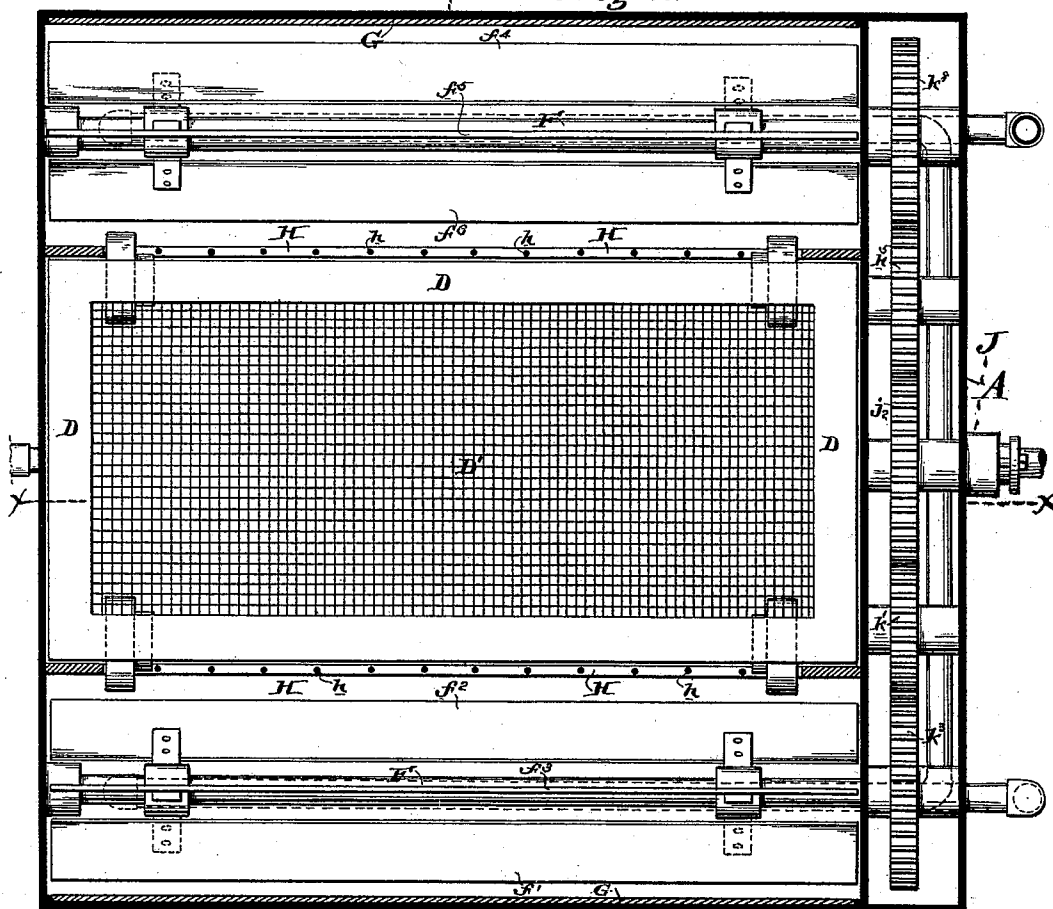


3 Sheets—Sheet 1.

No. 465,455.

Patented Dec. 22, 1891.



Witnesses:
David S. Williams
Henry D. King

Inventor:
William Butts
By his atty.
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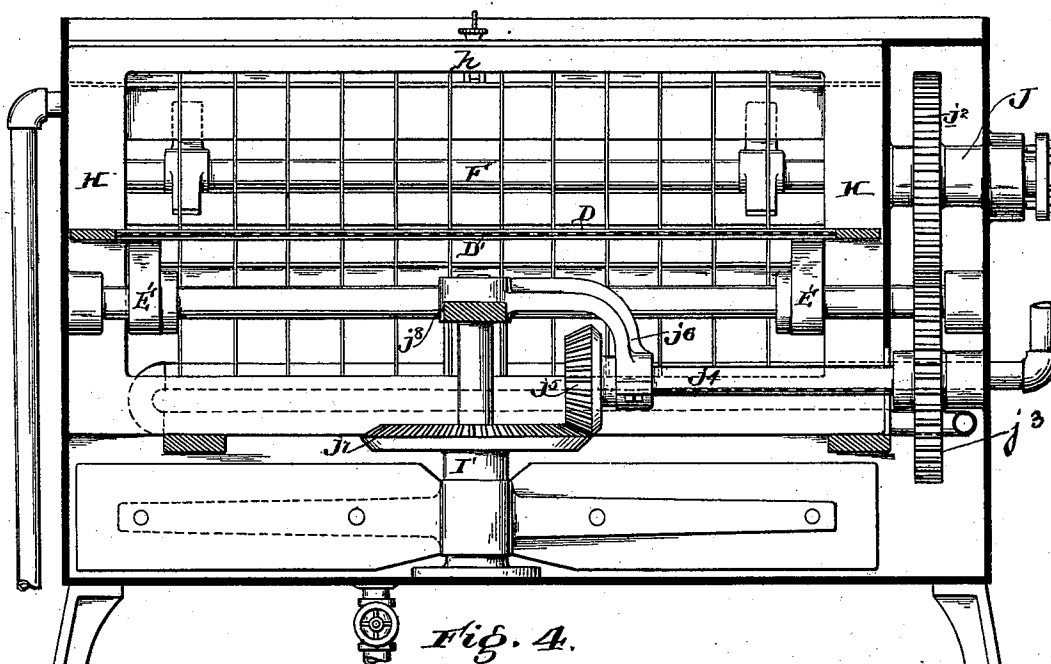
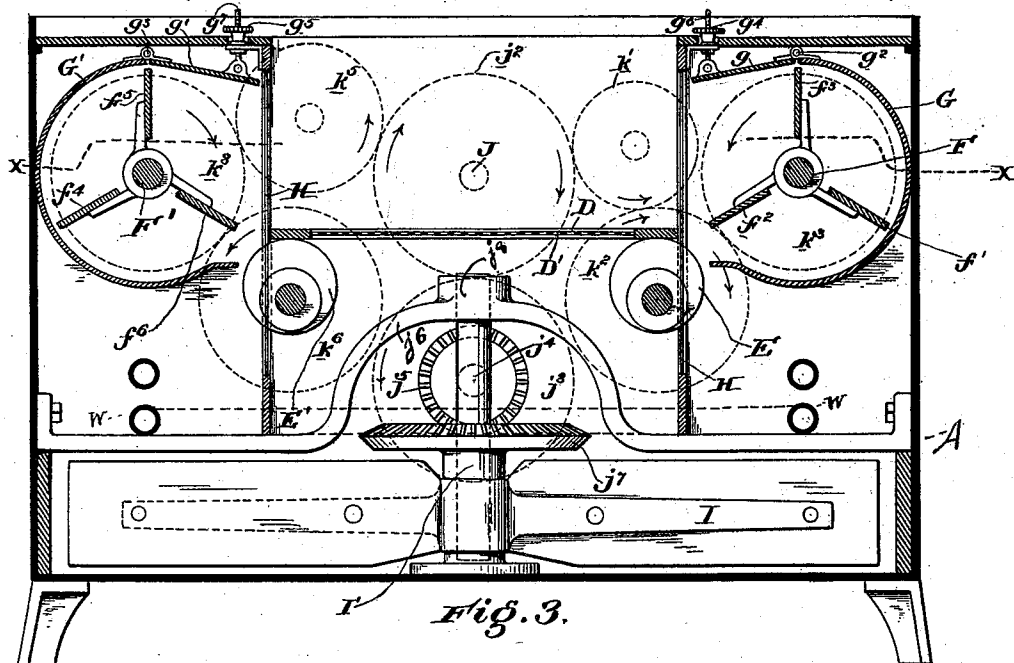
(No Model.)

3 Sheets—Sheet 2.

W. BUTTS.
DISH WASHING MACHINE.

No. 465,455.

Patented Dec. 22, 1891.



Witnesses:

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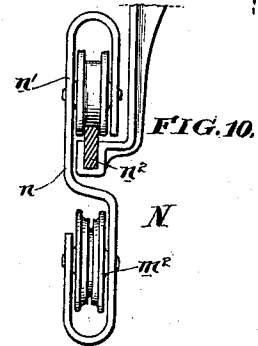
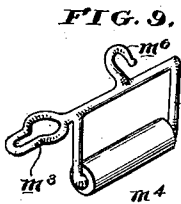
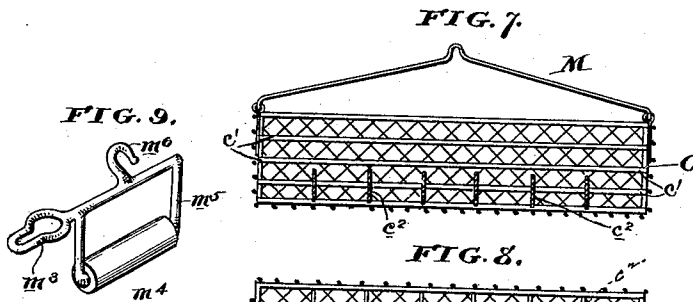
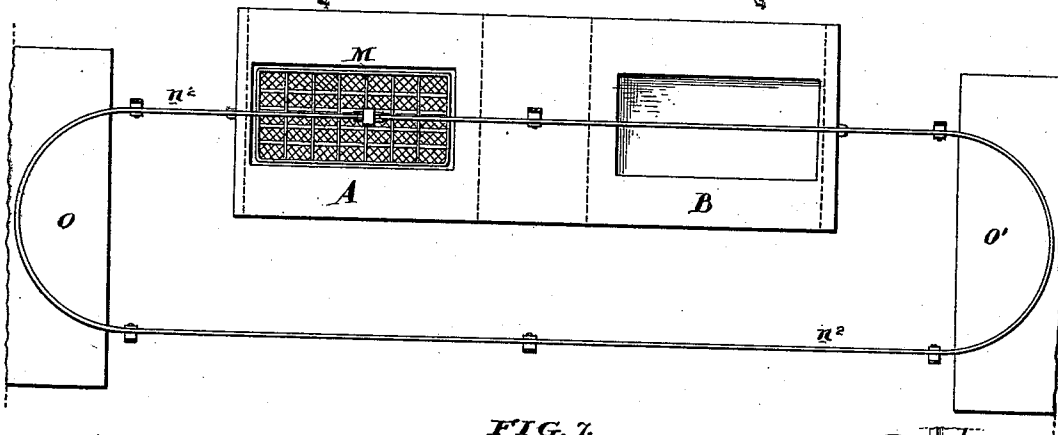
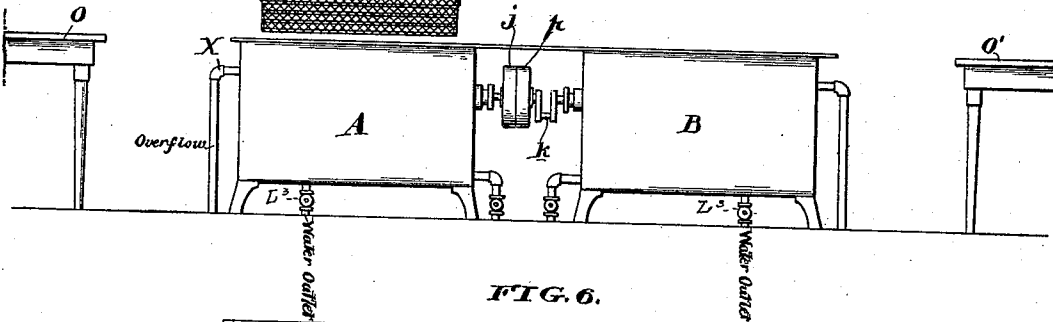
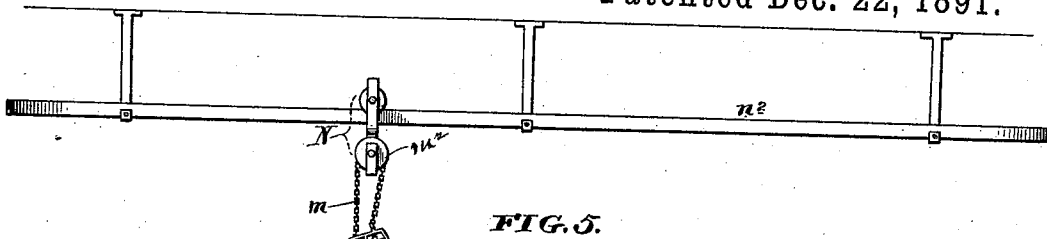
(No Model.)

3 Sheets—Sheet 3.

W. BUTTS.
DISH WASHING MACHINE.

No. 465,455.

Patented Dec. 22, 1891.



WITNESSES: z

David S. Williams
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INVENTOR:

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J. S. Harding

UNITED STATES PATENT OFFICE.

WILLIAM BUTTS, OF PHILADELPHIA, PENNSYLVANIA.

DISH-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,455, dated December 22, 1891.

Application filed November 4, 1889. Serial No. 329,182. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUTTS, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Dish-Washing Machines, of which the following is a true and exact description, due reference being had to the drawings which accompany and form part of this specification and in which similar letters denote similar parts.

My invention has for its object to provide a machine in which dishes can be expeditiously and properly washed; and it consists in a novel construction of receptacle or basket in which the dishes are held during said washing.

In the drawings, Figure 1 is a perspective view of my apparatus. Fig. 2 is a section on the line *ww*, Fig. 3. Fig. 3 is a section on the line *xx*, Fig. 2. Fig. 4 is a section on line *yy*, Fig. 2. Fig. 5 is a view in side elevation of apparatus, showing dish-basket and method of operating the same. Fig. 6 is a plan view of the same. Fig. 7 is a section on the line *zz*, Fig. 8. Fig. 8 is a plan view of the basket. Fig. 9 is a perspective view of basket-elevating device. Fig. 10 is a side view of carriage.

A represents the washing-tank, and B the rinsing-tank. These tanks are constructed in such a manner that water may be held by them. These tanks contain water in sufficient quantity.

C is the basket or dish-receptacle, (shown in detail, Figs. 7 and 8,) which will be hereinafter more specifically described. This basket, when in position in the tank, rests on the perforated support D, which support is centrally located in the tank and rests upon the eccentrics E E'.

Within the tank A, at opposite ends thereof, are two rotary wheels F F', provided with the blades *f'*, *f*², *f*³, *f*⁴, *f*⁵, and *f*⁶, and surrounding these wheels are the cases G and G'. The portions *g* and *g'* of these cases are made adjustable by being hinged at *g*² *g*³ to the main body of the cases G and G' and are adjusted by the hand-wheels *g*⁴ and *g*⁵, which operate the screws *g*⁶ and *g*⁷, which work into the adjustable portion of the cases. These adjustable portions *g* *g'* act as deflectors of the water, as will be hereinafter more fully described.

Partitions formed of the frame H and wires *h*, connecting said frame, form a foraminous partition between that portion of tank in which the dish-basket is placed and the wheels F and F'.

At or near the bottom of the tank is paddle I on the shaft I'.

J is the main driving-shaft. This shaft may be operated either by the pulley *j* upon said shaft, the pulley being connected by belting with the source of power, or the shaft may be operated by connecting the engine directly with the crank *k* on said shaft. On this shaft J is the gear-wheel *j*², which meshes with the gear-wheel *j*³ on the shaft *j*⁴. At the other end of this shaft *j*⁴ is the bevel-gear *j*⁵. This shaft *j*⁴ is braced and supported by the frame *j*⁶. The bevel-gear *j*⁵ works into the bevel-gear *j*⁷ on the shaft I'. This shaft I' is supported on the base of the machine and revolves on the bearing *j*⁸. The gear-wheel *j*² meshes into the gear-wheel *k*¹, which meshes into the gear-wheel *k*², the eccentric being on the shaft of the gear-wheel *k*². This gear-wheel *k*² meshes into the gear-wheel *k*³. Upon the shaft of this gear-wheel *k*³ is the wheel F. The gear-wheel *j*² also meshes into the gear-wheel *k*⁵, which meshes into the gear-wheel *k*⁸. On the shaft of this gear-wheel *k*⁸ is wheel F'. The gear-wheel *k*⁸ meshes into the gear-wheel *k*⁶, the eccentric being on the shaft of the gear-wheel *k*⁶. From this description it will be seen that the train of gearing just described operates the eccentrics and wheels or propellers in unison, whereby a rising and falling motion is imparted to the support D, and cross-currents are formed in the water and caused to traverse the support at a plane at about right angles to its vertical movement.

L represents the steam-inlet pipe, and L' the steam-outlet pipe.

L² is the water-inlet pipe, and L³ the water-discharge pipe.

X represents an overflow-pipe entering the tank near the surface of the water and adapted to draw off the grease and foreign matter rising to its surface and to convey the same to a waste-pipe in any suitable manner.

The dish-basket C consists of a metallic perforated exterior *c*, which may be of any metal which will withstand the action of the

water, &c. This basket is made perforated by means of strips of metal, as illustrated in Figs. 7 and 8, by constructing a frame and connecting the frame-work by a net-work of wires. The interior of this basket is provided with a series of longitudinal and transverse slats c' and c'' , made of wood or suitable material, which will not abrade or chip the dishes. A handle M is hinged or pivotally connected to the ends of the frame of the basket, so that it may swing laterally, and one end of a chain m is secured on this handle M , the chain m passing over the guide-wheel m^2 of a traveler N , the other end of the chain being secured to the hook m^6 on the lifting device. The chain as it leaves the handle M passes through the orifice m^3 in the lifting device and the orifice terminates in a slotted extension, into which the links of the chain are forced to lock the chain and to hold the basket in a locked position when elevated. This lifting device consists, essentially, of a handle m^4 , a frame m^5 , connected to the handle and provided with hook m^6 , and the orifice m^3 , as before mentioned. As may be seen, when the handle m^4 is turned in the position shown in Fig. 5 the chain m passes through the narrow slot in the orifice m^3 and the chain remains stationary, holding the basket fixed; but when the handle m^4 is turned to the reverse position the chain m rests in the large portion of the orifice m^3 , through which it slips readily, and the basket may thus be elevated or allowed to fall.

The traveler N consists of the frame n , supporting the guide-wheel m^2 , and the traveling wheel n' , which rests on the track n^2 , supported at a point above the dish-washing machine. This track enables the dish-basket to be transferred from the table O , where the soiled dishes are collected and put in the basket, to the washing-machine, thence to the rinsing-machine, and thence to the table O' , where the cleaned dishes are removed from the basket.

The operation is as follows: The dishes are placed in the basket C , as hereinbefore described, the handle M being turned over to allow the ready inspection of the dishes. The handle m^4 of the lifting device is then turned, so that the chain m passes through the large portion of the orifice m^3 , when the chain is elevated until the basket is at a height above the dish-washing machine. The handle m^4 is then turned so that the chain rests in the small opening in the orifice m^3 , when the basket is held in a fixed position. The traveler N is then moved so that the basket is over the dish-washing machine, when the handle m^4 is turned so that the chain passes through the large opening in the orifice m^3 and the basket is lowered until it rests upon the perforated support D in the washing-machine, said machine being filled to the desired extent with water and alkali. Power is then applied to the shaft J , which, as hereinbefore described, causes the eccen-

tries to revolve, giving the support D and basket C an up-and-down movement. The wheels F and F' also revolve, by means hereinbefore described, in the direction of the arrows, which forces the water in cross-currents through the perforated partitions into the center of the machine, and the deflecting-surfaces g , g' cause the water acted on by the wheels F and F' to move downward through the perforated sides of the basket C through the dishes. The shaft J also causes the paddle I to revolve. The function of this paddle is to keep the water in the machine in motion and also prevent any material washed from the plates or dishes settling, and the washing-machine may be thoroughly cleansed when the water is drawn off. As may be seen, the dishes in the basket C are subjected to a current of water due to the motion given said basket by the eccentrics, and also currents of water from either side are forced through said basket by the wheels F and F' , and the paddle I causes a general circulation of the water and prevents an accumulation of material in the machine. When the dishes in the basket have been cleaned, the basket is elevated out of the machine and carried by the traveler to the rinsing-machine, in which water only is used, and the dishes are rinsed in this machine and then transferred to the table O' , where they are removed from the basket. Steam is passed through the machine during washing and rinsing, as the water when heated acts better upon the dishes, and also the dishes very highly heated need no drying operation other than that due to the radiation of the heat. The steam enters by the pipe L and passes through the coil W , the heat being regulated by varying the amount of steam by means of the cock w .

As shown in Fig. 5, the washing and rinsing machines are placed side by side with cranks or pulleys common to both, which enable the operator to easily control both machines; and in Fig. 1 is shown a belt-shifter P to enable the operator to shift the belt from the active pulley j to the idle pulley p .

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a dish-washing machine, the combination of a water-tank, a support within the same, a foraminous receptacle adapted to be seated upon said support and carrying dishes and eccentrics operating against the support for imparting a vertical movement thereto.

2. In a dish-washing machine having a water-tank, a rising and falling support within the same, means for imparting motion thereto, and a foraminous holder for the dishes, adapted to be seated on said support.

3. In a dish-washing machine having a water-tank, a vertically-moving support within the same, eccentrics for operating the support, a foraminous basket adapted to be seated upon said support and to contain the dishes,

and means for forcing a current of water through the tank at about right angles to the movement of the support.

4. In a dish-washing machine, a water-containing tank, in combination with propellers at opposite sides of the tank, operating simultaneously to produce cross-currents in the water, a support within the tank, a foraminous basket containing the dishes, adapted to be placed upon said support between the propellers, and means for operating the propellers.

5. In a dish-washing machine, a water-tank, a support placed centrally therein, a dish-holding receptacle, eccentrics for moving the support vertically, independent propellers at opposite ends of the support, and means for operating the propellers, whereby they discharge currents of water toward the center of the tank and upon the dishes.

6. In a dish-washing machine, a tank having within it a rising and falling support, a receptacle for the dishes, and means for operating said support, in combination with propellers at the ends of the support for forcing currents of water across the dishes at about right angles to their movement, and means for actuating the propellers.

7. In a dish-washing machine, a tank adapted to contain water, eccentrics mounted within the tank, a foraminous support mounted upon the eccentrics, a dish-holding receptacle,

vertical guides for said support, propellers at the ends of the support for forcing currents of water across the dishes, and gearing between the propellers and eccentrics, whereby they operate in unison.

8. In a dish-washing machine, the water-containing tank with its centrally-located rising and falling support, a dish-holding-receptacle, and the eccentrics for operating the support vertically, in combination with casing at the ends of the support, having open inner sides, rotary wheels within said casings, having blades forcing cross-currents of water across the support, and means for operating the wheels and eccentrics in unison.

9. In a dish-washing machine, the tank, the rising and falling support therein, a dish-holding receptacle, and the eccentrics for operating the support, in combination with casing at the opposite ends of the tank and blades revolving within the casing for producing and discharging cross-currents across the support, and means for actuating the blades and eccentrics.

In testimony of which invention I have hereunto set my hand, at Philadelphia, Pennsylvania, this 19th day of October, 1889.

WILLIAM BUTTS.

Witnesses:

ABNER J. DAVIS,
JAMES H. SHIELDS.