J. A. MASONICK.

DISHWASHING MACHINE.

APPLICATION FILED OCT. 18, 1920.

1,435,172.

Patented Nov. 14, 1922.

2 SHEETS—SHEET 1.

Fig. 1

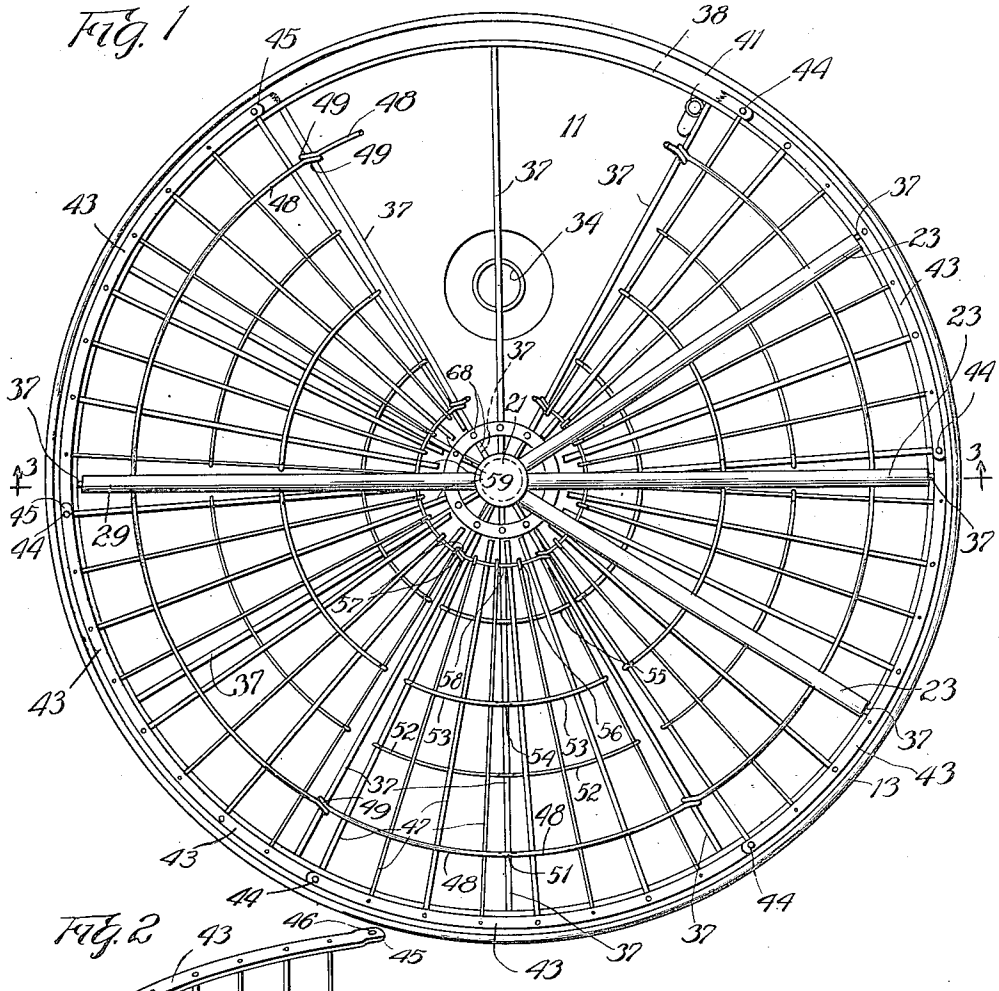
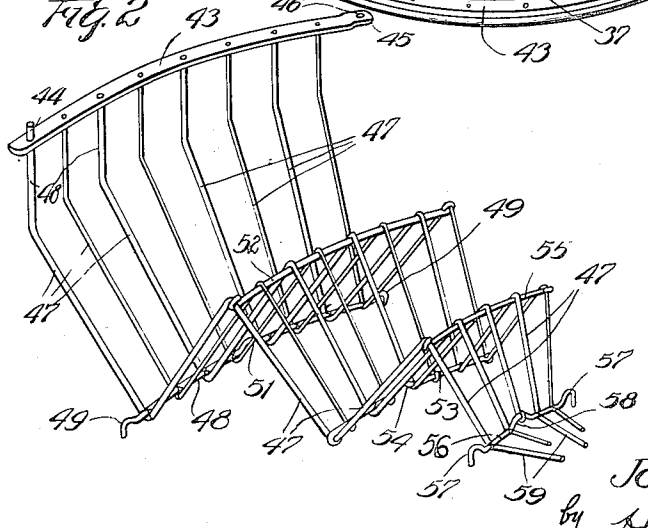


Fig. 2



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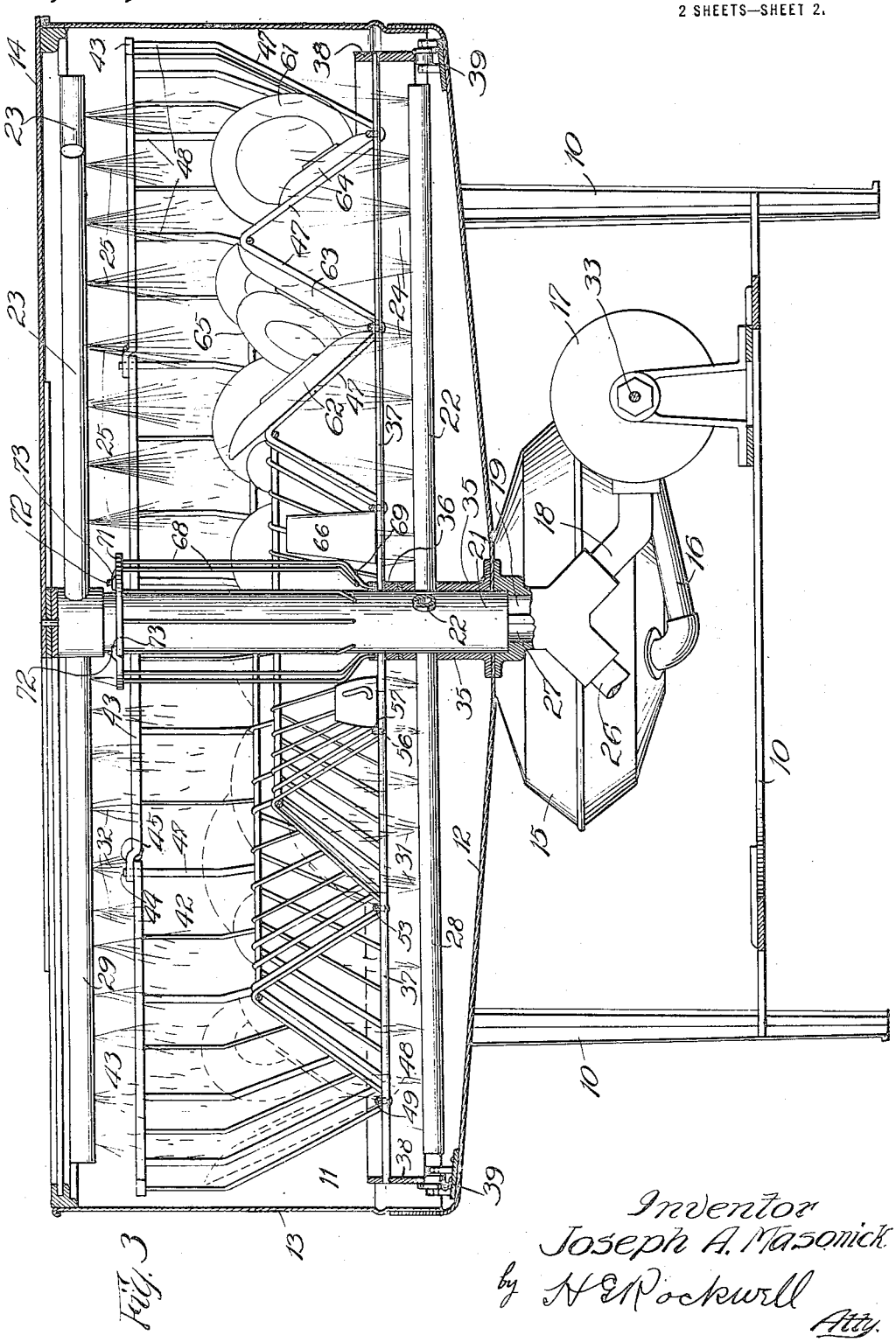


Fig. 3

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Patented Nov. 14, 1922. 1,435,172

UNITED STATES PATENT OFFICE.

JOSEPH A. MASONICK, OF LAKE BLUFF, ILLINOIS.

DISHWASHING MACHINE.

Application filed October 18, 1920. Serial No. 417,801.

To all whom it may concern:

Be it known that I, JOSEPH A. MASONICK, a citizen of the United States, residing at Lake Bluff, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Dishwashing Machines, of which the following is a specification.

My invention relates to carriers for dish washers and has for its primary object the provision of an improved carrier for moving dishes in a dish washing machine across jets of wash and rinse water whereby, for a given area within the machine, a maximum number of dishes may be exposed to the action of the sprays, thereby providing a very compact structure and one which lends itself to economical operation. A further object of the invention lies in the provision of a dish carrier for dish washing machines which is constructed in sections easily assembled and which are also readily taken apart for cleaning or to permit access to parts of the machine requiring adjustment or repair.

Other objects and advantages of my invention will appear from the following description, taken in conjunction with the accompanying drawings which form a part of this specification and illustrate the preferred embodiment of the invention.

In the drawings:

Fig. 1 is a top plan view of a dish washing machine with its cover removed to expose, in plan, the dish carrier forming the subject matter of the present invention.

Fig. 2 is a perspective view of a dish carrier section which, when assembled with other similar sector-shaped sections, forms the dish carrier of this invention.

Fig. 3 is a vertical central section of a dish washing machine embodying the present invention and is taken approximately on the line 3—3 of Fig. 1.

Certain of the features of the dish washing machine depicted in the drawings of this application but not claimed herein, form subject matter of my co-pending application Serial No. 417,802, filed October 18, 1920.

In the drawings reference numeral 10 indicates the frame work of a dish washing machine comprising a dish washing chamber generally indicated at 11 and itself comprising a shallow tub 12, an upstanding encircling wall 13 and a cover 14. A reservoir 15 receives water drained from chamber 11, this water being drawn through a pipe 16 to a rotary pump 17 and thence forced through a feed pipe 18 into the right hand passageway 19 of a two-part vertical stand pipe 21 centrally positioned in chamber 11. From passageway 19 wash water supply from pump 17 is discharged through lower and upper wash water spray pipes 22 and 23 respectively, these pipes emitting jets 24 and 25 respectively. Pipes 22 extend radially of chamber 11 and are substantially horizontal in the lower portion thereof, while pipes 23 extend radially of the chamber and parallel pipes 22 in the upper portion of the chamber. Water for rinsing dishes is fed from a suitable source of supply through a pipe 26 into the rinse water passage 27 of stand pipe 21 and is projected downwardly and upwardly through lower rinse water pipes 28 and upper rinse water pipes 29. The upwardly projected jets of rinse water are indicated at 31 and are thrown by the lower pipe 28 which extends radially of chamber 11 in the lower portion thereof, is substantially horizontal, and preferably remote from pipes 22. The downwardly projected sprays of rinse water are shown at 32 and are produced by rinse water pipes 29 which extend radially of chamber 11 and are horizontally positioned in the upper portion thereof at a location preferably remote from pipes 23. The shaft 33 of pump 17 may be driven in any suitable manner. In Fig. 1 reference numeral 34 indicates the opening through which water from the washing chamber 11 drains into reservoir 15.

The stand-pipe 21 is partially supported and surrounded by a stationary bearing sleeve 35 upon the upper end of which a hub 36 bears. This hub is rotatable about stand-pipe 21 and forms the central support and bearing for the circular dish carrier of the present invention. A plurality of spokes 37 radiate from hub 36 and terminate in a circular rim 38 the lower edge of which rests upon antifriction members 39 mounted on the floor of tub 12. By means of a friction roller 41 bearing against the inside of rim 38, the wheel comprising the rim, spokes 37 and the hub 36 is rotated. The particular mounting and application of power to friction roller 41 form no part of the present invention.

Supported upon the spokes 37 is the dish carrier of the present invention generally

indicated at 42. As shown in the drawings, this carrier comprises six sector-shaped sections such as shown in perspective in Fig. 2. Each of these sectors comprises an arcuate outer edge piece 43 provided at one end with an upstanding stud 44 and having its opposite end 45 unbent substantially the thickness of the metal and pierced by an aperture 46 adapted to receive the stud 44 of the adjacent section. The edge pieces 43 are thus interconnected to form an outer band which holds the carrier from spreading under the weight of dishes. As best seen in Fig. 3, the edge pieces 43 are spaced above spokes 37 so that the depth of the dish carrier is approximately defined by the distance between the pieces 43 and the spokes 37. A plurality of wires 47 have their outer ends 48 vertically disposed and secured in the edge pieces 43. Just below each piece 43 the wires 47 are bent inwardly toward stand-pipe 21 and continue in this direction until they reach approximately the level of the spokes 37. At this point the wires 47 are held in fixed relation to each other by means of a wire rib section 48 which is soldered to each wire 47 and is provided terminally with hooks 49 which rest upon spokes 37, and medially with a hump 51 also formed to rest upon a spoke 37. From the rib 48 each wire 47 extends upwardly and inwardly to a wire connector 52 to which each wire 47 is secured, preferably by soldering. From connector 52 the wires 47 slant downwardly and inwardly again to an intermediate wire rib 53 similar to rib 48 in that it is medially bent to form a hump 54 adapted to rest upon the same spoke 37 as is engaged in hump 51. From the intermediate rib 53 the wires 47 pass upwardly and inwardly to an inner wire connector piece 55 to which they are all secured and from which they slant downwardly and inwardly to a short inner rib 56 provided terminally with hooks 57 and medially with a hump 58, these hooks engaging the same spokes 37 as are engaged by hooks 49 and hump 58 resting upon the same spoke as is engaged by the humps 51 and 54. The wires 47 are all soldered to the inner rib 56 and extend inwardly of that rib in horizontal position a short distance toward the stand-pipe 21 as indicated at 59. It will be seen from this description and more particularly from Figs. 2 and 3, that I have provided a series of concentric annular troughs the outer one of which has its sides synclinal with respect to its rib 48 the intermediate one of which has its sides synclinal with respect to rib 53, and the inner of which has its outer wall inclined upwardly and outwardly with respect to the inner rib 56. As the six sector-shaped sections of the carrier are substantially identical in construction, they form together a rotary carrier for dishes to be washed, this carrier rotating about the vertical axis of stand-pipe 21 between the lower and upper spray pipes heretofore described. By thus furrowing the bottom of the dish carrier I increase the area against which dirty dishes may be placed flat and at the same time may be adequately sprayed by the jets 24, 25, 31 and 32. This advantage is illustrated in Fig. 3 where plates 61, 62, 63, etc., and saucers 64, 65, etc., are shown in flat contact with the radial wires 47 of the carrier 42 while at the same time exposed to the upward and downward jets 24, and 25 over their entire surfaces. Obviously, with a given superficial area in which to work within the washing chamber of a dish washing machine, my improved type of dish washer will hold, in proper position, for washing, a greater number of dishes than can be positioned in a carrier which occupied the same superficial area and had a flat bottom. The capacity of the machine is therefore increased over machines employing flat bottom carriers and a very compact construction of machine made possible when the capacity for washing dishes is considered. As seen in all of the figures, some of the radially extending wires 47 of the dish carrier are of good diameter to give stiffness to the carrier while others are of a relatively smaller diameter and are used to fill up the spaces between the larger wires to prevent dishes falling from the carrier. The outer ribs 48, intermediate ribs 53, and inner ribs 56 rest upon spokes 37, and, as indicated in Figure 1, the hooks 49 of the ribs 48 are bent in opposite directions from the curvature of the rib in order that the ribs themselves, when in assembled position upon the spokes, may form an annulus. By reason of the fact that the hooks 49 have their outer vertical extremities overlapping the respective spokes 37, the removable sections of the carrier are prevented from standing stationary or shifting angularly upon the spokes, but are carried along by the latter. As the wires 47 are spaced somewhat from each other the carrier 42 is a reticulated member through which the wash water jets 24 and the rinse water jets 31 readily pass to impinge upon the dishes.

Preferably the inner trough formed by those legs of wires 47 which join the rib 56 is reserved by the operator for the washing of tumblers 66, cups 67, and similar deep dishes. To prevent these latter named dishes from scraping against the stationary stand-pipe 21, I provide an annularly arranged series of wire guards 68 which are slightly spaced from the stand-pipe and are supported by the insertion of their lower ends 69 in the top of hub 36. The upper ends of guard wires 68 are held in proper position by a ring 71 which, if desired, may be in sections joined together by studs 72 and ears 73 as the edge pieces 43 are joined.

In the operation of the invention dishes are placed in the carrier 42 and are there held in inclined position in respect to the water jets illustrated in Fig. 3. Obviously the dishes rest in the bottoms of the three concentric troughs shown and lie in slanting position against the sides of the respective troughs. They may be inserted through a gate provided in any suitable location in the cover 14. The rotation of the friction pinion 41 rotates rim 38, spokes 37, hub 36, carrier 42 and guard wires 68 about the stand-pipe 21 as a central bearing carrying the dirty dishes through the wash water sprays 24 and 25 and subsequently through the rinse water sprays 31 and 32. If access is necessary to the interior of tub 12, one or more of the sector-shaped sections of the dish carrier may be removed by disengaging studs 34 from their respective apertures 46 and lifting the sections out of the washing chamber. Preferably each wire 47 of the carrier 42 lies in a separate plane radiating from the axis of stand-pipe 21.

I claim:

1. In a dish washing machine, the combination of a wheel mounted to revolve about a vertical axis, and a reticulated circular dish carrier mounted upon said wheel and comprising a plurality of V-shaped troughs, the bottoms of which are disposed in a common plane, the side walls of said troughs being divergent from bottom to top, and the troughs being of different depths to accommodate in inclined position dishes of various sizes.

2. In a dish washing machine, the combination of a rotatable wheel, means for spraying water upwardly and downwardly onto said wheel, and a dish carrier mounted upon and removably connected to said wheel, said dish carrier comprising a series of radially arranged zig-zag shaped wires disposed on edge and a series of concentrically arranged members disposed transversely of said wires, alternate members being connected with the upper and lower apices of the wire corrugations respectively to provide a plurality of V-shaped dish receiving troughs having divergent side walls.

3. In a dish washing machine, the combination of a washing chamber, a wheel mounted to revolve therein, means for spraying water upwardly and downwardly into said chamber, and a dish carrier removably mounted onto said wheel, and comprising a plurality of sections, each section consisting of a plurality of zig-zag shaped wires disposed on edge and transversely extending members connecting the highest and lowest apices of the wires, and means for connecting said sections together to provide a unitary structure having a series of V-shaped dish receiving troughs.

4. In a dish washing machine, the combination with spaced lower and upper spraying devices respectively adapted to project water upwardly and downwardly, of a reticulated dish carrier mounted in the machine to move horizontally between said lower and upper devices and comprising a plurality of concentric troughs having inclined side walls varying in height from a common plane in which their bottoms are disposed for holding dishes in oblique position with respect to the sprays from said devices.

5. In a dish washing machine, the combination with a vertical standpipe, of a wheel centrally journaled thereon, a dish carrier mounted upon said wheel and lower and upper spray pipes communicating with the interior of said standpipe below and above the carrier and respectively adapted to project water upwardly and downwardly.

6. In a dish washing machine, the combination with a vertical standpipe, of a wheel centrally journalled thereon, a dish carrier removably mounted upon said wheel and lower and upper spray pipes communicating with the interior of said standpipe below and above the carrier and respectively adapted to project water upwardly and downwardly, the bottom of said carrier being formed into a series of concentric curvilinear troughs V-shaped in cross-section.

7. In a dish washing machine, the combination with a wheel mounted in the machine for rotation about a vertical axis, of a set of separable sector-shaped reticulated dish holding elements formed to rest removably upon and to partially embrace certain of the spokes of said wheel, said elements in assembled position defining a circular dish holding basket the bottom of which comprises a series of V-shaped troughs.

JOSEPH A. MASONICK.