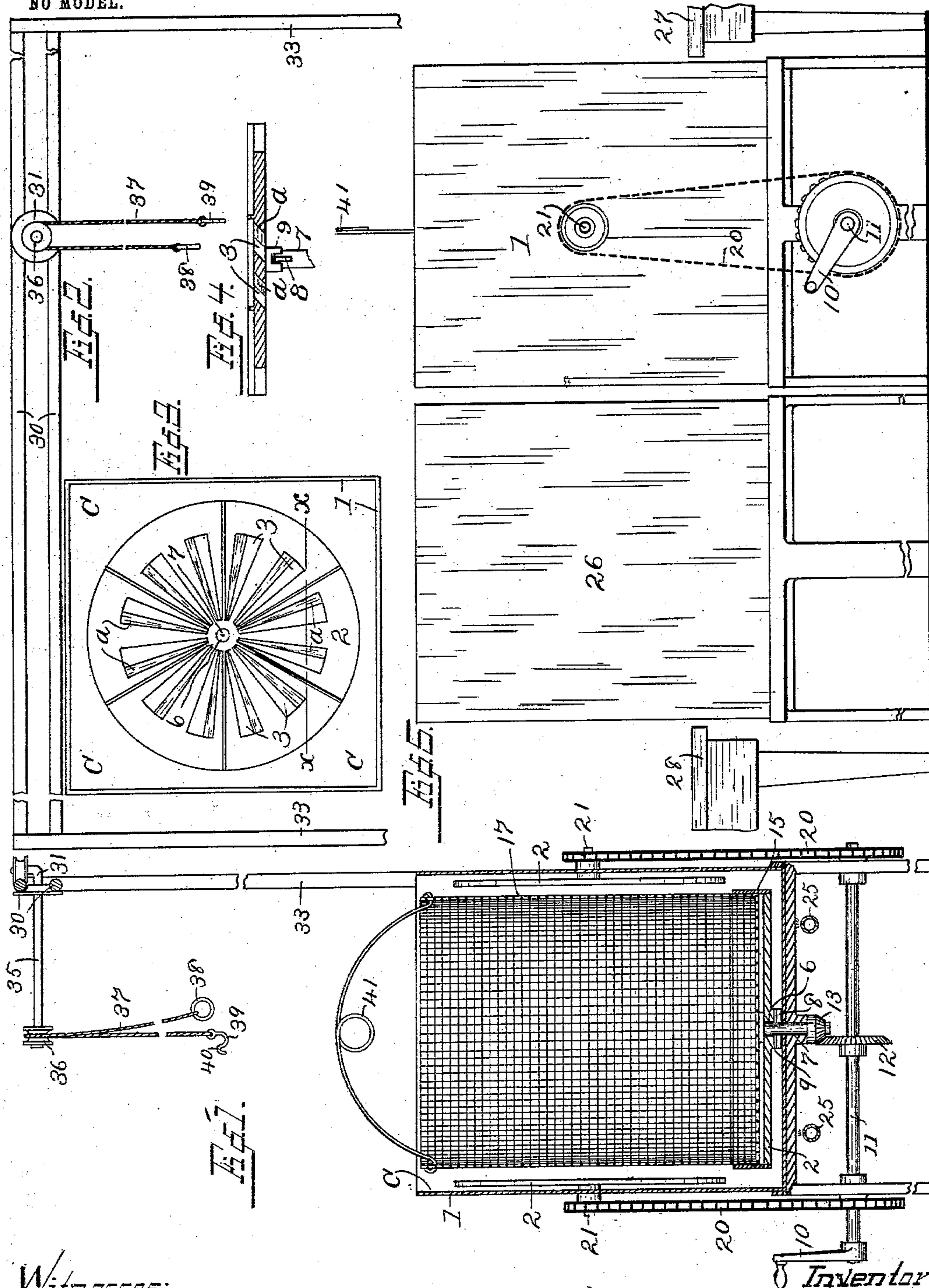


No. 740,642.

PATENTED OCT. 6, 1903.

L. B. GREGG.
DISH WASHING MACHINE.
APPLICATION FILED NOV. 24, 1902.

NO MODEL.



Witnesses:
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LUTHER B. GREGG, OF WAUWATOSA, WISCONSIN.

DISH-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,642, dated October 6, 1903.

Application filed November 24, 1902. Serial No. 132,537. (No model.)

To all whom it may concern:

Be it known that I, LUTHER B. GREGG, a citizen of the United States, residing at Wauwatosa, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

My invention relates to improvements in dish-washing machines.

10 The object of my invention is to provide a simple and inexpensive means for directing a series of violent currents of water against the dishes, the currents acting to some extent in opposition to each other, producing
15 a maelstrom, whereby all portions of the dishes are reached and effectually cleansed.

Another object of my invention is to provide a form of construction which will be self-cleansing.

20 In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the invention drawn on the axis of the driving-shaft. Fig. 2 is a detail view of the overhead
25 track used to facilitate moving the dish-crate. Fig. 3 is a plan view of the tank of the washer and the water-propelling wheel located therein. Fig. 4 is a sectional view drawn on line
30 of the invention. Fig. 5 is a general side view of the invention.

Like parts are identified by the same reference characters throughout the several views.

1 is a water-containing tank having angular corners, being preferably square in plan
35 or horizontal section. At the bottom of this tank is located a water-propelling wheel 2, which consists of a flat circular disk having radially-extending slots 3. The side edges of the slots are beveled, as best shown at *a*
40 in Fig. 4, and the upper and lower surfaces of the wheel are substantially flat, as shown. The slots 3 preferably increase in width from their inner ends outwardly, and between some of the slots are upwardly-projecting radial
45 flanges (best shown in Fig. 2) which form a raised support for the dish-holding cage hereinafter described. The wheel 2 is provided with a central aperture 6 for the reception of the vertical power-transmitting shaft 7, the
50 latter being provided with a cross-pin 8, which

is inserted through an aperture in the vertical shaft 7 and engages in suitable notches in a downwardly-projecting hub 9 of the wheel 2. Motion is communicated to the shaft 7 and wheel 2 from a crank 10 through the medium of the shaft 11 and bevel gear-wheels 12 and 13. The wheel 2 is provided with an upwardly-projecting rim 15, into which a dish-holding cage 17 is adapted to fit. This cage is permitted to rest upon the wheel 2, revolving with it, or it may, if desired, be supported in a stationary position from any convenient point, in which case it will of course be held above and out of contact with the wheel 2. When the crank 10 is rotated, the wheel 2 will
60 be rapidly revolved and water will be drawn through the slots 3 thereof and will be thrown outwardly by centrifugal force. A large portion of the water will be thrown into the angular corners C of the tank 1, from which it reacts inwardly through the cage 17. In the construction shown there will be four large streams pouring angularly from the corners of the tank toward the center of the cage, and as these streams strike the cage and the
75 dishes therein the result is a violent churning, which effectually cleanses the dishes.

It will be observed that with the described construction the dish-holding cage is not only revolved to cut the streams of water coming
80 from the corners of the tank 1, but the space around the wheel is left open and unobstructed, so that the whirling water is permitted to freely rise around the sides of the wheel and return from the corners of the tank through
85 the sides of the cage and against the dishes. With the described wheel there is little or no tendency to throw the water vertically. With water at a depth (when at rest) of three or four inches over the wheel if the machine be
90 operated at a moderate speed the center of the wheel will be left bare by centrifugal action, while the water will be banked up at the sides to a depth of six inches or more with the large corner streams pouring in-
95 wardly at a still higher level. In this respect the machine is materially different from those in which wheels are used having propeller-shaped blades for throwing water directly against the dishes, for in the above-de- 100

scribed construction the water is driven forcibly across the dish-surfaces from the sides, while the dishes themselves revolve in a manner to cut the streams and receive the water at various angles. If desired, similar wheels 2 may be provided at each side of the tank 1, motion being communicated to these wheels from the shaft 11 through the medium of sprocket chain and pinion connections 20 and shafts 21.

In order to heat the water preparatory to washing the dishes, perforated gas-pipes 25 are located underneath the tank 1. It will be understood, however, that for the smaller machines the water may be heated independently and poured into the tank 1 preparatory to washing the dishes, or any suitable means may be employed for heating the water.

Referring to Fig. 5, it will be observed that I have provided an additional tank 26, in which the dishes may be rinsed after being washed in the tank 1. 27 and 28 represent tables upon which the dish-holding crates may be placed before and after washing the dishes. To facilitate moving the crates from the tables in the tanks and from one tank to another, an overhead track 30 is provided, preferably consisting of two rails, as shown, the same being used to support and guide a traveling carriage 31. The tracks and supporting-framework 33 are located above the rear portions of the tanks 1 and 26, and the carriage 31 is provided with an arm 35, which carries a pulley 36 in a position to pass longitudinally across the tanks from one table to the other. A rope or chain 37 passes over this pulley, one end being provided with a ring 38 and the other end with a hook having inversely-curved loops 39 and 40. When it is desired to move the crate, the hook is brought down and the loop 39 engaged with a bail 41, connected with the crate. The attendant then pulls upon the ring 38 to lift the crate until the ring can be engaged in the loop 40 of the hook, whereupon the crate will be supported entirely from the pulley 36 and can be pushed freely in either direction, the carriage 31 traveling along the tracks 30 to the desired position.

The scope of the invention is not limited to the provision of wheels 2 at the sides of the tank 1 nor to the provision of overhead carriers for moving the dish-holding crates, these being used, if at all, only in the larger machines. In the smaller machines the wheel 2 at the bottom of the tank will be found amply sufficient for driving the water, and small crates, even when full, are not so heavy as to prevent their being lifted by hand from one position to another. It will also be understood that the driving-shaft 11 may be connected with any suitable source of power in substitution for the crank 10.

In operation the dishes are placed in the crate and the crate inserted in the tank 1, when the crank 10 may be revolved in either

direction, it being immaterial whether the water is drawn upwardly through the wheel 2 by the action of the beveled surfaces α or forced downwardly thereby, as will be the case if the movement of the wheel 2 is reversed from the direction indicated in Fig. 3. In either case the centrifugal force of the whirling water carries it outwardly into the corners of the tank, from which it reacts upwardly and inwardly against the dishes. By reversing the rotation of the crank 10 during the operation of washing the direction taken by the streams of water is altered and the churning effect produced by drawing the water downwardly through the wheel 2 is somewhat different from that produced by forcing it upwardly therethrough. Such a reversal of movement is therefore advisable in order that the streams may more effectually reach and forcibly drive against all portions of the dishes in the crate. The force of the streams is such that they will readily pass between the dishes.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the described class, the combination of a tank having angularly-disposed side walls; a water-propelling wheel located in the lower portion of said tank; and formed to throw the water outwardly by centrifugal force toward the side walls of the tank, and a dish-holding cage supported from said wheel; said dish-holding cage and tank being formed with a free and unobstructed space for whirling water between the cage and the sides of the tank.

2. In a device of the described class, the combination of a water-containing tank having water-obstructing angles; a water-propelling wheel located in the lower portion thereof, adapted to impart a whirling motion to the water; upwardly-projecting flanges on said water-wheel adapted to engage and support a dish-holding cage; and a dish-holding cage removably mounted on said wheel.

3. In a machine of the described class, the combination of a tank for washing fluid, having angles at the sides thereof; a water-propelling wheel in the lower portion of the tank adapted to impart a whirling motion to the water; an upwardly-projecting flange on the water-wheel; a dish-holding cage supported in the tank; and means for rotating the wheel; together with a traveling carrier extending above the rear portion of the tank; a pulley supported therefrom in a line extending over the central portion of the tank; and suitable tackle carried by the pulley and provided with a reversely-curved hook on one end, and a hook-engaging ring at the other end adapted to engage in one of the curves of the hook, the other curve of the hook being adapted to engage the dish-holding cage.

4. The combination with a tank for wash-

ing fluid, having angular corners; and a water-propelling wheel located in the lower portion of the tank, and adapted to impart a whirling motion to the fluid; together with
5 auxiliary water-propelling wheels at the sides of the tank; and common driving connections therefor.

In testimony whereof I affix my signature in the presence of two witnesses.

LUTHER B. GREGG.

Witnesses:

LEVERETT C. WHEELER,
C. L. ROESCH.