

May 25, 1943.

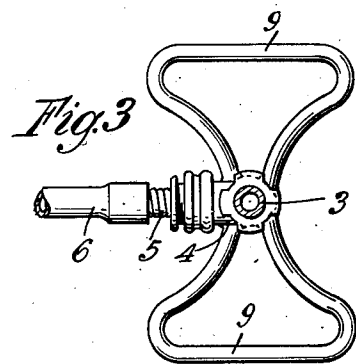
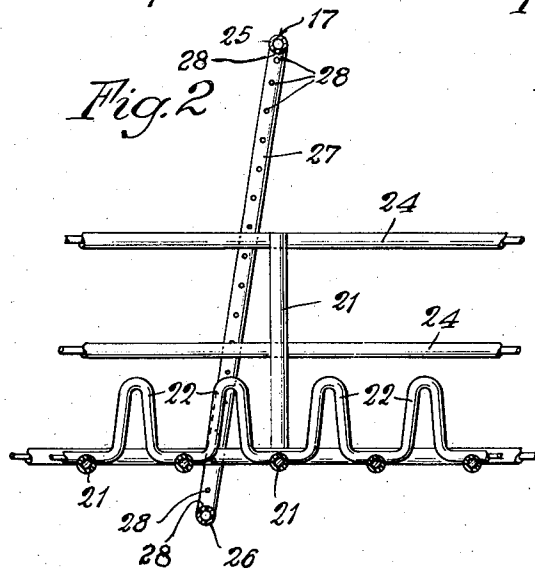
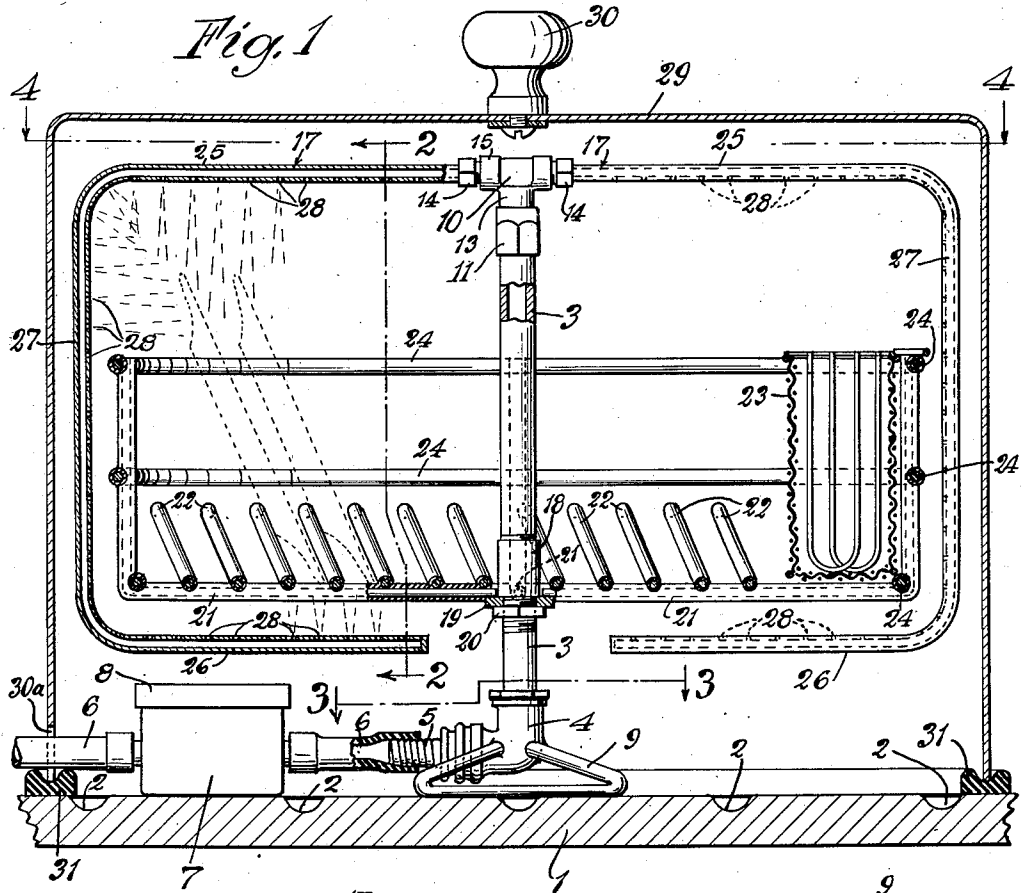
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2,320,133

DISH WASHER

Filed July 3, 1941

3 Sheets-Sheet 1



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Fig. 4

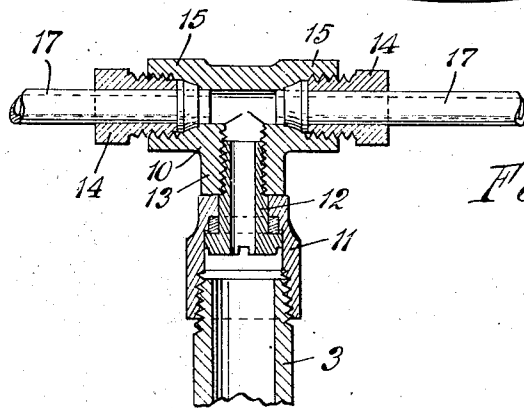
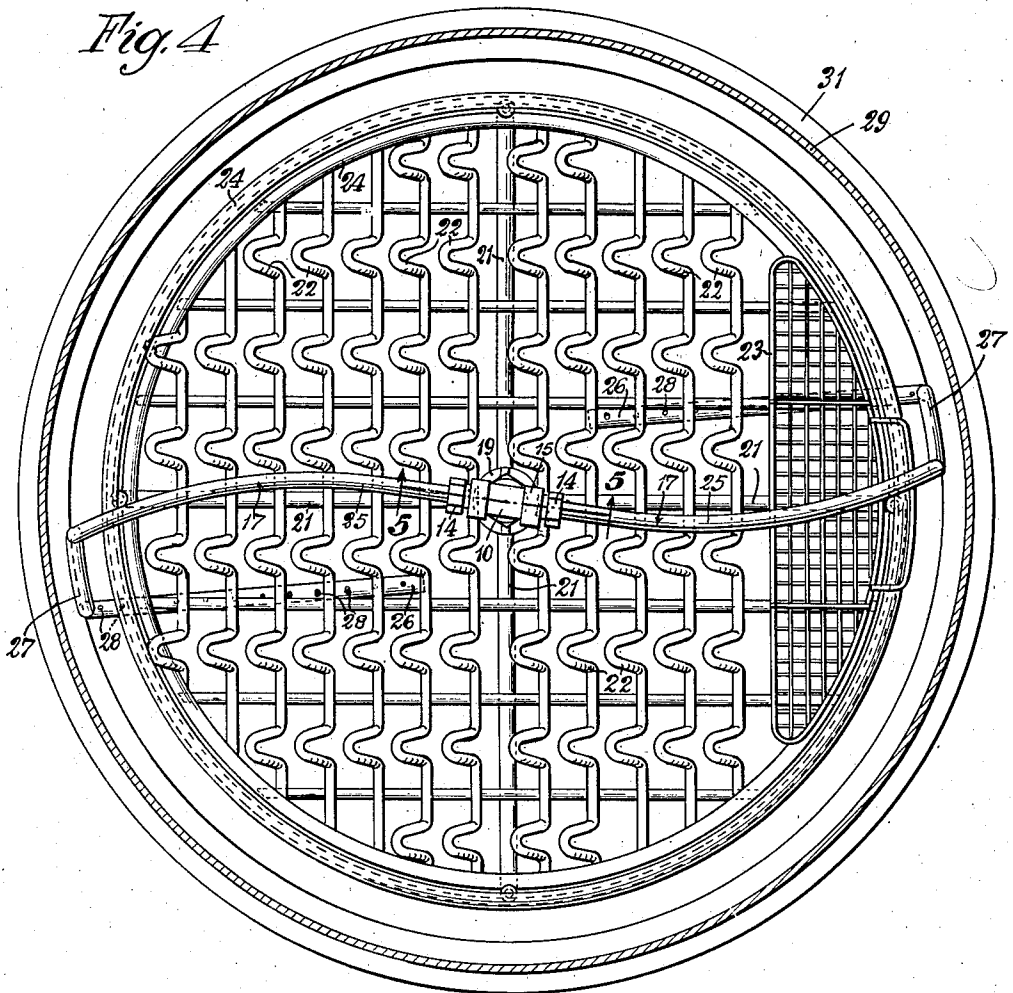


Fig. 5

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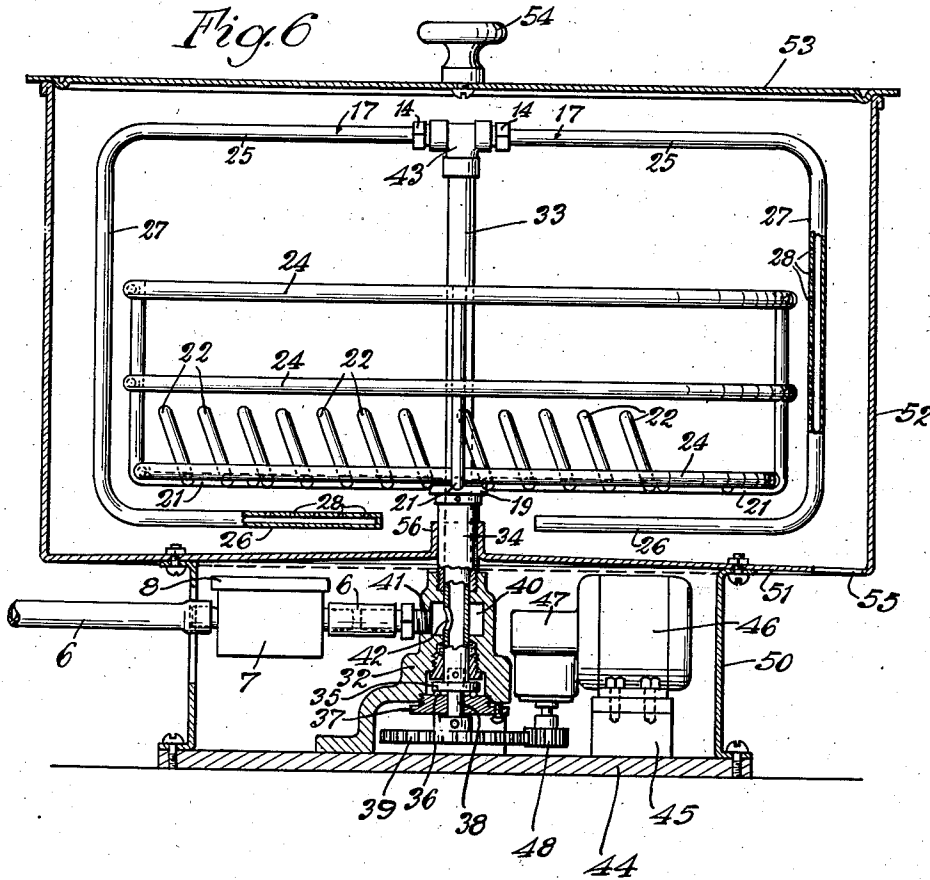
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UNITED STATES PATENT OFFICE

2,320,133

DISHWASHER

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Application July 3, 1941, Serial No. 400,905

9 Claims. (Cl. 141—9)

My invention relates to improvements in dish washing machines and has for one object to provide a new and improved type of machine which will be portable, light, cheap, simple, which will take up a minimum amount of room when in operation and may be easily stored and which may rest upon the usual type of kitchen sink dish board.

Other objects of the invention will appear from time to time throughout the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawings, wherein—

Figure 1 is a vertical section;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is a section along the line 3—3 of Figure 1;

Figure 4 is a section along the line 4—4 of Figure 1;

Figure 5 is a section along the line 5—5 of Figure 4;

Figure 6 is a section similar to Figure 1 of a modified form.

Like parts are indicated by like characters throughout the specification and drawings.

1 is the usual form of dish board associated with the conventional kitchen sink, having in its upper surface a plurality of water channels 2. 3 is a standpipe projecting upwardly from an elbow 4. 5 is a hose pipe connection adapted to be threaded into the horizontal arm of the elbow and 6 is a hose pipe associated with the hose pipe connection adapted to bring water from any suitable source to the standpipe. 7 is a soap box in the hose pipe, having removable cover 8 and adapted to contain soap which will be dissolved by the water as it passes toward the standpipe. 9 are legs adapted to rest upon the dish board 1 and form with the elbow 4 a pedestal or support for the standpipe 3.

10 is a spinner head, taking preferably the form of a T. It rests upon a cap 11, threaded on the upper end of the standpipe 3. A hub 12 is rotatably mounted in the cap 11 threaded into the stem 13 of the T so that the spinner head is free to spin but cannot be removed from the standpipe. 14 are hollow coupling plugs threaded in the two branches of the T adapted to encircle the ends of the spray pipe 17.

The standpipe is in two sections joined by a sleeve 18. Both sections of the standpipe are threaded. Encircling the standpipe 3 below the sleeve 18 is a collar 19 held against the under

end of the sleeve 18 by a nut 20 threaded on the standpipe. Projecting laterally from the collar, preferably rigidly attached thereto by brazing, welding, or riveting as the case may be are a plurality of dish rack forming arms 21. These arms have upwardly inclined U-shaped elements 22 so that dishes may be placed between them as indicated in dotted lines in Figure 1. 23 is a silver basket adapted to be mounted on the guardrails 24. These guardrails encircle the outer periphery of the dish rack and form a unit structure limiting the peripheral area in which the dishes may be placed for reasons which will hereinafter appear.

The spray pipes 17 are U-shaped in cross section having an upper limb 25, a lower limb 26 and a central section 27. The upper limb 25 is curved as shown in Figure 4. The central section 27 is rearwardly inclined as shown in Figures 2 and 4, and the lower limb 26 extends inwardly toward the standpipe but trails the upper limb 25 and is inclined to the radius as shown in Figure 4. Each of these three spray pipe extensions has a plurality of inwardly directed spray apertures 28. The spray apertures on the pipe 25 discharging water downwardly, on the pipe 27 discharging water inwardly, on the section 26 discharging water upwardly against the dish tray and its contents. As indicated in Figures 2 and 1, the spray openings are rearwardly extended so that as water is projected from the sprays, the reaction of the jet will cause the spray pipes and spinner head to rotate around the area defined by the dish rack and its guardrails, while the spray jets discharge inwardly. Because of the fact that the lower section trails the upper section of the U-shaped spray pipe, the jets are never in opposition to one another so that as the spray pipe passes round and round as shown in Figure 1, the jets from above will engage the upper surface of the dishes, the jets from below will engage the lower surface of the dishes. These jets are thus staggered and do not interfere with one another nor do they interfere with the jets coming radially inward from the portion of the spray pipe 27.

29 is a cylindrical cover closed at the top as indicated, having a handle 30 and resting upon a rubber ring 31. This ring rests upon the dish board 1. The cover is apertured at 30a to permit entrance of the hose pipe 6.

In using the dish washer, the ring 31 is first placed on the dish board. The pedestal, standpipe, spray pipe and rack assembly is then placed on the dish board substantially concentric with

the ring 31. The soap container is filled with soap. The dishes are placed in the basket or rack. The cover is then put on encircling the whole apparatus, there being clearance between the cover and the dish basket or rack to permit passage of the spray pipes therebetween. Water is then turned on. The spinner is rotated by the reaction of the water jets, the soapy water is projected against the dishes in the dish basket, runs down into the dish board and runs into the sink through the grooves 2. This process continues until the dishes are clean, when the water is turned off, the cover is removed, the dishes are taken out of the basket and the apparatus is ready for reuse or to be put away.

In the modified form shown in Figure 6, there is substituted for the elbow 4 and legs 9, an overhanging frame structure 32, in which a one-piece standpipe 33 is rotatably mounted, being encircled and guided by a sleeve 34 which is threaded in the frame 32. The standpipe extends down to terminate in a plate 35 which closes the pipe. This plate is supported by antifriction bearings 36 on the threaded plug 37. 38 is a stem extending down through the plug 37 from the plate 35 to carry a gear 39. 40 is a water chamber in the frame 32 communicating by means of a coupling 41 with the hose pipe 6. The standpipe 33 is apertured as at 42 so that as it rotates, it is always in connection with the chamber 40. 43 is a T rigidly mounted on the standpipe 33 which supports the spray pipes 17 just as is shown in Figure 5.

44 is a base on which is mounted a stand 45 which carries an electric motor 46 with a gear reduction 47 driving a pinion 48 in mesh with the gear 39. Extending upwardly from this base 44 is a cylindrical housing 50 carrying a floor 51 having upwardly extending side walls 52 surrounding the dish basket and the spray pipes and closed at its upper end by a flat cover 53 having a handle 54. 55 is an aperture in the floor 51 for the escape of water. 56 is a sleeve extending upwardly from the floor 51 encircling the sleeve 54 to make a substantially water tight connection so that the run off water will not reach the motor and driving mechanism. With this arrangement, the only difference from the preferred form shown in Figures 1 to 5 inclusive is that the motor rotates the standpipe T or spinner head and spray pipes, the spray water jet itself serving exclusively to wash the dishes and having no propelling function. In this case, a housing or cover is permanently associated with the other elements of the device.

If it should happen that the width of the drain board was less than the diameter of the cover, an auxiliary drain board or plate may be used or on the water driven device of Figure 1, a device similar to the receptacle 52 with cover 53 of Figure 6 may be used.

Figure 1 shows in combination with a water driven device, a fixed column 3 with the spinner head rotating on it. In the modified form shown in Figure 6, the column rotates. It happens, however, it is associated with the electric motor but obviously a motor could be applied to the device of Figure 1 and the device of Figure 6 might operate without the motor.

One advantage of using an electric motor is that if desired, spray holes may be added to the rotating column 33.

It will be realized that while I have shown in my drawings an operative device, still many changes might be made in the size, shape, ar-

rangement and disposition of parts without departing materially from the spirit of my invention and I wish, therefore, that my showing be taken as in a large sense diagrammatic.

I claim:

1. In a dish washer, a standpipe, a dish basket concentric with and supported entirely upon the standpipe, a spinner head on the standpipe above the basket, and a spray pipe extending outwardly from the spinner head to beyond the periphery of the basket, then extending downwardly below the basket and then extending inwardly toward the standpipe, means for supplying water to the standpipe and therethrough and through the spinner head to the spray pipe, the spray pipe having apertures adapted to direct water downwardly, inwardly and upwardly against the basket and its contents, the portion of the spray pipe extending across and above the basket, being curved, the portion of the pipe which extends downwardly about the basket being rectilinear.

2. In a dish washer, a standpipe, a dish basket concentric with and supported entirely upon the standpipe, a spinner head on the standpipe above the basket, and a spray pipe extending outwardly from the spinner head to beyond the periphery of the basket, then extending downwardly below the basket and then extending inwardly toward the standpipe, means for supplying water to the standpipe and therethrough and through the spinner head to the spray pipe, the spray pipe having apertures adapted to direct water downwardly, inwardly and upwardly against the basket and its contents, the limb of the spray pipe extending downwardly outside the basket being rearwardly inclined, the lower limb of the spray pipe trailing behind the upper limb, the jets projecting from the upper and lower limbs being parallel but out of alignment with one another.

3. In a dish washer, a standpipe, a dish basket concentric with and supported entirely upon the standpipe, a spinner head on the standpipe above the basket, and a spray pipe extending outwardly from the spinner head to beyond the periphery of the basket, then extending downwardly below the basket and then extending inwardly toward the standpipe, means for supplying water to the standpipe and therethrough and through the spinner head to the spray pipe, the spray pipe having apertures adapted to direct water downwardly, inwardly and upwardly against the basket and its contents, the standpipe having a movable base upon which it is mounted adapted to rest on and be supported by a smooth surface.

4. A dish washer including a pedestal, a standpipe projecting upwardly therefrom, a hose connection associated with the lower end of the standpipe, a spinner head on the upper end of the standpipe, an open fixed dish supporting rack supported at its center on the standpipe, a guard railing extending upwardly from the outer periphery of the rack and encircling it, a generally U-shaped spray pipe extending outwardly from the spinner head, generally horizontally above the rack, the pipe being curved in a horizontal plane, the base of the U extending downwardly and rearwardly outside the guard rail, the lower limb of the U extending inwardly toward the standpipe below the rack the lower limb being located behind the curved upper portion of the pipe, spray apertures in the spray pipe discharging, some of them downwardly, some of them inwardly, some of them upwardly from the three portions of the pipe toward the rack and its contents.

5. A dish washer including a pedestal, a standpipe projecting upwardly therefrom, a hose connection associated with the lower end of the standpipe, a spinner head on the upper end of the standpipe, an open fixed dish supporting rack supported at its center on the standpipe, a guard railing extending upwardly from the outer periphery of the rack and encircling it, a generally U-shaped spray pipe extending outwardly from the spinner head, generally horizontally above the rack, the pipe being curved in a horizontal plane, the base of the U extending downwardly and rearwardly outside the guard rail, the lower limb of the U extending inwardly toward the standpipe below the rack behind the curved upper portion of the pipe, spray apertures in the spray pipe discharging, some of them downwardly, some of them inwardly and some of them upwardly from the three portions of the pipe toward the rack and its contents, a removable cover for the assembly of such size as to enclose and be out of contact with the spray pipe and to extend downwardly into the plane of the base of the stand.

6. A dish washer including a dish supporting rack, a railing encircling it, a standpipe, a supporting base therefor, the rack being supported by the standpipe, a spinner head on the standpipe, a generally U-shaped spray pipe extending laterally from the spinner head above the rack, then downwardly outside the railing, then inwardly below the rack, a removable cover enclosing the entire assembly closed at the top and extending downwardly below the lowermost portion of the spray pipe and being entirely independent of and out of contact with the standpipe and the rack, the spray pipe having a plurality of spray openings, some discharging downwardly, some inwardly and some upwardly against the dish rack and its contents, means for spinning the spinner and associated spray pipe.

7. A dish washer including a movable supporting pedestal, a standpipe concentric therewith, a hose connection with the lower end of the stand-

pipe, an open fixed dish supporting rack concentric with the standpipe, a spinner head concentric with the standpipe, a guard railing extending upwardly from the outer periphery of the rack and encircling it, a generally U-shaped spray pipe supported at its upper end by the spinner head and extending generally horizontally above the rack.

8. A dish washer including a movable supporting pedestal, a standpipe concentric therewith, a hose connection with the lower end of the standpipe, an open fixed dish supporting rack concentric with the standpipe, a spinner head concentric with the standpipe, a guard railing extending upwardly from the outer periphery of the rack and encircling it, a generally U-shaped spray pipe supported at its upper end by the spinner head and extending generally horizontally above the rack, the base of the U extending downwardly and rearwardly outside the guard rail.

9. In a dish washer, a standpipe, a dish basket concentric with and supported entirely upon the standpipe, a spinner head on the standpipe above the basket, and a spray pipe extending outwardly from the spinner head to beyond the periphery of the basket, then extending downwardly below the basket and then extending inwardly toward the standpipe, means for supplying water to the standpipe and therethrough and through the spinner head to the spray pipe, the spray pipe having apertures adapted to direct water downwardly, inwardly and upwardly against the basket and its contents, the upper portion of the spray pipe which extends above and across the basket lying in a generally horizontal plane and being curved, the spray pipe including a generally rectilinear section extending downwardly about the exterior of the basket and a generally rectilinear section extending inwardly beneath the bottom of the basket.

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