its length, longitudinally extending side flanges at opposite sides of said bottom portion, and means at the inner end of the blade for attaching it to said rotary shaft in tangential relation thereto.

3. A paddle wheel blade for washing machines, comprising a bottom portion curved throughout its length, and longitudinally extending side flanges at opposite sides of said bottom portion, the inner end of the bottom portion being extended beyond said side flanges and bent to form an attaching sleeve.

4. A paddle wheel blade for washing machines, comprising a bottom portion curved throughout its length, and longitudinally extending side flanges at opposite sides of said bottom portion, the inner end of the bottom portion being extended beyond said side flanges and curved to form a sleeve in tangential relation thereto, for attaching the blade to a shaft.

5. A paddle wheel blade for washing machines, comprising a bottom portion curved throughout its length, and longitudinally extending side flanges at opposite sides of said bottom portion, the inner end of the bottom portion being extended and bent back over the bottom portion in tangential relation thereto to form a clip the margin of which is adapted to be secured to said bottom portion for attaching the blade to a shaft.

6. A paddle wheel blade for washing machines, comprising a bottom portion and longitudinally extending side flanges at opposite sides thereof, the inner end of said bottom portion being extended and bent back over the bottom portion to form a clip the margin of which is adapted to be secured to said bottom portion for attaching the blade to a shaft.

7. A paddle wheel comprising a shaft and a blade mounted upon said shaft, said blade comprising a bottom portion and longitudinally extending side flanges at opposite sides thereof, the inner end of said bottom portion being turned back over such bottom portion, forming a clip for attaching the blade to the shaft.

8. A paddle wheel comprising a shaft and a blade mounted upon said shaft tangentially thereof, said blade comprising a bottom portion and longitudinally extending side flanges at opposite sides thereof, the inner end of said bottom portion being turned back over such bottom portion, forming a clip for attaching the blade to the shaft.

9. A paddle wheel blade comprising a bottom portion having its inner end bent back upon itself to form a clip the margin of which is adapted to be secured to said bottom portion for attaching the blade to a shaft.

10. A paddle wheel blade comprising a bottom portion having its inner end bent back over the front surface thereof to form a clip the margin of which is adapted to be secured to said bottom portion for attaching the blade to a shaft.

11. A paddle wheel comprising a shaft, and a blade mounted upon said shaft, said blade comprising a bottom portion having its inner end turned back over such bottom portion to form a clip adapted to embrace the shaft, and means for securing said inner end to the bottom portion.

12. A paddle wheel comprising a shaft, and a blade mounted upon said shaft tangentially thereof, said blade comprising a bottom portion having its inner end turned back over such bottom portion to form a clip adapted to embrace the shaft, and means for securing said inner end to said bottom portion.

GEORGE S. BLAKESLEE.