

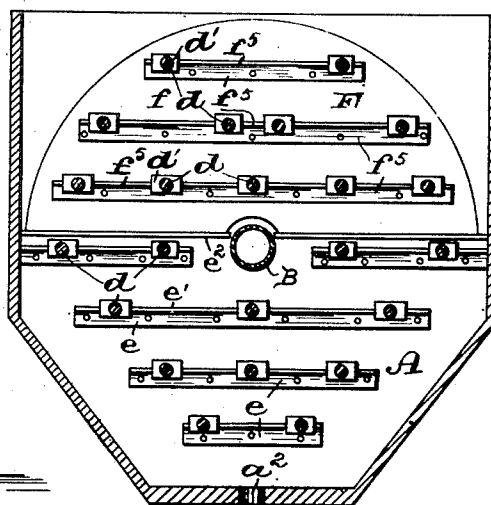
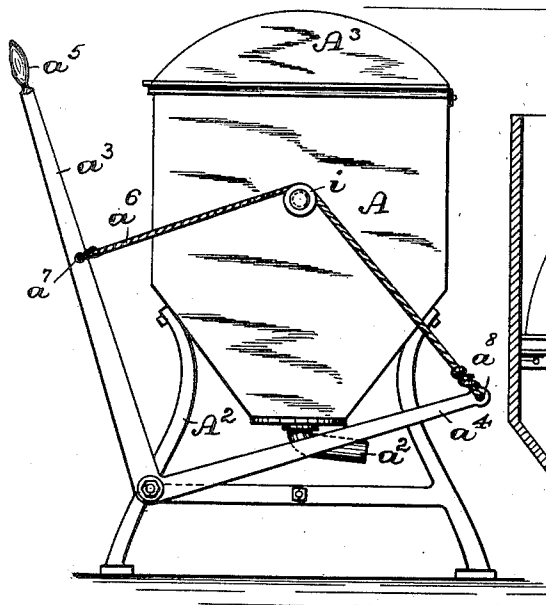
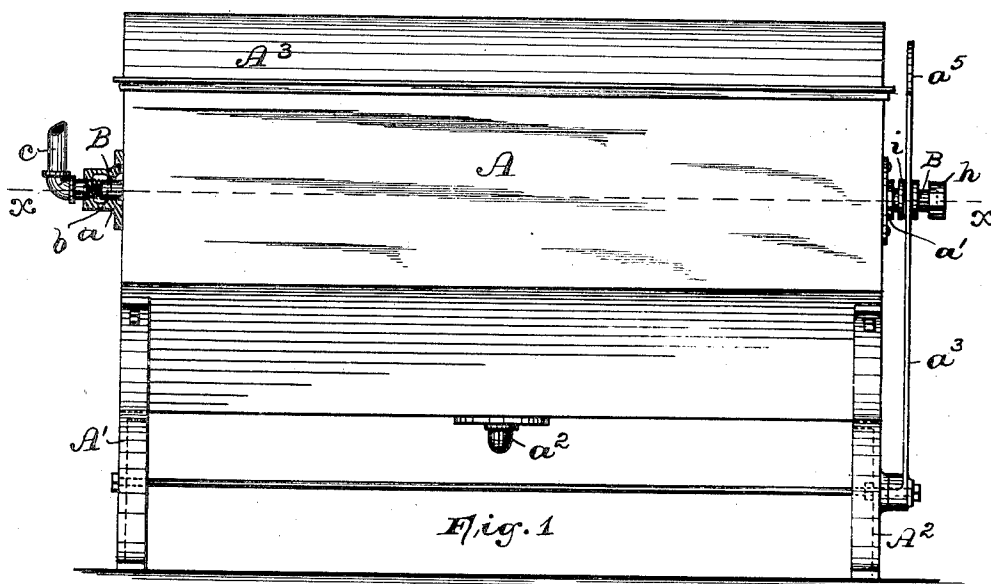
(Model.)

2 Sheets—Sheet 1.

F. W. HOPPE.
DISH WASHER.

No. 460,778.

Patented Oct. 6, 1891.



WITNESSES:

Fig. 2

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Arthur P. Bessie

Fig. 3

INVENTOR:

Frederick W. Hoppe,
BY Fred C. Haentzel, ATT'Y.

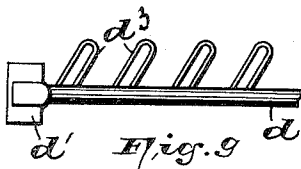
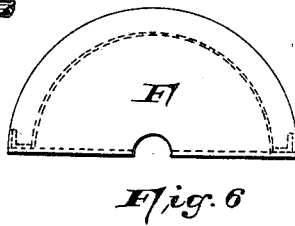
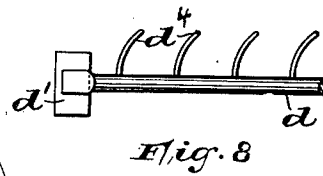
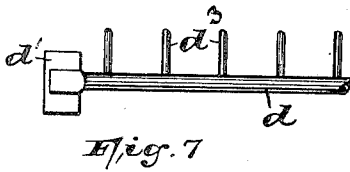
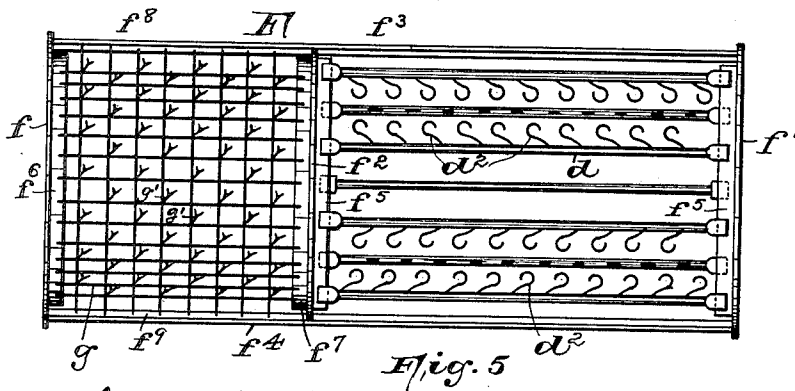
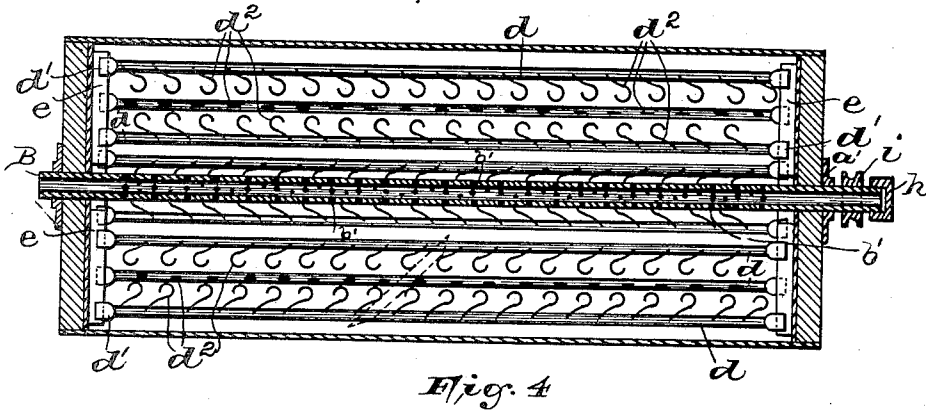
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2 Sheets—Sheet 2

F. W. HOPPE.
DISH WASHER.

No. 460,778.

Patented Oct. 6, 1891.



WITNESSES:

Wm. H. Campfield, Jr.
Arthur P. Bresse

INVENTOR:

Frederick W. Hoppe,
BY Fred A. Fraentzel, ATT'Y.

UNITED STATES PATENT OFFICE.

FREDERICK WM. HOPPE, OF BASTROP, TEXAS.

DISH-WASHER.

SPECIFICATION forming part of Letters Patent No. 460,778, dated October 6, 1891.

Application filed January 14, 1891. Serial No. 377,738. (Model.)

To all whom it may concern:

Be it known that I, FREDERICK WM. HOPPE, a citizen of the United States, residing at Bastrop, in the county of Bastrop and State of Texas, have invented certain new and useful Improvements in Dish-Washers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to furnish an improved means for washing dishes in such a manner that all foreign substances, greasy matter, and offensive odors may be readily and expeditiously removed and the dishes restored dry and clean by the operation of the machine without handling them.

The invention therefore consists in certain novel arrangements and combinations of parts, as will be hereinafter set forth, and finally embodied in the clauses of the claims.

In the accompanying two sheets of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the different views, Figure 1 is a front elevation of my improved machine.

Fig. 2 is a side elevation of the same, looking toward that side of the machine to which the operating mechanism is attached; and Fig. 3 is an enlarged vertical section. On Sheet 2, Fig. 4 is a horizontal section taken through line *x* in Fig. 1, and Fig. 5 is a top or plan view of a removable dish-supporting frame used in connection with my machine. Fig. 6 is an end view of the same. Figs. 7, 8, and 9 are views of adjustable racks shown in part, each being provided with differently-shaped dish-holding arms or fingers. Fig. 10 is an end view of one of the adjustable racks, and Fig. 11 is a side view of one end of such racks.

In said views, A indicates the inclosing casing, which may be of any desirable shape, which receives the adjustable and removable plate-holding racks and frames during the process of washing and drying the dishes.

B is a shaft adapted to be rotated in opposite directions, arranged in suitable stuffing-

boxes *a* and *a'* in the opposite sides of the casing A. One end *b* of said shaft terminates in the stuffing-box *a*, as will be seen from Fig. 1, and a hot-water or steam supply pipe *c* is tapped into said stuffing-box, connecting with said end *b* of the hollow shaft B, while the opposite end of said shaft passes entirely through the stuffing-box *a'* and is closed by means of a nut or plug *h*. As will be noticed from Fig. 4, said shaft is provided with any desirable number of small holes or perforations *b'*, through which the hot water or steam is forced upon the dishes supported upon the racks *d*, as will be more fully described in the following description.

The casing A is preferably provided with inclined sides at the bottom and is supported by means of the standards A¹ and A². The bottom of the tank or casing A is provided with an outlet *a²*, from which the dirty water is drawn off in a constant stream when the machine is in operation, or said pipe in the outlet may be provided with a faucet, if desirable.

The mechanism for producing an oscillatory motion of the hollow and perforated shaft B consists of the forked arms *a³* and *a⁴*, pivoted at the side of the machine to the frame or standard A², one of which, as *a³*, is provided with a handle portion *a⁵*, and a rope or belt *a⁶* is passed over the shaft B and around a pulley *i* thereon, and is attached at its ends in holes *a⁷* and *a⁸* in the respective arms *a³* and *a⁴*, as clearly illustrated in Fig. 2.

The opposite sides of the casing A are provided on their inner surfaces with any number of cleats *e*, which are formed with the ways or guides *e'*, projecting out at right angles, upon which I arrange the racks *d* so that they slide thereon and can be adjusted in any desired position, or said racks can be entirely removed from the machine for cleaning when necessary.

Directly above the shaft B, I have secured a second set of cleats *e²*, upon which is placed a frame F, (shown in Figs. 3 and 5,) which is provided with any number of the dish-holding racks *d*, said frame and the racks supported thereon being entirely removable from the casing A. As will be seen from Figs. 3, 5, and 6, said frame F consists of the end por-

tions f and f' and a dividing portion or wall f^2 , said portions being secured together by the side strips f^3 and f^4 , the whole constituting the frame F. The portions f' and f^2 are provided with a suitable number of cleats f^5 , upon which are placed the adjustable racks d , similar in construction to those used in the bottom of the casing upon the cleats e .

The walls or portions f and f^2 are provided with flanges f^6 and f^7 , and to these and flanges f^8 and f^9 on the strips f^3 and f^4 I arrange a wire netting or screen g , provided with upwardly-projecting hooks g' .

The ends of each rack d are formed into forks d' , by means of which they can be slid upon the cleats and adjusted in any position thereon or entirely removed therefrom when necessary. Said racks d are provided with fingers or arms d^2 , preferably made from spring-wire, which may be hook-shaped, as shown in Figs. 4 and 5; or said racks may be provided with straight fingers d^3 , as in Fig. 7, or with the curved fingers d^4 , as in Fig. 8, or with the fingers d^5 . (Shown in Fig. 9.)

When it is desirable to wash the dishes, I place the plates upon the racks d , as indicated in dotted lines in Fig. 4, so that the circumferential edge of the plate rests upon a lower and is supported by two parallel and higher-placed racks d , whereby said spring-fingers d^2 on the several racks engage with the opposite sides of the plate and hold the same in position between three of said racks.

The hooks g' on the wire netting g are employed for the hanging of cups thereon.

Owing to the adjustability of the racks d upon their cleats they can be moved closer together or farther apart, as may be necessary, whereby a saucer can be supported between said racks as well as the largest plate, as will be evident.

When the plates and cups have been placed in the machine, the hot water or steam is admitted into the hollow and perforated shaft B, which, by means of the operating mechanism on the one side of the machine, is made to oscillate in its stuffing-boxes or bearings a and a' . By this operation constant streams of hot water or steam are ejected from the holes in the shaft, which strike the dishes at the desired angles and with great force, being deflected from one plate upon another, &c., and thereby thoroughly cleansing the same, while the waste water passes off through the outlet a^2 in the bottom of the casing. When the dishes have been thoroughly rinsed for a proper length of time, the water or steam is turned off and the operation of the shaft ceased. The dishes are allowed to dry in the machine.

The cover A^3 can be removed or thrown back on hinges and the frame F taken out and the plates and cups removed.

By my improved construction any sizes of plates can be successfully washed, and there is no danger of the dishes becoming broken

because of their remaining when placed in the machine in stationary positions.

The water from the shaft B is thrown against all sides of the dishes, a free passage of water being permitted between the same, which accelerates the washing process.

Having thus described my invention, what I claim is—

1. In a dish-washing machine, the combination, with the casing and perforated and hollow and rotatable shaft for the supply of hot water or steam, of removable and adjustable racks provided with forked or hook-shaped ends adapted to slide on cleats in said casing, for the purposes set forth.

2. In a dish-washing machine, the combination, with the casing and perforated and hollow shaft for the supply of hot water or steam, of racks provided with hook-shaped or forked ends embracing cleats in said casing, adapted to slide thereon, and provided with means for holding the dishes thereon, for the purposes set forth.

3. In a dish-washing machine, the combination, with the casing and perforated and hollow shaft for the supply of hot water or steam, of racks provided with hook-shaped or forked ends embracing cleats in said casing, adapted to slide thereon, and provided with fingers for holding the dishes at an angle to the direction of the jets of water, for the purposes set forth.

4. In a dish-washing machine, the combination, with the casing and perforated and hollow shaft for the supply of hot water or steam, adapted to rotate in stuffing-boxes in the sides of the casing, and means for operating said shaft, of racks provided with means for holding the dishes thereon, for the purposes set forth.

5. In a dish-washing machine, the combination, with the casing and perforated and hollow shaft for the supply of hot water or steam, adapted to oscillate in bearings in opposite sides of the casing, and means for operating said shaft, of adjustable and removable racks for holding the dishes, said racks being adapted to slide upon cleats in said casing, as and for the purposes set forth.

6. The combination, with the vessel and hollow and perforated shaft for the supply of hot water or steam, of the frame F, provided with end portions f and f' , and a dividing-wall f^2 , cleats f^5 on said portion f' , and said wall f^2 , and racks adapted to slide on said cleats for the holding of plates, and a wire-netting between said portion f' and wall f^2 , provided with hooks for the support of cups, as and for the purposes set forth.

7. The combination, with the vessel and hollow and perforated shaft for the supply of hot water or steam and means for operating said shaft in boxes in the sides of the casing, of racks adjustably and removably arranged on cleats in said casing, and a frame F, provided with racks for holding said plates, and

a wire-netting provided with hooks for the support of cups, as and for the purposes set forth.

5 8. The herein-described racks *d*, provided with hook-shaped or forked ends with fingers made from spring-wire, as and for the purposes set forth.

10 9. In a dish-washing machine, the combination, with the casing provided with a hollow and perforated shaft adapted to oscillate in bearings or stuffing-boxes in opposite sides of the casing, and a dish-supporting rack, of an oscillating lever pivotally attached to one of the standards supporting the casing and
15 provided with a belt which is wrapped around the shaft for causing the same to oscillate in its bearings, as and for the purposes set forth.

10. In a dish-washing machine, the combi-

nation, with the casing provided with a hollow and perforated shaft adapted to oscillate 20 in bearings or stuffing-boxes in opposite sides of the casing, and dish-supporting racks, of an oscillating lever pivotally attached to one of the standards supporting the casing and provided with a belt which is wrapped around 25 a pulley on said shaft, causing the same to oscillate in its bearings, as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 30 8th day of January, 1891.

FREDBK. WM. HOPPE.

Witnesses:

ALFRED HERZOG,
MAX H. STARCKE.