June 28, 1927. 1,634,038

J. J. OWENS

DISHWASHING MACHINE

Filed July 9, 1925 3 Sheets-Sheet 1

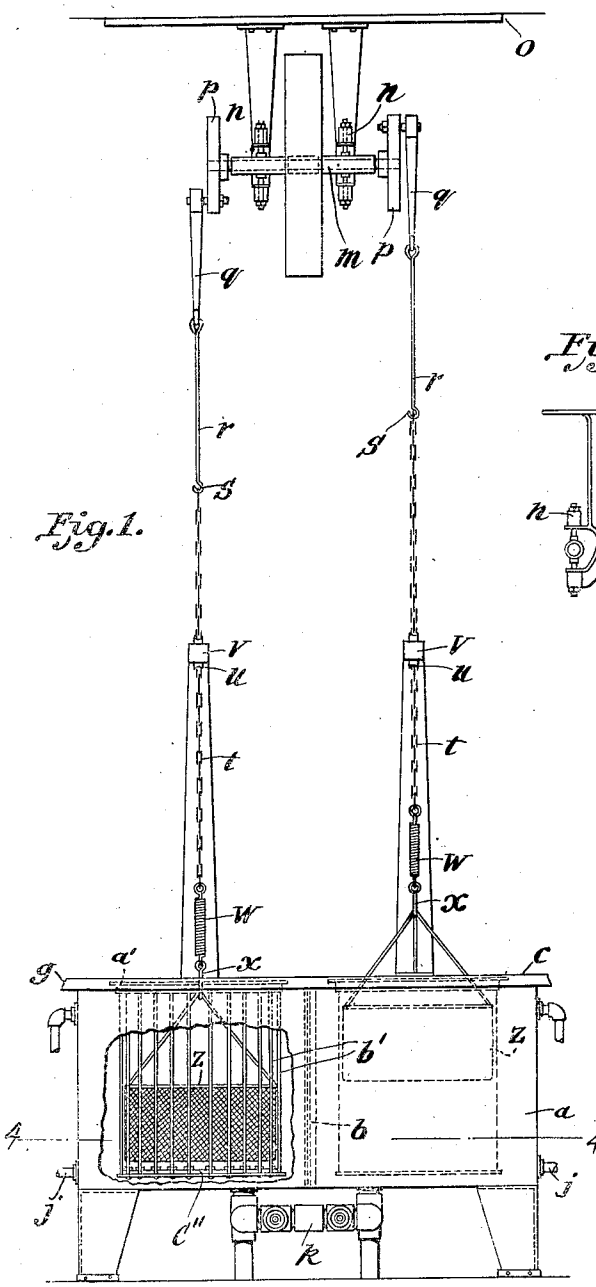


Fig. 1.

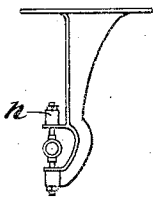


Fig. 3.

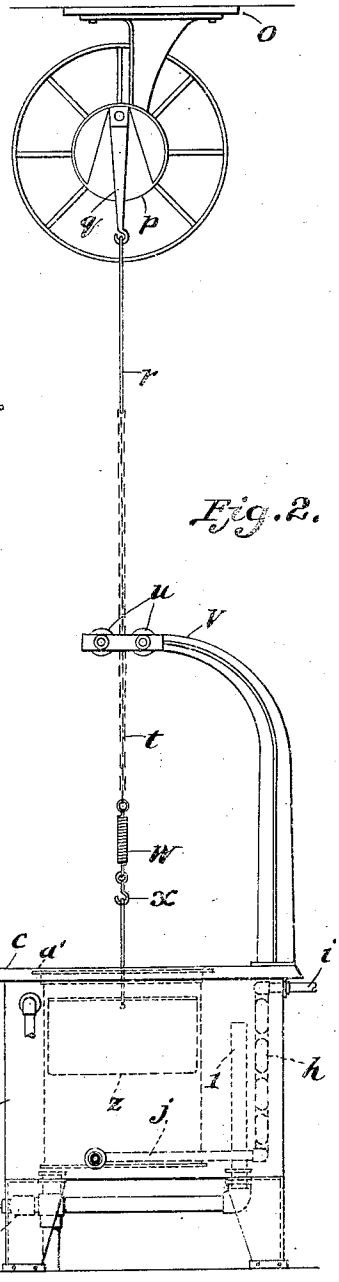


Fig. 2.

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1,634,038

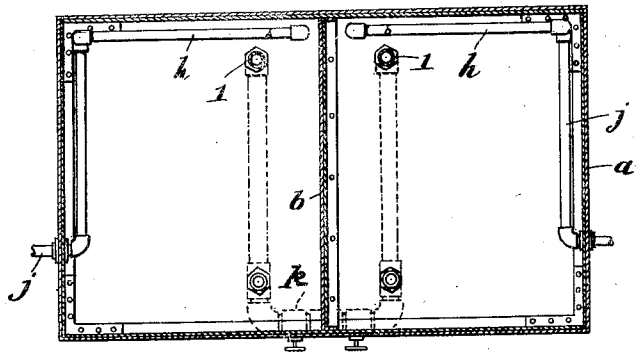
J. J. OWENS

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Filed July 9, 1925

3 Sheets-Sheet 2

Fig. 4.



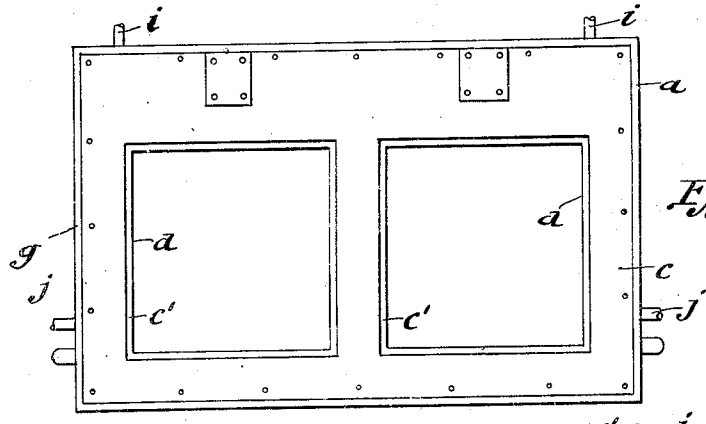
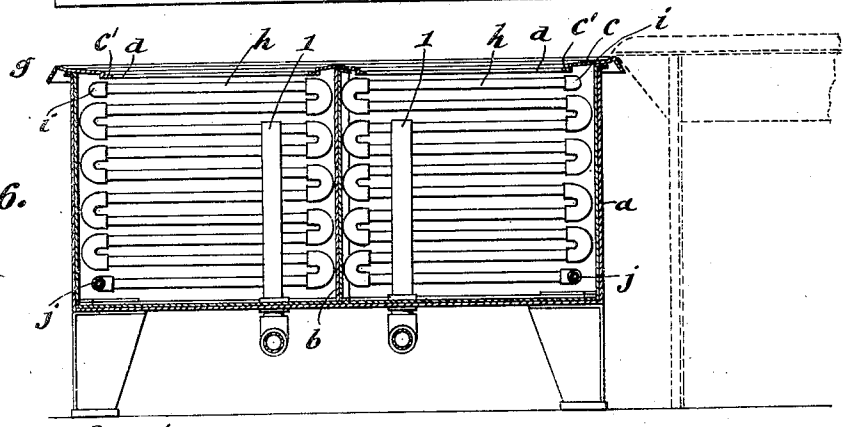


Fig. 5.

Fig. 6.



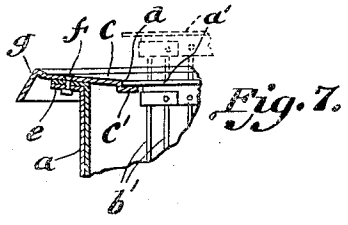


Fig. 7.

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1,634,038

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3 Sheets-Sheet 3

Fig. 8

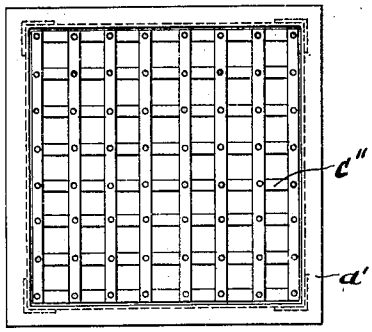


Fig. 9.

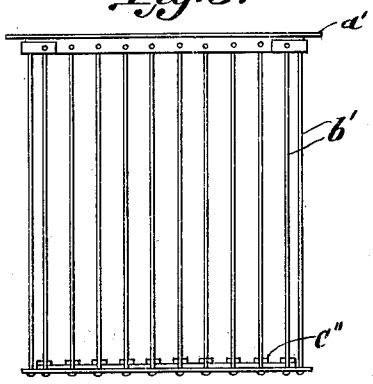
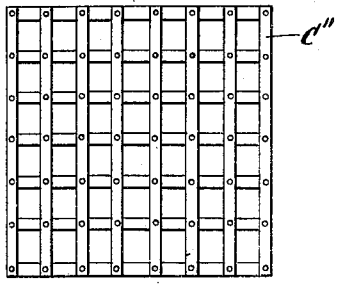


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN J. OWENS, OF BLACKSBURG, VIRGINIA.

DISHWASHING MACHINE.

Application filed July 9, 1925. Serial No. 42,510.

My invention relates to dish washing machines, and its principal object is to provide a dish washing machine embodying a fixed tank and reciprocal dish carrying receptacles which are guided in a true vertical direction, and thereby obviate breaking of the dishes or other fragile articles being washed, incident to lateral movement.

Still another object of the invention is to provide a dish washing machine of this character, wherein the dish carrying receptacles are reciprocated by means of eccentrically mounted flexible elements depending from driven elements, the dish carrying receptacles being positively guided in a vertical direction against the normal tendency of the flexible elements to move in an angular direction, due to the eccentric connection of the latter with the driven elements.

The invention also contemplates a washing machine embodying a washing tank divided into a plurality of compartments, into each of which a heating coil is arranged, the latter being located in an out of the way position where they will not be engaged by the reciprocal dish carrying receptacle.

With the preceding and other objects and advantages in mind, the invention consists of the novel combination of elements, constructions and arrangements of parts, and operations to be hereinafter specifically referred to, claimed and illustrated in the accompanying drawings, wherein,

Fig. 1 is a front elevation of a dish washing machine constructed in accordance with my invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a detail view of one of the bearings embodied in the invention.

Fig. 4 is a horizontal sectional view taken on line 4—4 of Figure 1.

Fig. 5 is a top plan view of the dish washing machine tank.

Fig. 6 is a vertical sectional view of the same adjacent a table, the latter being shown in broken lines.

Fig. 7 is a fragmentary sectional view of the washing machine tank.

Fig. 8 is a top plan view of one of the dish carrying receptacle guides.

Fig. 9 is a side elevation of the same.

Fig. 10 is an elevation of the removable bottom of the guide.

Referring in detail to the drawings, wherein corresponding characters of reference denote corresponding parts throughout the several views, the letter *a* designates a tank divided into compartments by means of a vertical centrally arranged transverse partition *b*. Overlying the upper edge of the tank *a* and extending beyond the side walls thereof is a plate *c* provided with a pair of relatively large rectangular openings *d*, the latter being disposed at the vertical center of each of the compartments as shown in Figure 6. As shown in Figure 7, the plate *c* rests upon outwardly extending flanges *e* formed on the upper edge of the side walls of the tank *a*, and is detachably secured to this flange by removable fastenings *f*. A marginal depending flange *g* is formed with the outer edge of the plate *c*.

For the purpose of heating water contained in the compartments of the tank *a*, a vertically arranged heating coil *h* is arranged in each of the compartments, and one end of which is in communication with a heating medium conducting pipe *i*, and the other end has communication with an outlet pipe *j*.

Arranged below each of the compartments of the tank *a* is a valved controlled water supply pipe *k*, which extends through the bottom wall of the tank. Drain pipes *l* pass through the bottom wall of the tank and are of such height as to extend to a point adjacent the upper end of the compartments where they will drain the upper surface of water contained in the compartments, and thereby retain the water in a relatively clean state at all times.

A pulley driven shaft *m* is mounted in bearings *n*, fixed to the ceiling or other horizontal support *o*. A disk *p* is fixed to each end of the pulley driven shaft *m* and is disposed in vertical alinement with the center of each opening *d* of the plate *c*. Eccentrically mounted pitmen or hooks *q* are carried by each of the disks *p*, and detachably engaged with each of these pitmen or hooks *q* is a rod *r* terminating in a hook *s* at its lower end. Chains or other flexible elements *t* are engaged with the hooks *s*, and these are reciprocable between pairs of opposed guide rollers *u* carried by overhanging arms *v* arising from the plate *c*. Contractile springs *w* depend from the lower ends of the chains or flexible elements *t*, the latter carrying hooks *x* which engage reticulated dish carrying receptacles or frames *z*, movable in the compartments of the tank *a*.

I have found from experience that the dish

carrying receptacles flexibly connected to the disks p will swing laterally, due to the slipping of the dishes in the receptacle and due to the fact that the chains move off their vertical center (regardless of how close the rollers may be arranged together). In order to overcome this objection, and thereby prevent the dishes from becoming broken, I provide a guide shown in Figures 8 to 10 for each compartment. This guide comprises a rectangular L-shaped in cross section rim a' to the vertical leg o which a plurality of spaced vertical guide bars b' is attached. A rectangular latticed bottom c'' is carried by the lower ends of these guide rods b'. As illustrated in Figure 7, the horizontal leg or flange of the rims rest in counter-sinks c' extending around the openings d in the plate c, and thereby support the guides centrally within the compartments with their bottoms spaced from the bottom of the tank.

From the disclosure, it is obvious that upon rotation of the pulley driven shaft m the baskets z will be alternately raised and lowered in the guides, and as the baskets contact with the guide rods b' the former will be held against any lateral movement. It will be further observed that the walls of the compartments may be readily reached for the purpose of removing grease or other foreign matter, by reason of the guide frames being removably supported in the counter-sinks c' as aforementioned. Furthermore, the heating coils can be conveniently reached by reason of the plate c being detachably supported on the tank.

While I have illustrated and described one embodiment of the invention, I wish to emphasize that I do not limit myself to the exact construction set forth, but that I may make alterations and modifications therein, and such alterations and modifications are only governed by the appended claims.

What I claim is:—

1. A dish washing machine comprising a tank for containing water, a plate secured to the upper edge of the tank and provided with an opening and a counter-sink surrounding the opening, a dish carrying receptacle cage arranged in the tank, including a rim which rests in the counter-sink, vertical guide bars depending from said rim and having a foraminous bottom secured to said bars, a reciprocable dish carrying receptacle arranged in the cage and contacting with the latter and means for reciprocating said receptacle in said cage.

2. A dish washing machine comprising a tank, a guide cage removably secured therein, a dish holding receptacle reciprocable vertically in said guide cage, a crank rotatably mounted centrally above said cage, a cable connecting said receptacle to said crank and means engaging said cable between said crank and receptacle to maintain that part of said cable between said means and receptacle constantly vertical during the vertical reciprocation of said cable and receptacle by rotation of said crank.

JOHN J. OWENS.