

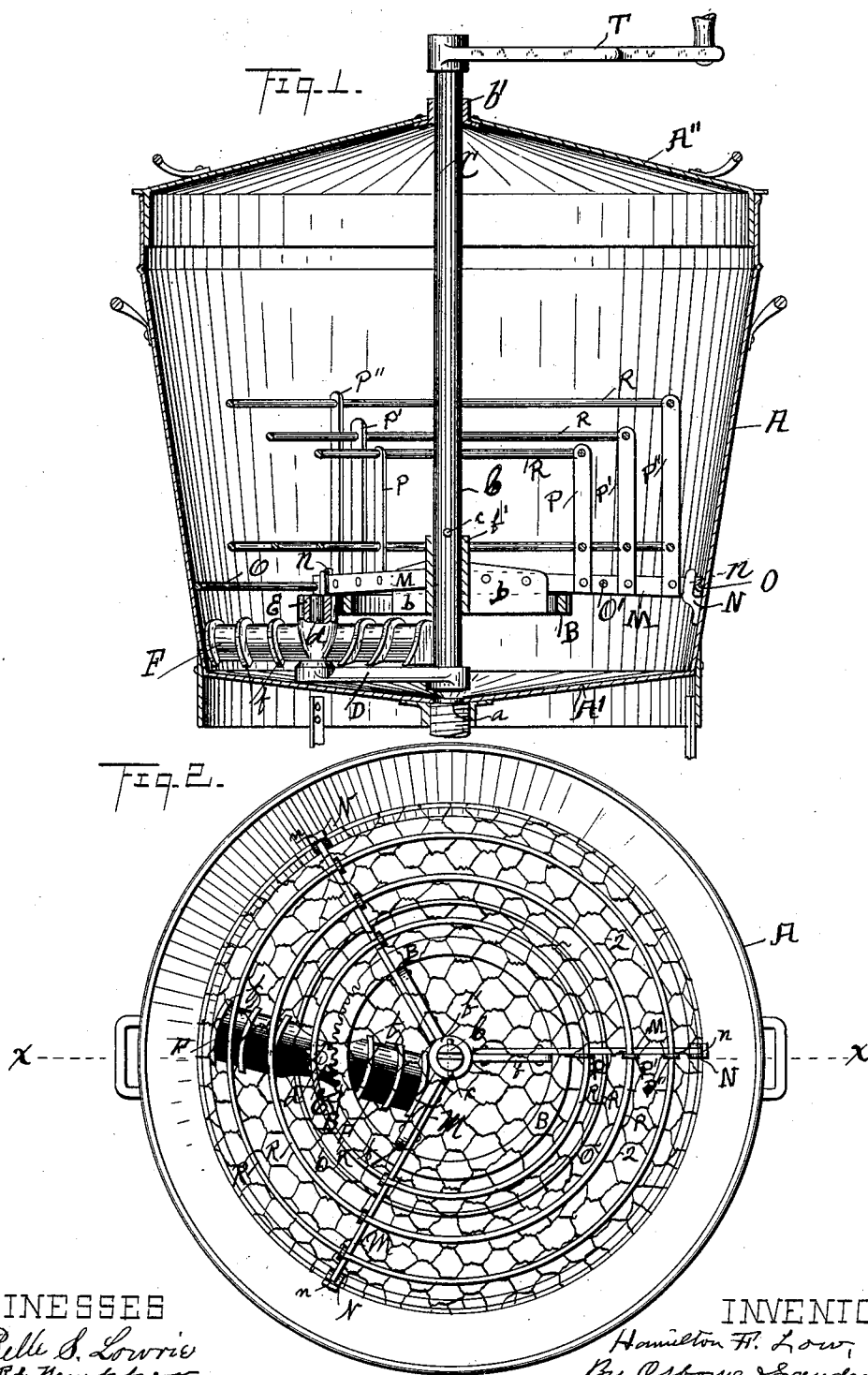
(No Model.)

3 Sheets—Sheet 1.

H. F. LOW.
DISH WASHING MACHINE.

No. 482,313.

Patented Sept. 6, 1892.



(No Model.)

3 Sheets—Sheet 2.

H. F. LOW.
DISH WASHING MACHINE.

No. 482,313.

Patented Sept. 6, 1892.

Fig. 3.

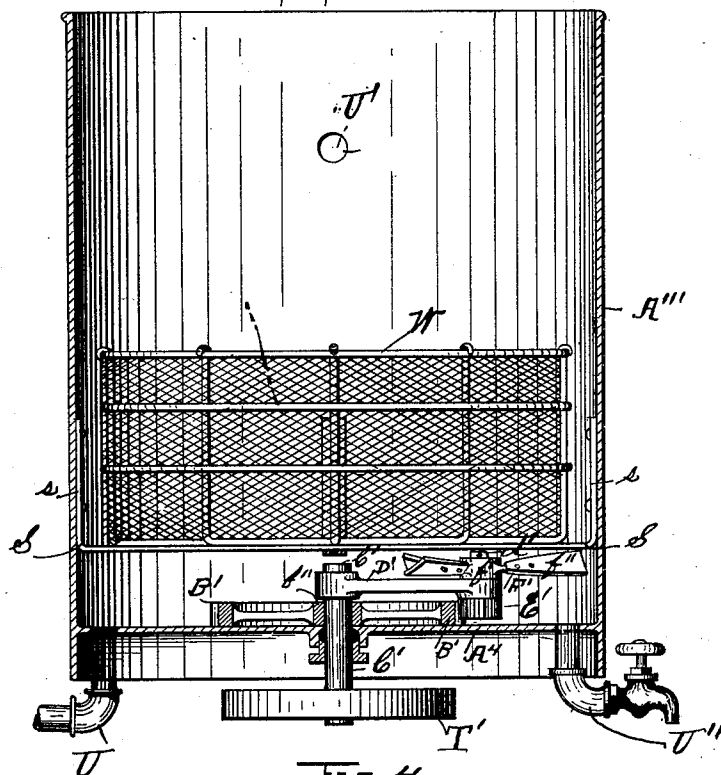
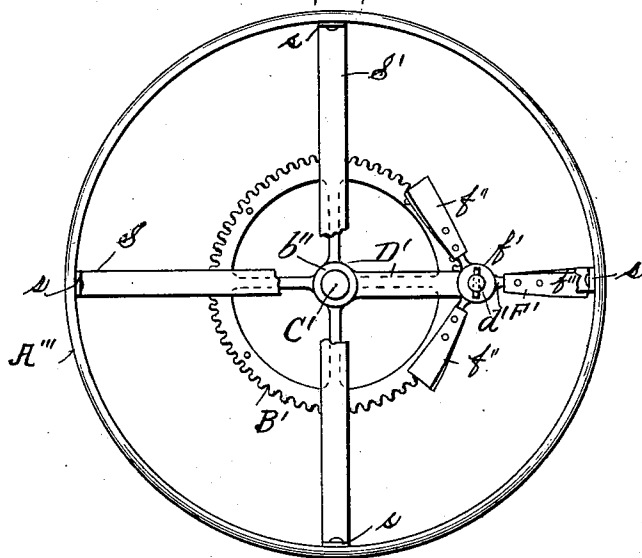


Fig. 4.



WITNESSES

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(No Model.)

3 Sheets—Sheet 3.

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Fig. 5

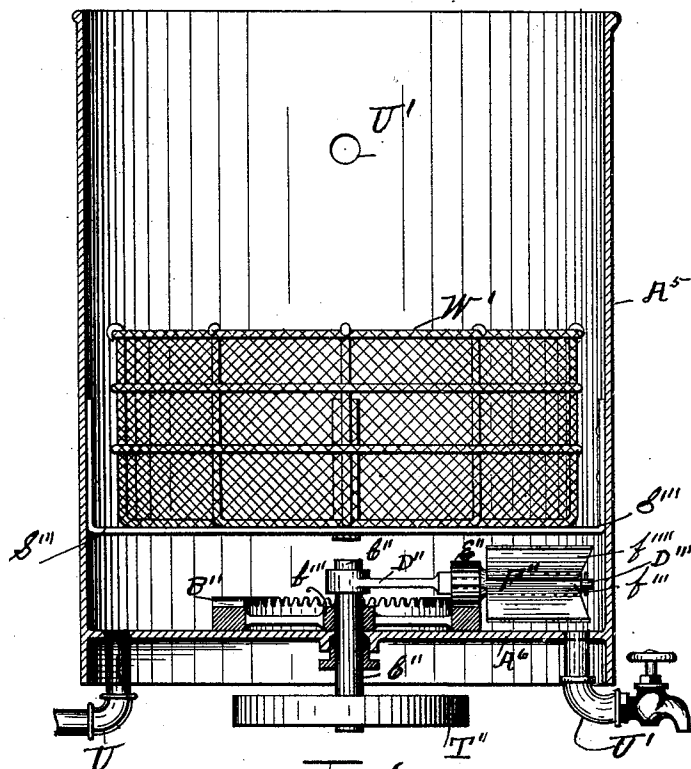
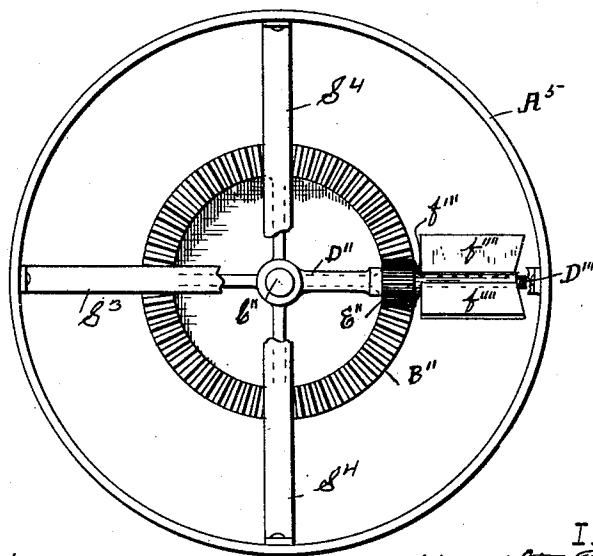


Fig. 6



WITNESSES.

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UNITED STATES PATENT OFFICE.

HAMILTON F. LOW, OF CLEVELAND, OHIO.

DISH-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 482,313, dated September 6, 1892.

Application filed January 11, 1892. Serial No. 417,607. (No model.)

To all whom it may concern:

Be it known that I, HAMILTON F. LOW, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Dish-Washing Machines; and I do hereby declare the following, with the accompanying drawings, to be a complete specification of the same.

10 The objects of my invention are greater efficiency of such machines, to produce a machine which is simple in construction, easy to place dishes in and take them out, and which requires little power to run.

15 My invention consists in an agitator which travels in a circle and rotates upon its own axis and in the construction and combination of parts described herein and defined in the claims.

20 In the drawings, Figure 1 is a central vertical section of my machine, the wire screen being removed; and Fig. 2 is a plan of my machine, the cover of the tank being removed. Fig. 3 is a central vertical section of a modification of my machine; and Fig. 4 is a plan of the same, the cover-screen and dish-rack being removed. Fig. 5 is a central vertical section of another modification of my machine; and Fig. 6 is a plan of the same, the cover and dish-rack being removed.

30 I will first describe my machine as illustrated in Figs. 1 and 2.

In the form illustrated by Figs. 1 and 2 the tank A is an inverted frusto-conical cylinder with a bottom A', said tank being water-tight. In the bottom of the tank is an opening a, into which a cock or valve is screwed for drawing water out of the tank. The tank may be covered with any suitable cover, as 40 A'', or it may be left open. I find it advisable to provide a cover for the forms shown in Figs. 1, 2, 5, and 6, which are best adapted to family use, though no cover is shown in Figs. 5 and 6, while the form illustrated by 45 Figs. 3 and 4, which is best suited to restaurant and hotel use, may as well be left uncovered. The reason why it is preferable to cover the first forms and not the others will be made to appear in describing the use of my 50 invention in practice.

A gear B is held stationary by means of braces M, which are fixed to the spokes b o,

the gear-wheel B. Said braces drop into notches n in the brackets N.

A shaft C passes through the hub b' and turns freely therein. A lug or pin c prevents the shaft from dropping upon the bottom of the tank and letting the pinion E out of gear with the stationary gear-wheel B.

An arm D is fixed to the lower end of the shaft C. Projecting upward from the arm D is a pin d, upon which a pinion E is journaled. This pinion meshes with the stationary gear B.

Upon the pinion E, I either fix or form integral therewith an agitator F for throwing water placed in the tank. The agitator may take on various forms. That shown in Figs. 1 and 2 is cast-iron of an inverted-V shape with ribs f, which aid in breaking up and directing the throw of the water.

Wires O and O' brace the braces M laterally and help to sustain the wire screen Q, which is placed over them and the braces M to prevent the dishes from falling through and coming in contact with the agitator and being broken.

Uprights P, P', and P'' are secured to the braces M and are connected by wires R. The screen Q and uprights P, P', and P'', with the connecting-wires R, form a frame or basket in which the dishes are placed for washing.

A crank T is fixed upon the top of the shaft C. When the shaft is turned, the arm D turns with it, and this carries the agitator F in a circle, while the pinion's traveling around the gear B causes the agitator F to turn horizontally upon its own axis.

The description has been confined so far to the arrangement of parts as illustrated by Figs. 1 and 2. I will now describe the arrangement of parts as illustrated in Figs. 3 and 4.

It will be observed that in the first form, which is adapted to domestic use, the parts are arranged to be operated by hand and to the use of a comparatively less quantity of water in the tank. To this end the agitator is placed below the stationary gear in the first form and above it in the second form.

The stationary gear B', the rotary shaft C', through its hub, the arm D', fixed upon the shaft, and the pinion E', journaled upon an upright pin d' upon the arm of the shaft, are

all like those already described. In this form, which is adapted to hotel and restaurant use, the parts are arranged to be driven by steam, electrical, or other motive power, and to the use of a comparatively larger quantity of water than the form heretofore described.

A''' is a cylindrical tank, through the bottom A'''' of which is a vertical shaft C'. To the lower end of this shaft, outside the tank, is fixed any suitable drive pulley or gear T'. Within the tank, at or near its bottom, is fixed a stationary gear B', through the hub b'' of which turns the shaft C'. To the upper end of the shaft C' is fixed an arm D', which has a pin d' journaled near its outer end. Upon said pin d', below the arm C', is fixed a pinion E', and to the top end of said pin d', above the arm D', is fixed an agitator F'. The agitator in this form preferably consists of a central hub f'', carrying wings or vanes f''' set at an angle somewhat similar to the vanes of a propeller, and is designed to agitate the water in the tank and drive it around the inside of the tank.

Braces S and S', which cross at the center of the tank and turn up at their ends, as seen at s, to afford a means for riveting the same to the sides of the tank, support a basket W. The basket is designed to hold dishes while they are being washed, and it is lifted in and out of the tank for convenience in loading and unloading. A wire screen (not shown) similar to the screen Q (seen in Fig. 2) is preferably placed upon the braces S S' to keep dishes from falling below and being broken. The basket W will rest upon this screen.

U is a pipe through which the water is carried into the tank. U' is an escape-pipe, and U'' is an outlet for drawing water out of the tank when through washing dishes.

The operation of the gear B', pinion E', and the agitator F' is the same as in the form previously described.

In the form and arrangement illustrated by Figs. 5 and 6 the tank A⁵, with the bottom A⁶, is like the form shown in Figs. 3 and 4. A shaft C'' passes vertically through the bottom A⁶. To the bottom of the shaft C'' outside the tank is affixed any suitable drive-pulley or gear T''. Within the tank is fixed a stationary gear B'', through the hub b'' of which turns the shaft C''. To the upper end of the shaft C'' is fixed an arm D''. Upon the outer end of the arm D'' is journaled a pinion E'', to which is secured horizontally therefrom an agitator F''. This agitator consists of a hub f'''' and vanes f''''', which rotate vertically upon the axle D''', formed by the projection of the arm D'' through the pinion E'' and said agitator. The basket W' and its supports S''' S'''' are like those shown in Figs. 3 and 4.

In the form illustrated by Figs. 5 and 6 no cover is shown. If it is desired to use a cover, one of any suitable construction may be used.

It will be observed that the agitator in the

forms illustrated by Figs. 1, 2, 3, and 4 turn upon a vertical axis, while in the form last described the agitator turns upon a horizontal axis; but the agitators in all the forms are operated by the same mechanism.

The feed-pipe U, escape-pipe U', and the emptying-pipe U'' are alike in the forms illustrated by Figs. 3, 4, 5, and 6.

In the operation of my device the tank (illustrated in Figs. 1 and 2) is filled with water to just above the agitator, while in the other form (illustrated in Figs. 3, 4, 5, and 6) the baskets W and W' are nearly submerged. The arrangement of parts illustrated by Figs. 1 and 2 allows the use of a less quantity of water in the tank, which makes it easier to operate, while a larger quantity of water in the other forms, which are driven by steam or electricity, is more effective when it is desired to wash a large quantity of dishes. In the first form the water is splashed or thrown against the dishes, while in the other forms the whole volume of water in the tank is caused to rotate, and is thus forced against the dishes.

In the form illustrated by Figs. 1 and 2 all the parts lift out of the tank together, while in the others the basket W and W' and the screen, (not shown,) which rests upon the braces S S', are the only parts that are to be removed. When the baskets W and W' and the screens referred to are out of the other forms, there is ample opportunity to clean the machine.

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

1. The combination, in a machine of the character described, of a tank, an agitator which travels in a circle within the tank and which rotates upon its own axis, and a basket or frame supported within the tank, said basket being adapted to hold dishes, substantially as described.

2. The combination, in a machine of the character described, of a tank, a stationary gear within the tank, a shaft that turns in the hub of a stationary gear, an arm fixed upon the shaft, a pinion driven by the arm and meshing with the stationary gear, an agitator which turns with the pinion, and a basket or frame supported within the tank, said basket or frame being adapted to hold dishes, substantially as described.

3. The combination, in a machine of the character described, of a tank, an agitator which travels in a circle within the tank and which rotates on its own axis, braces within the tank above the agitator, a screen supported by the braces, and a basket or frame supported within the tank by the braces, said basket being adapted to hold dishes, substantially as shown and described.

4. The combination, in a machine of the character described, of a tank, a stationary gear within the tank, a shaft that turns in the hub of the stationary gear, an arm fixed upon the shaft, a pinion driven by the arm

and meshing with the stationary gear, an agitator which turns with the pinion, braces within the tank, a screen, and a basket or frame supported by the braces, said basket or
5 frame being adapted to hold dishes, substantially as shown and described.

In testimony whereof I affix my signature,

in presence of two witnesses, this 10th day of January, 1891.

HAMILTON F. LOW.

Witnesses:

J. A. OSBORNE,

GERTRUDE FOSTER.