

F. H. STEVENS.

DISH WASHER.

APPLICATION FILED MAY 15, 1914.

Patented May 11, 1915.

3 SHEETS—SHEET 1.

1,139,313.

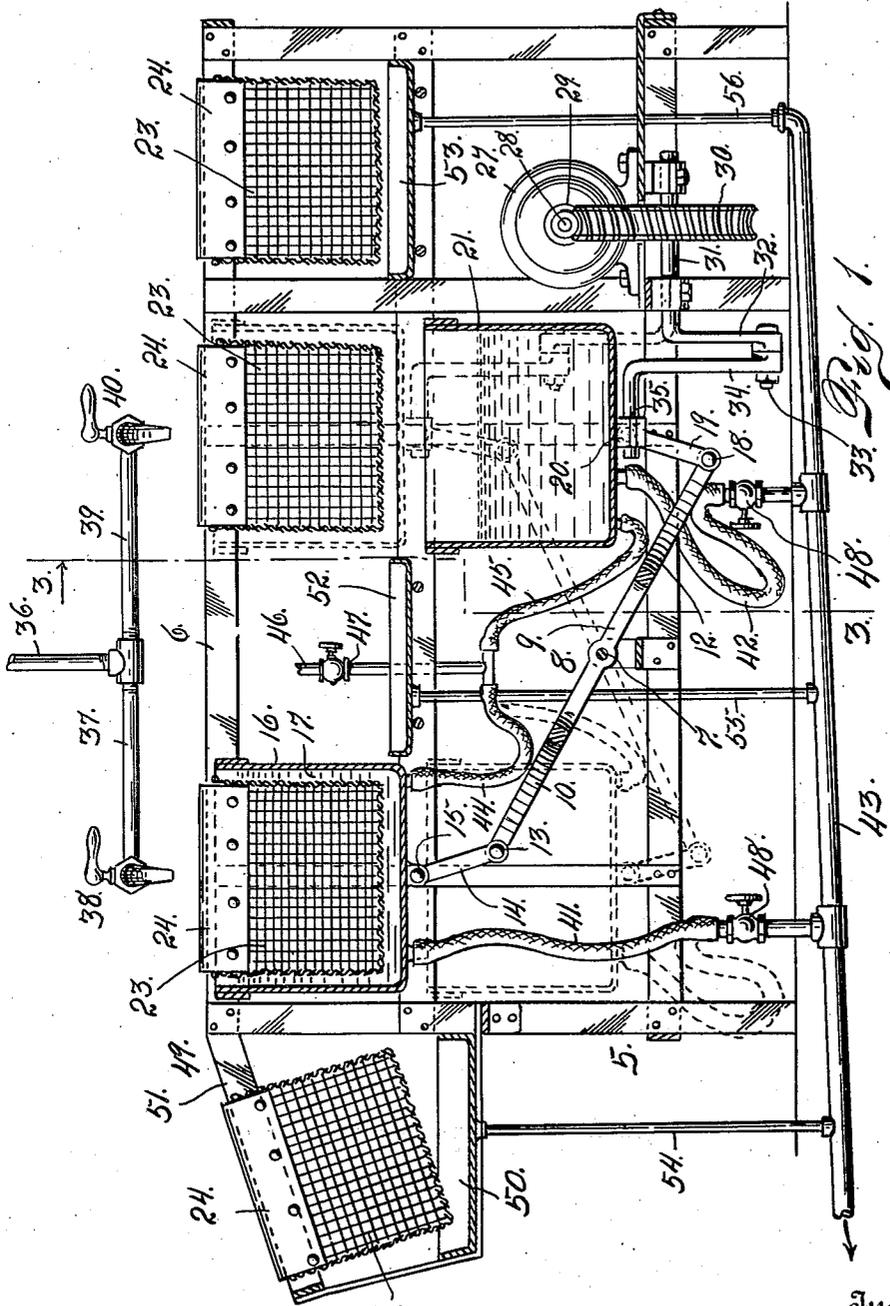


Fig. 1

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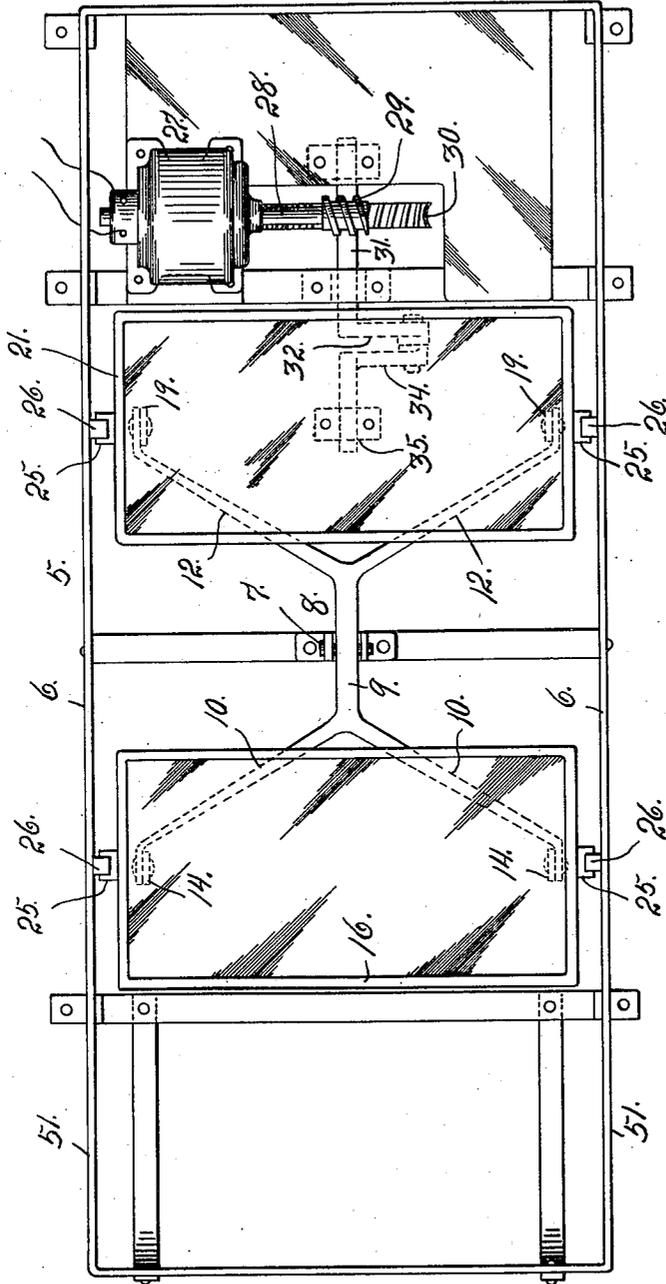
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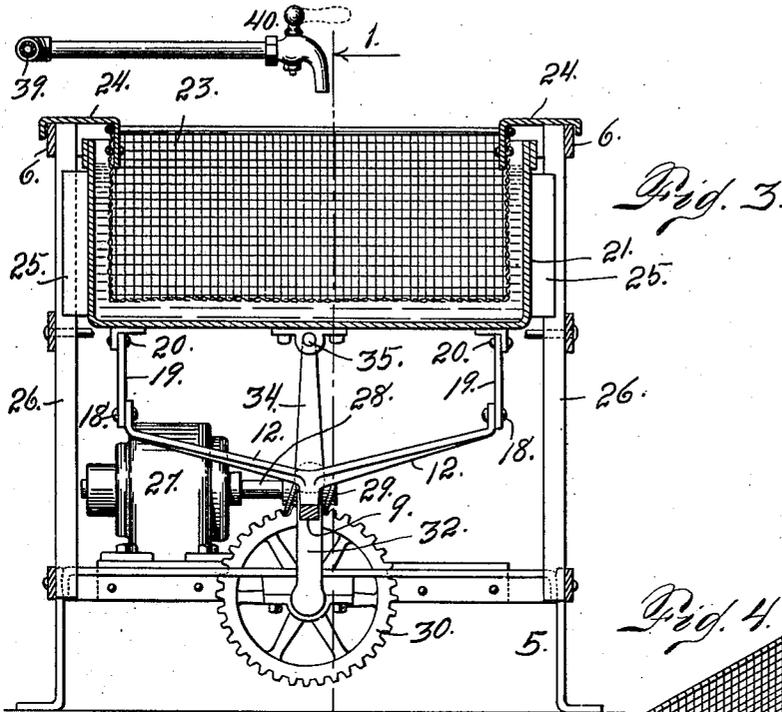
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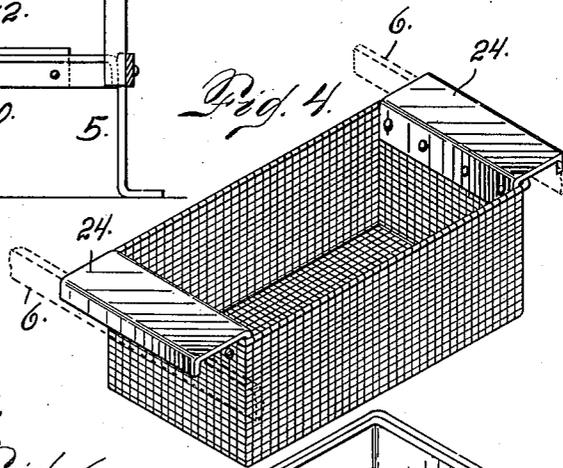
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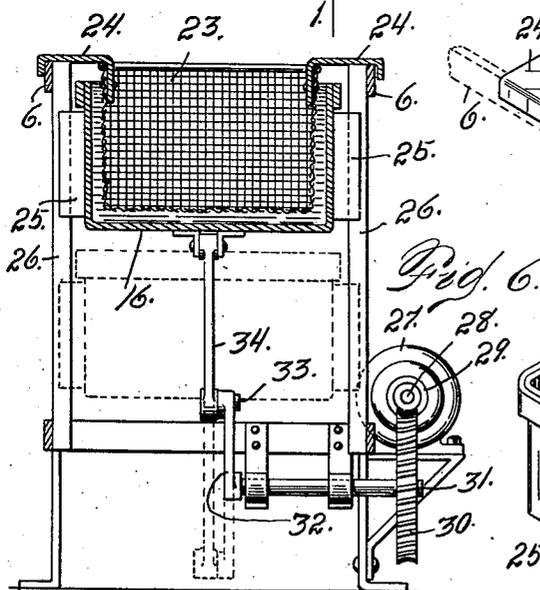
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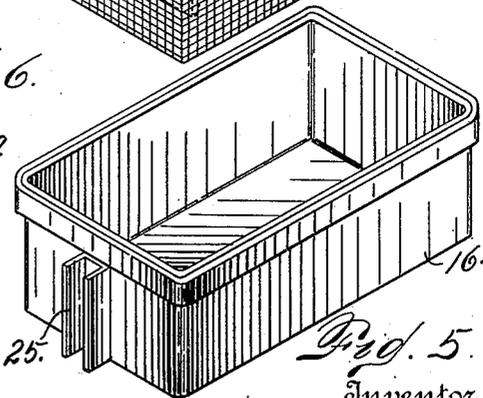
*Fig. 3.*



*Fig. 4.*



*Fig. 6.*



*Fig. 5.*

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# UNITED STATES PATENT OFFICE.

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DISH-WASHER.

1,139,313.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK HOYT STEVENS, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented certain new and useful Improvements in Dish-Washers; and I do 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 the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in dish washers, my object being to provide a construction of this class adapted to thoroughly cleanse soiled dishes and at the same time, prevent breakage.

My improved construction may be adapted to handle a large or small quantity of dishes, as may be required. In hotels or other places where a comparatively large number of dishes are used, the construction may be arranged accordingly, or made of relatively large capacity. In fact, the machine may be made of any desired capacity.

Generally speaking, my improved construction consists of one or more tubs arranged to reciprocate vertically, and a corresponding number of baskets arranged to enter the tubs as the latter are raised. Where two tubs and two baskets are employed, one of the tubs carries water for washing the dishes while the other carries water for rinsing the washed dishes. In this case the baskets are supported in such manner that the dishes therein are submerged in the water of the tubs as the latter are raised. The baskets are formed of mesh material to permit the water to enter with perfect freedom either for cleansing or rinsing purposes.

Where the washing and rinsing functions are simultaneously carried on, the tub carrying the wash water is raised, while the tub carrying the rinsing water is lowered, the two tubs being connected with the opposite extremities of a centrally fulcrumed lever or walking beam, any suitable power being employed for imparting the movement to the walking beam and to the tubs.

Provision is made for connecting the tubs through the medium of flexible hose pipes with a source of steam for keeping the

water hot; and also for draining the water from the tubs when it becomes necessary so to do.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a vertical longitudinal section taken through my improved apparatus, the construction being shown adapted for simultaneously carrying on the dish washing and dish rinsing functions. This is a section taken on the line 1-1, Fig. 3. Fig. 2 is a top plan view of the apparatus with the baskets and trays removed. Fig. 3 is a section taken on the line 3-3, Fig. 1. Fig. 4 is a perspective view of one of the baskets. Fig. 5 is a similar view of one of the tubs. Fig. 6 is a view showing the single tub form of construction, the tub and frame work being shown in section.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate an upright stationary frame work, which is rectangular in shape and provided at the top with parallel side rails 6. Centrally fulcrumed on the lower part of the frame work as shown at 7, is a walking beam 8, consisting of a central member 9 provided at its opposite extremities with bifurcations composed of arms 10 and 12. The arms 10 are pivotally connected as shown at 13 with links 14, the opposite extremities of the links being pivotally connected as shown at 15, with the bottom of the tub 16, which carries the washing liquid which will consist ordinarily of hot soap suds, the same being designated by the numeral 17. The arms 12 of the walking beam are also pivotally connected as shown at 18 with links 19 whose opposite extremities are pivotally connected as shown at 20, with the bottom of a tub 21, which carries the water for rinsing the dishes.

Supported upon the side rails 6 of the frame work are two baskets 23, one being arranged to enter the tub 16 as the latter is raised, while the other is arranged to enter the tub 21 as the latter is elevated; these baskets are each equipped at its opposite ends with exteriorly projecting brackets 24, the said brackets engaging the side rails 6 of the frame and being readily slidable

thereon. Each tub is provided at its opposite ends with a channel-shaped bracket 25, the said brackets engaging vertically disposed guides 26 mounted on opposite sides of the frame. As the tubs are raised and lowered, they are kept in their proper vertical positions by virtue of the said guides and their cooperating bracket members.

As illustrated in the drawing, the necessary movement is primarily imparted to the tubs by means of a motor 27, whose operating shaft 28 carries a worm 29 engaging a worm wheel 30 connected to operate a shaft 31 provided with a crank arm 32 which is pivotally connected as shown at 33 with a pitman 34 which is pivotally connected as shown at 35 with the bottom of the rinsing tub 21. As the shaft 31 is rotated, it is evident that a vertically reciprocating movement will be imparted to the tub 21, which movement will in turn impart an oscillating movement to the walking beam, whereby the two tubs 16 and 21 will be vertically reciprocated, one always moving upwardly while the other is moving downwardly. By virtue of this arrangement, but little power is required, as the tubs are identical in size and consequently approximately of the same weight at all times.

The two tubs are supplied with water from any suitable source. As illustrated in the drawing, a pipe 36 is connected with a suitable source of hot water. One branch 37 of this pipe leads to a faucet 38; while another branch pipe 39 leads to a faucet 40. These faucets are respectively arranged directly above the two tubs 16 and 21 and their valves may be opened for the purpose of supplying hot water to the respective tubs at any time.

For the purpose of draining the tubs, they are respectively connected by means of flexible conduits 41 and 42, with a drain pipe 43, which may lead to the sewer. Furthermore, the tubs are respectively connected through the medium of flexible pipes 44 and 45, with a source of steam through the agency of a pipe 46 provided with a valve 47. Between each of the flexible pipes 41 and 42 and the drain pipe 43 is located a cut-off valve 48. Under ordinary circumstances, these valves 48 will be closed, except at such times as it may be desired to drain the tubs. At the front of the machine the upper part of the frame work is provided with an extension 49 forming a support for a tray 50. The top of this extension is provided with side rails 51 adapted to engage the brackets 24 of a basket 23.

One of the baskets is mounted upon this extension at the beginning of the operation and it may be assumed that the dishes to be washed are placed therein. The tray 50 will catch any drainage from the dishes while the basket is in this position. After

the basket is properly filled with a supply of dishes, it is moved along from the frame members 51 of the extension, to a position in engagement with the top rail 6 of the main frame, and into such position that the dishes therein will be submerged by the liquid in the tub 16, as the latter is raised to the position shown in Fig. 1. As soon as the dishes are properly cleansed by virtue of their being repeatedly subjected to the action of the hot soap suds in the tub 16, the basket 23 will be moved toward the right (see Fig. 1) into a position directly above a tray 52, into which the drainage water from the dishes in the basket may pass. This basket will then be moved farther toward the right and into position to be submerged by the water in the tub 21, as the latter is raised or moved to the position indicated by dotted lines in Fig. 1. As soon as the basket 23 has been moved from the dish washing position, another basket containing soiled dishes will be moved into place. From this it will be understood that the operation of washing and rinsing the dishes may be simultaneously carried on. As soon as the dishes have been properly rinsed, the basket containing the washed and rinsed dishes is moved farther toward the right (see Fig. 1) or into a position directly above a third tray 53, which may receive the drainage water from the rinsed dishes. As the water in the rinsing tub is hot, the dishes will dry by evaporation shortly after the basket 23 containing the rinsed dishes has reached the position directly above the tray 53. From this it will be understood that the washing, rinsing, and drying operation may be simultaneously and continuously carried on, making it practicable to handle practically an unlimited quantity of dishes, the work being thoroughly and expeditiously accomplished.

In the event that it is only desired to employ a single tub containing wash water, the construction shown in Fig. 6 will be employed. This is practically the same as shown in Fig. 1, except that the walking beam is dispensed with. Hence, the tub containing the wash water, together with the corresponding parts of the operating mechanism, will be designated by the same reference characters as in the other views. The trays 50, 52 and 53 are connected with the drain pipe 43 by pipes 54, 55 and 56, respectively.

Having thus described my invention, what I claim is,—

1. In a dish washer, the combination with a suitable frame, of a basket slidable longitudinally thereon supported against downward movement and composed of material to allow the liquid to enter and escape freely, a tub adapted to contain liquid, and means for alternately raising and lowering

the tub to submerge the contents of the basket at predetermined intervals, substantially as described.

2. The combination with a frame, of two baskets slidably longitudinally thereon and supported against downward movement and two tubs adapted to respectively contain washing and rinsing liquid, and means for imparting a reciprocating movement to the tubs, whereby the latter are brought into telescopic relation with the baskets at predetermined intervals.

3. The combination of a frame, baskets mounted thereon and constructed to permit liquid to enter and escape freely, liquid containing tubs arranged below and in vertical alinement with the baskets, a walking beam whose opposite extremities are movably connected with the respective tubs, and means for imparting movement to the walking beam whereby the tubs are actuated to submerge the contents of the baskets in the liquid of the tubs at predetermined intervals, substantially as described.

4. The combination of a frame, baskets mounted thereon and constructed to permit liquid to enter and escape freely, liquid containing tubs arranged below and in alinement with the baskets, a walking beam whose opposite extremities are connected with the respective tubs, and means for imparting movement to one tub and thence to the walking beam and the other tub, whereby the contents of the baskets are submerged in the liquid of the tubs at predetermined intervals, and drain trays located forwardly and rearwardly of the tubs and between the latter, substantially as described.

5. The combination with a frame, of baskets slidably mounted thereon, liquid containing tubs arranged below the baskets and in vertical alinement therewith, a walking beam fulcrumed at a point between the tubs, its opposite extremities being respectively connected with the tubs, and means for imparting movement to the walking beam, whereby the tubs are successively and alternately raised and lowered, and the contents of the baskets submerged in the liquid of the

tubs at predetermined intervals, substantially as described.

6. The combination with a frame, of baskets slidably mounted thereon and composed of mesh material to allow liquid to enter and escape freely, liquid containing tubs arranged below and in vertical alinement with the baskets, means for reciprocating the tubs to submerge the contents of the baskets at predetermined intervals, and flexible conduits connected with the tubs and with a source of hot fluid whereby the temperature of the liquid in the tubs may be maintained at the proper degree, substantially as described.

7. The combination with a frame, of baskets movably mounted thereon and suitably spaced, tubs arranged below the baskets, a walking beam centrally fulcrumed at a point between the tubs, its opposite extremities being respectively connected with the tubs, means for imparting movement to the walking beam whereby the tubs are successively and alternately raised and lowered to submerge the contents of the baskets in the liquid at predetermined intervals.

8. The combination with a frame having a forward extension, a tray mounted thereon, other trays supported on the body of the frame and suitably spaced, baskets slidable on the frame above the plane of the trays, liquid containing tubs arranged below and in vertical alinement with the baskets, the tubs and frame being equipped with means for vertically guiding the tubs, means for imparting a reciprocating movement to the tubs whereby the contents of the baskets are submerged at predetermined intervals, the baskets being movable on the frame to bring them into positions above the trays for drainage purposes, a drainage conduit and pipes leading from the trays to said conduit, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK HOYT STEVENS.

Witnesses:

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J. C. BUSSEY.