

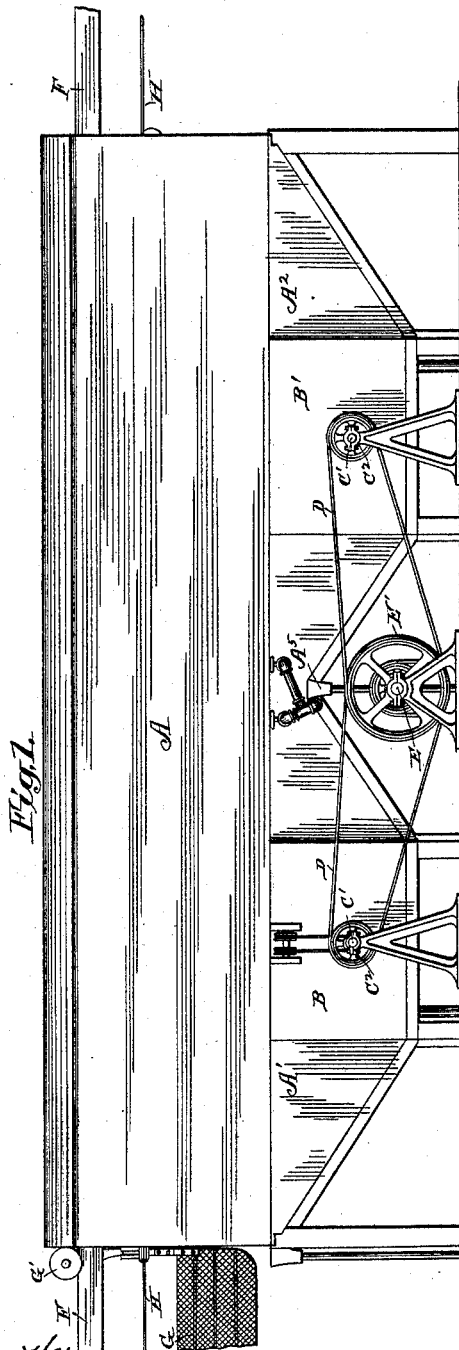
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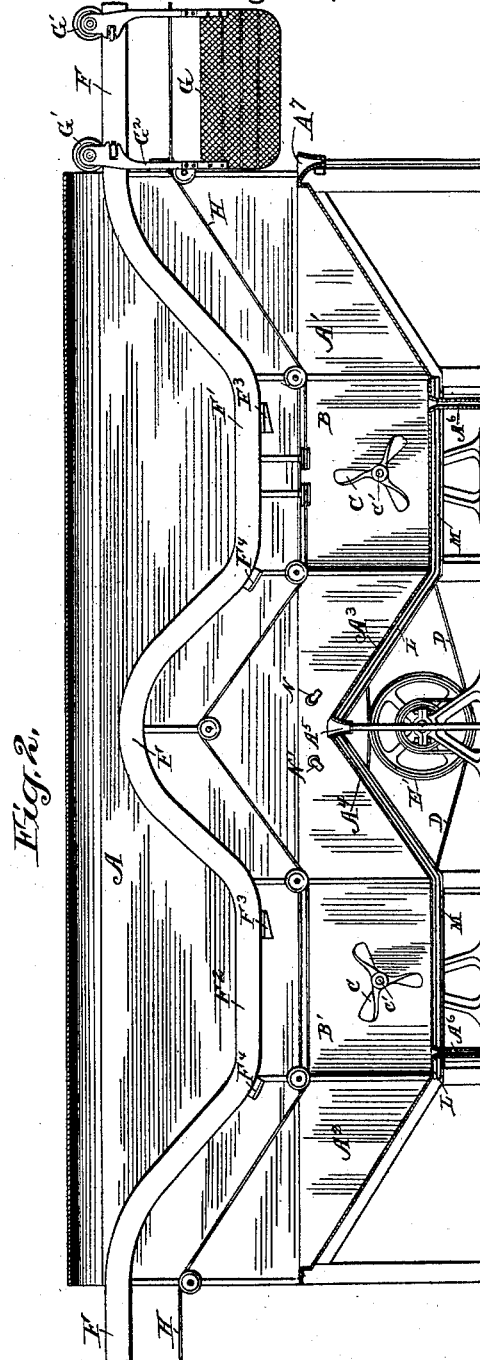
R. A. SANDERSON & J. C. EARL.  
DISH CLEANER.

No. 524,510.

Patented Aug. 14, 1894.



*Witnesses,*  
*Geo. S. Gleason,*  
*E. D. Brainerd*



*Inventors,*  
*Rufus A. Sanderson & James C. Earl*  
*By S. H. Brainerd,*  
*their atty.*

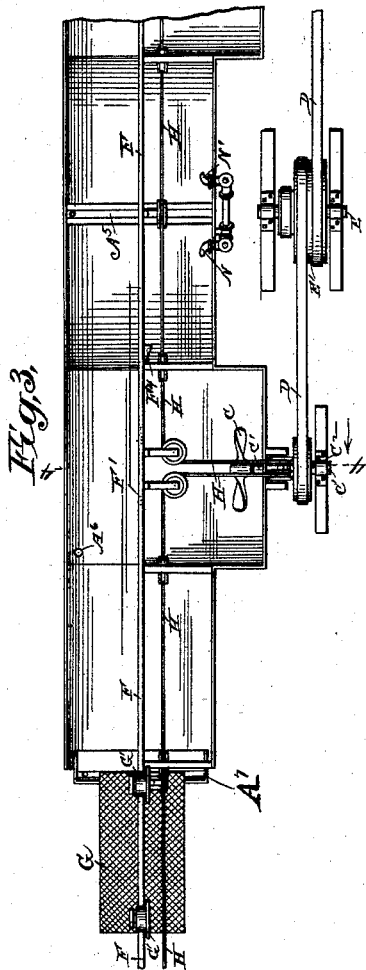
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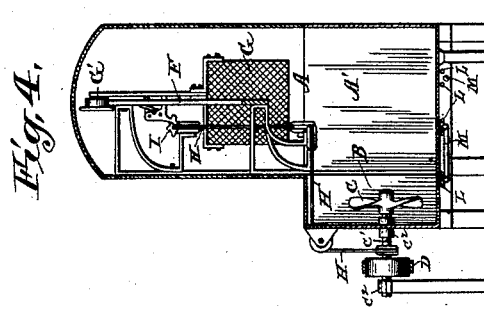
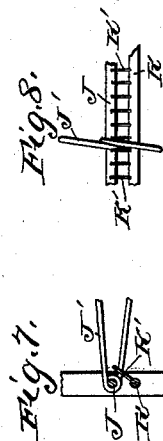
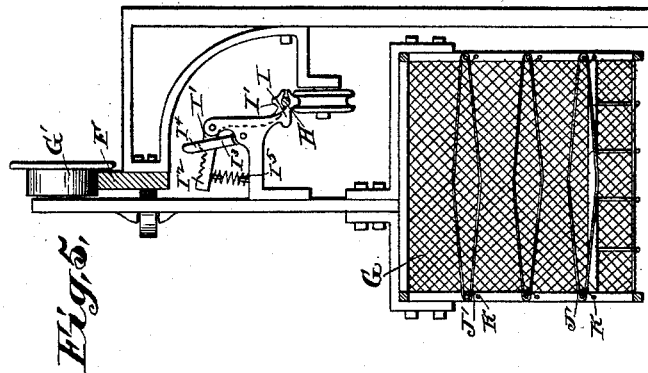
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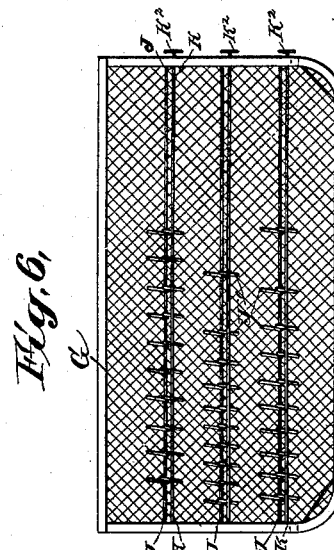
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# UNITED STATES PATENT OFFICE.

RUFUS A. SANDERSON AND JAMES C. EARL, OF CHICAGO, ILLINOIS.

## DISH-CLEANER.

SPECIFICATION forming part of Letters Patent No. 524,510, dated August 14, 1894.

Application filed May 17, 1894. Serial No. 511,566. (No model.)

*To all whom it may concern:*

Be it known that we, RUFUS A. SANDERSON and JAMES C. EARL, citizens of the United States, residing in Chicago, county of Cook, State of Illinois, have invented new and useful Improvements in Dish-Washing Machines; and we declare the following to be a full, clear, and concise description of the same.

The object of our invention is to construct a machine that will automatically wash, rinse and dry the dishes passed therethrough, and also provide means substantially as shown for automatically passing the dishes through the different operations.

Referring to the drawings: Figure 1 is a side elevation of the dish washing machine embodying our invention, showing a partial view of the dish carrying car about to enter the machine. Fig. 2 is a vertical longitudinal section as seen from the side reversed from that shown in Fig. 1. Fig. 3 is a top plan view, showing a little more than half of the dish washer, having the top casing removed. Fig. 4 is a vertical sectional view on the line 4—4, of Fig. 3. Fig. 5 is an end detailed view of the dish carrying car showing the track, bracket, cable and cable gripping device. Fig. 6 is a side elevation of the dish carrying car, having the hanger arms removed and also the screen from one side, clearly disclosing the rods and wire loops mounted thereon, said loops being used to separate the dishes. Fig. 7 is a detailed view of a fragment of the dish separating loops, end rail, rod on which the dish separating loops are mounted, and the rod having pins regularly placed therein for securing the dish holding loops against action endwise in either direction. Fig. 8 is a view of a fragment of one of the rods upon which the dish securing loops are mounted and a fragment of one of the rods having the pins secured radially therein, and also one of the loops designed to hold the dishes apart.

Similar letters of reference refer to like parts throughout the specification and drawings forming a part of this application.

It will be seen by reference to the drawings that we have provided a tank A having two compartments or chambers A' A<sup>2</sup>. The compartments A' A<sup>2</sup> are separated or divided by means of the inclines A<sup>3</sup> A<sup>4</sup>. Built out from

one side of the chambers A' A<sup>2</sup> are recesses B B' having placed therein propeller-screws C mounted upon shafts C' in suitable bearings C<sup>2</sup> and driven by belts D passing over a main driving pulley E' on the main shaft E.

Placed between the tanks A' and A<sup>2</sup> at the intersection of the inclines A<sup>3</sup> A<sup>4</sup> is an overflow trough and pipe A<sup>5</sup>.

Placed in the bottom of the chambers or compartments A' A<sup>2</sup> is a waste or drain pipe A<sup>6</sup>. I have also provided an overflow trough and pipe A<sup>7</sup> at the extreme left of the machine as shown in Fig. 2.

Passing centrally through the upper part of the tank A and mounted on suitable brackets is a track F having depressions F' F<sup>2</sup>. Mounted upon the track F by suitable anti-friction rollers or flanged pulleys G' secured to the upper ends of the car carrying arms G<sup>2</sup> is the dish carrying car G. Placed beneath the track F at a suitable distance is a continuously running cable H to which the dish carrying car is automatically secured or from which it is automatically released by means of the grip I and grip actuating cams F<sup>3</sup> F<sup>4</sup> on the track F. This gripping device is necessary in order to allow the dish carrying car to remain for a period in the different chambers of the dish washer. Its operation will hereinafter be more particularly set forth.

For purposes of illustration I have shown the dish carrying car rectangular in form, consisting of a frame having wire netting secured to the sides, ends and bottom thereof, and having a series of rods J interposed horizontally between the corner posts of the frame and having mounted thereon dish separating loops J'.

Placed horizontally beneath the rods J are rods K having pins K' regularly disposed at right angles to same and adapted to engage and hold the dish separating loops J' at any desired position. In order to throw the pins out of engagement with the loops, the rods K are given a quarter turn away from the loops by means of the hand-wheels K<sup>2</sup> on the ends of the rods K. The operation of this will be particularly understood by reference to Fig. 7 of the drawings.

Placed beneath the tank A are coils of water pipes L having gas burners M passing be-

neath and on either end of same, said gas burners being provided for the purpose of heating the water in the pipes and also to keep the water already in the compartments A' A<sup>2</sup> of the tank at a high temperature. The compartments A' A<sup>2</sup> are supplied with fresh or clean water through the pipes N N' placed about midway of the tank A and on either end of the overflow trough A<sup>5</sup>.

The operation of the gripping mechanism will now be particularly described.

It will be seen that if the horizontal arm I<sup>2</sup> of the bell-crank upper jaw I' be depressed by means of the cam F<sup>3</sup> on the track F, it will release the cable and at the same time allow the dog I<sup>4</sup> on the pivoted pawl I<sup>3</sup> to swing downwardly and engage the teeth on the upper side of the bell crank gripping jaw I' and hold the jaws open until such time as the cam F<sup>4</sup> on the track F engages the pawl I<sup>3</sup>, carrying it to normal position and allowing the spring I<sup>5</sup> interposed between the two gripping jaws to distend, and thus force the grip into contact with the cable.

The operation of our invention will be readily understood.

It will be seen that if the compartment A' of the tank A be filled, or partially filled, with soap suds and the car G having the dishes therein be drawn down the track F by means of the cable system H into said compartment or chamber, and the propeller-screw C be caused to rotate at a high rate of speed, that the agitated water will be forced against, between and around the dishes placed in the car G, thoroughly removing all the dirt therefrom.

It will be seen by reference to Fig. 2 of the drawings that the grip on the car G will be released from the cable by means of the cam block F<sup>3</sup> on the under side of the track F just as the car enters the compartment or chamber A', where the car will remain in the agitated water until a succeeding car, not herein shown, shall be brought in contact with the car G, forcing it forward until the grip comes in contact with the gripping cam F<sup>4</sup> placed on the track F near the opposite end of the compartment or chamber A'. The car will then be drawn forward over the division between the two compartments or chambers into the chamber A<sup>2</sup> where it will remain in clean, hot rinsing water, similarly agitated, until the succeeding car will force it forward into an engagement with the cable, as in the last instance, when it will be carried upward and out of the machine and along the track F to any desired portion of the room.

We do not wish it to be understood that we confine ourselves particularly to the exact system of cabling or special style of gripping device or dish carrying car shown in the drawings, as other or modified forms might be used with good results.

We do not wish to be understood to confine ourselves particularly to the means herein shown for separating the dishes within the

car, but have employed the mechanism shown as it is desirable to have the dishes somewhat apart, so as to allow the agitated water to pass freely between and around the dishes, as it would not do if they were piled or placed closely within the car. Some other means for agitating the water might also be employed, although the device herein shown accomplishes this result very satisfactorily.

What we claim as new, and desire to secure by Letters Patent, is—

1. A dish washing machine consisting of a tank, having two compartments, means as shown for agitating the water in said compartments, a track passing centrally through said tank and an automatically driven dish carrying car adapted to pass along said track, all substantially as set forth and shown.

2. In a dish washing machine, the combination with a tank having a sudsing compartment and a rinsing compartment, propeller screws placed therein, means for imparting motion to said screws, dish carrying cars adapted to travel along a track, said track being depressed over the two compartments and means for imparting motion to said cars, all substantially as set forth and shown.

3. In a dish-washing machine, the combination of a tank having two compartments, each compartment having a supply pipe and waste pipe, propeller-screws placed in each compartment, means for actuating said propellers, a track passing through said tank and over said compartments, a car for dishes adapted to move along said track and means for operating said car, all substantially as set forth and shown.

4. In a dish-washing machine, the combination with the tank having a sudsing compartment, a rinsing compartment, recesses in said compartments for the reception of the water agitating propeller-screws, means for imparting motion to said propeller screws, a track passing centrally through said tank and curved downwardly and upwardly to permit the dish carrying cars to pass into and remain in the water of the different compartments, a cable to actuate said dish carrying cars and means for automatically releasing the grip from, or engaging it with the cable, all substantially as and for the purpose set forth.

5. In a dish-washing machine the combination with the tank having two compartments, propeller-screws therein, said tank having placed beneath it water pipes and gas burners suitably arranged for heating, of a track having dish carrying cars provided with means, as shown, for separating and holding the dishes, said car adapted to run on said track, and means for operating same, substantially as shown.

RUFUS A. SANDERSON.  
JAMES C. EARL.

Witnesses:

E. F. BRAINARD,  
S. W. BRAINARD.