

No. 657,251.

Patented Sept. 4, 1900.

E. SANDSTROM.
DISH WASHING MACHINE.

(Application filed Nov. 7, 1899.)

(No Model.)

WITNESSES

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EDWARD SANDSTROM, OF WILMINGTON, DELAWARE.

DISH-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,251, dated September 4, 1900.

Application filed November 7, 1899. Serial No. 736,200. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SANDSTROM, a citizen of the United States of America, and a resident of Wilmington, county of New Castle, and State of Delaware, have invented certain new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

My invention comprises a couple of upright reversely-rotating sheet-metal cans one within another and both within a water-holding tub and being constructed and provided with means for operating them, as hereinafter described, whereby it is designed to provide a simple, efficient, and rapid dish-washing machine that may be made in any desired size of small or large capacity, either for manual or other power and which as at present constructed is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of my improved dish-washing machine. Fig. 2 is a top view with the cover removed. Fig. 3 is a side elevation of part of the inner drum. Fig. 4 is a detail of the operating mechanism in vertical section. Fig. 5 is a detail in plan view of the cross-bar of the water-circulating can.

The construction and operation of my improved dish-washing machine are as follows:

In the first place a suitable tub *a*, preferably of wood, is set up on any suitable support *b*, said tub being provided with a central upright tube *c*, extending through the bottom and reaching nearly to the top of the tub and also provided with a suitable cover *d*, in which is a suitable inlet *e* for the water, and a faucet *f* is attached to the bottom of the tub for drawing off the water. Within the tub is a sheet-metal can *g*, a little smaller than the tub, open at the top and centrally perforated in the bottom to receive the tube *c* when inserted in the tub, with a downwardly-projecting collar *h* of the bottom for a step-bearing to rest on the bottom of the tub and revolve thereon. On the top of this can is a cross-bar *i*, detachably connected at its ends to the sides of the tub, respectively, and at its center receiving the upper end of a shaft *j*, extending up through tube *c* from below the bottom of the tub, where it has a step-bearing *k*', and is geared with the driv-

ing-shaft *k* by bevel-wheels *l* for rotating the can *g*, said shaft being keyed or feathered in the cross-bar *i*, as indicated at *m* and *n*, or connected in any other suitable way for so driving it. Within can *g* is another can *o*, similarly centered on tube *c*, but resting on a shoulder *p* so as to rotate. It has a cross-bar *q* at the top, also centered on tube *c* and having a bevel-wheel *s* attached to it, said bar and wheel both adapted to turn freely on the tube. Above this wheel *s* a sleeve *v* is detachably secured, by a set-screw *u* or other means, to the tube *c*, said sleeve having a lateral stud *t*, on which a bevel-wheel *w* is pivoted, which gears with wheel *s* and with another wheel *x*, which is mounted on shaft *j* directly under cross-bar *i*, by which motion is transmitted from shaft *j* to can *o*, driving it reversely to the direction in which can *g* turns. The wheel *x* is represented as feather-keyed on the shaft, so as to be readily detached when desired. Both cans are slotted in the cylinders, as at *y*, and perforated in the bottoms, as at *z*, for free circulation of water. Can *g* has inwardly-projecting paddle-flanges *a'*, and can *o* has outwardly-projecting paddle-flanges *b'* for effecting lively circulation of water. Can *o* also has upwardly-projecting spurs *c'* of the bottom to prevent the dishes from sliding about on the bottom, and said can is provided with a removable partition *d'* about midway of the top and bottom for separating the charge of dishes into two tiers, by which more effective action is attained. More of such partitions may be used, if desired.

The dishes are placed in the inner can *o* while the tub is empty, and when properly charged water is let into the tub and the cans are set in motion at a rapid rate, whereby through the reverse movements of the two cans and the paddle-flanges violent and effective currents are induced well adapted for quickly and effectively cleaning the dishes. After washing, free circulation of air for drying the dishes is obtained by exterior stand-pipes *f'*, opening into the tub near the bottom, and others, *g'*, connected higher up, as indicated by the dotted circle *g*², Fig. 1, through which further rotation of the cans induce active currents, which dry the dishes quickly.

A guard-tube *h'* is provided to cover the

standing tube *c* and rotate with the can to prevent the dishes from rubbing against the said tube *c*, by which they might be injured, and it serves for the upper edges of some
 5 dishes to rest against it, the lower edges being set inside of the spurs *c'* when it may be desired to so arrange them. For simpler machines the outer can may be omitted.

When it is desired to separate the parts for
 10 effectively cleaning the machine, the cover *d* will be removed, cross-bar *i* taken off, wheel *x* and sleeve *u* detached, can *o* lifted out, and can *g* also.

What I claim as my invention is—

15 1. In a dish-washing machine, the combination of the stationary tub, reversely-rotating cans located within the tub and one within the other and having the slots and perforations for the circulation of water or air, paddle-flanges of the respective cans intermediate
 20 of the cylinders of the said cans, means for rotating the cans, and the stand-pipe connected in the sides of the tub for circulation of air.

25 2. In a dish-washing machine, the combination of the stationary tub, reversely-rotating cans located within the tub and one within the other, stand-tube on which said cans are

centered, driving-shaft located in the stand-tube and connected at the top with the outer
 30 can for rotating it, the gear-train of bevel-wheels and the intermediate wheel-supporting sleeve on the stand-tube connecting the inner tank with the driving-shaft, and means for actuating said driving-shaft.

35 3. In a dish-washing machine, the combination of the stationary tub, reversely-rotating cans located within the tub and one within the other, stand-tube on which said cans are centered, driving-shaft located in the stand-
 40 tube, and connected at the top with the outer can for rotating it, the gear-train of bevel-wheels and the intermediate wheel-supporting sleeve on the stand-tube connecting the inner tank with the driving-shaft, means for
 45 actuating the driving-shaft, and the paddle-flanges of the cans intermediate of the respective cylinders of the cans, said cans having the slots and perforations for the circulation of the water.

Signed by me this 30th day of September,
 1899.

EDWARD SANDSTROM.

Witnesses:

CHARLES G. GUYER,
 AKE TISELL.