

May 2, 1933.

C. SELMER

1,907,269

DISHWASHING MACHINE

Filed Feb. 10, 1930

2 Sheets-Sheet 1

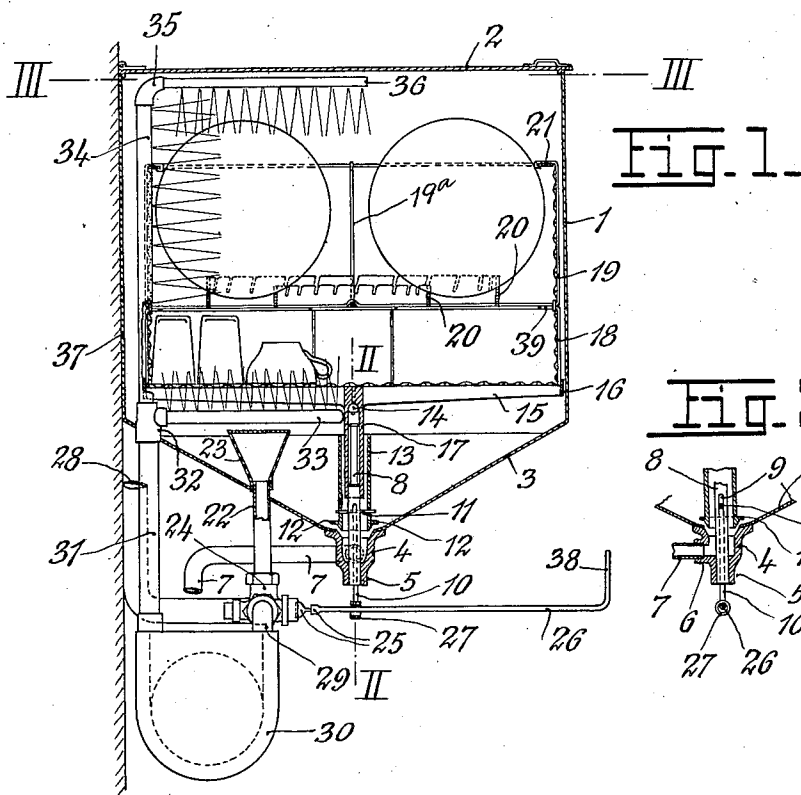


Fig. 1.

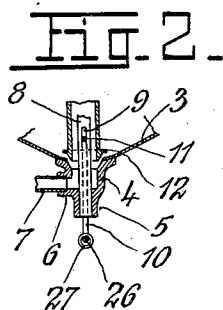
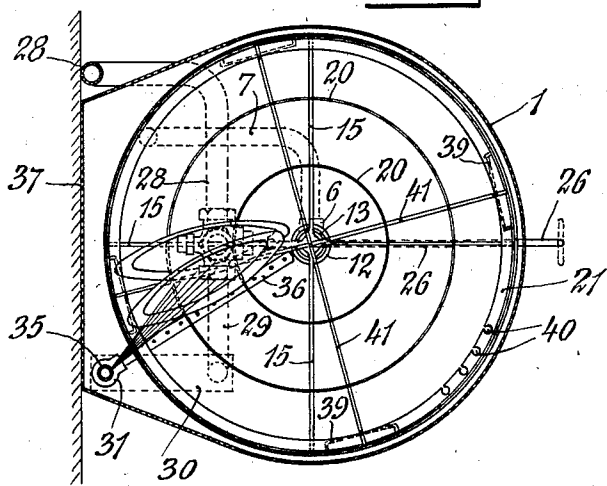


Fig. 2.

Fig. 3.



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Fig. 4.

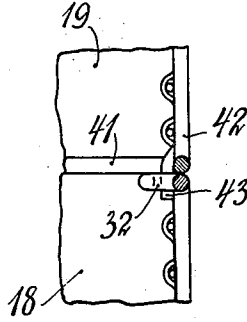


Fig. 5.

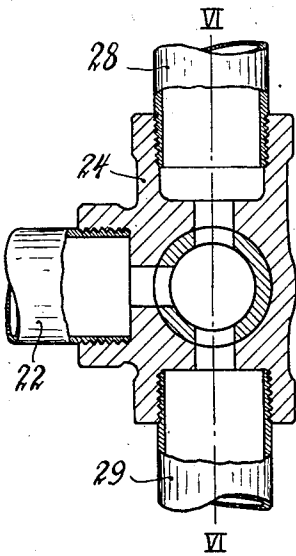
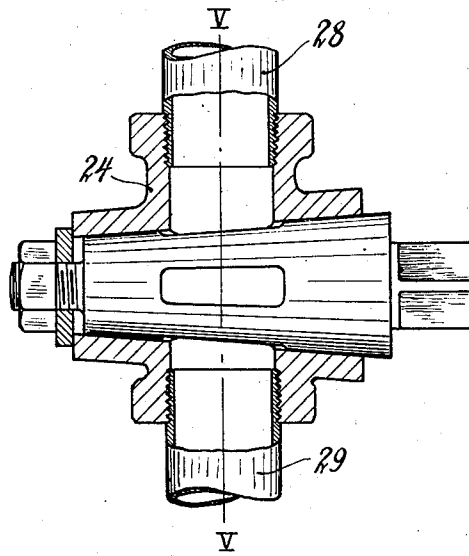


Fig. 6.



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# UNITED STATES PATENT OFFICE

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## DISHWASHING MACHINE

Application filed February 10, 1930, Serial No. 427,288, and in Norway February 19, 1929.

This invention relates to improvements in dish washing machines of the kind wherein the rinsing water by means of a pump is forced up into the dish washing container and into jet pipes arranged therein, whereby the jets cause the dish basket to rotate, and in which the basket is arranged upon a supporting device rotating about a vertical shaft fixedly attached inside the container and surrounded by a sleeve forming part of the said device and also forming the support for the shaft.

In accordance with this invention the vertical shaft from the valve casing arranged in the container bottom is passed up through a valve and sleeve to a level located at some height above the valve, the sleeve of the supporting device projecting at the same time downwardly through the valve sleeve so that all the space above the supporting device is enabled to be utilized for the rotating dish basket.

A constructional form of the invention is illustrated in the annexed drawing, wherein Figure 1 is an elevation of the machine substantially in vertical longitudinal section. Figure 2 is an elevation of the valve casing with appertaining parts shown in vertical section on the line II—II of Figure 1. Figure 3 is a plan view in section on the line III—III of Figure 1.

Figure 4 is a detailed section of the coupling device between the baskets, on a somewhat enlarged scale. Figure 5 is a detail section of the cock on the line V—V of Figure 6. Figure 6 is a similar view of the same on the line VI—VI of Figure 5.

The machine consists of a dish washing container having a vertical cylindrical wall 1. However, preferably a portion of this wall is replaced by a flat wall 37 enabling the container to be fastened to a room wall. The container is provided with a pivoted cover 2, and its bottom 3 is tapered downwardly. The point of this bottom is cut away, and fastened thereto is an elbow-shaped valve casing 4 having a strong bottom part terminating in a downwardly projecting sleeve 5. The valve casing outlet 6 has internal threads en-

abling it to be connected with a draining pipe 7.

The sleeve 5 has a bore, and fitting snugly therein is a cylindrical upright steel bolt or shaft 8 provided at a point level with the upper edge of the bottom valve 12 with a transverse slot 9 extending about 2 cm. axially in said bolt. The bolt 8 has also a longitudinal bore extending from its lowermost end up to the top part of the said slot. Into this bore a valve lifter 10 passes which is connected by a cross pin 11 to the valve 12, said pin passing through the slot 9. The valve 12 carries an upwardly extending sleeve 13 forming an overflow pipe and in practice said valve is provided with guiding ribs (not shown) cooperating with guiding faces in the valve casing.

The bolt or shaft 8 has at the top a ball bearing consisting of a single ball 14, and rotating thereupon is a supporting cross 15 having four arms interconnected at their ends by a circular ring 16 which projects upwardly about 1 cm. and is adapted to support the lower dish basket. Centrally in the cross 15 is secured a downwardly projecting sleeve 17 the interior diameter of which corresponds to the diameter of the bolt 8. This sleeve maintains the cross in position upon the ball and serves as a guide during rotation of the cross.

Through the tapered bottom 3 of the container passes a pipe 22. To its upper end, inside the container, is fastened a finely meshed sieve 23, and its lower end is level with the under edge of the valve casing and screwed into a three-way cock 24. To the cock plug a universal joint 25 is connected and from the latter the spindle 26 passes through a ring 27 attached to the valve lifter 10 on to the front part of the machine, where it ends in an arm 38 or a hand wheel. Thereby the spindle enables adjustment of the cock to be effected and also simultaneous independent lifting of the valve to empty the washing water from the container.

One remaining pipe socket of the cock 24 is coupled to a supply pipe 28 from a hot water tank, and the other socket is connected at 29 to the intake of a water pump 30. The pump outlet 31 passes to a T-pipe 32 which

enters the container at one of its corners adjacent the flat portion 37. To the horizontal outlet of T-pipe 32 which is directed toward the container centre, the lower rinsing pipe 33 is screwed.

The jet openings of said pipe are directed upwardly, and to the upper end of the T-pipe the side-rinsing pipe 34 is screwed which by an elbow or a universal member 35 passes into the top rinsing pipe 36.

The basket receiving the dishes consists of two superposed parts. The lower part 18 is a circular coarse-meshed netting basket about 12 cm. high having four horizontally inturned handles 39. The upper part 19 forms a skeleton covered by a cylindrical coarse-meshed netting wall supported by four vertical stiffening members 19<sup>a</sup> which are bent inwardly at the top and attached to a flat ring 21 having holes 40 stamped out therein and some of which are shown in Fig. 3. At the bottom some of said members project downwardly about 1 cm. beyond the netting edge, and level with the edge as indicated at 43 in Fig. 4, a wire cross 41 is fastened instead of a bottom and carries annular plate holders 20. When placing the top basket 19 upon the bottom basket 18 with cross 41 resting upon handles 39, each projecting part of the stiffening members engages a handle 32 as clearly seen in Fig. 4, thereby preventing the top basket from sliding downwardly or laterally during the operation of the machine.

By this basket structure the space inside the machine is completely utilized. Glasses, cups and other articles which should be in inverted position are placed in the bottom basket and washed inside by the vertical jets from the bottom rinser 33. Plates are placed in the holders 20 above the glasses and the like and spoons, forks, and the like are hung in the holes 40 in the top ring 21. The latter also serves as a handle when removing or inserting the top basket. Plates, spoons and the like are washed from the side and top rinsers 34, 36 which also wash exteriorly what has been placed in the bottom basket.

The machine operates as follows:

The dishes are placed in the baskets which are then placed upon the supporting cross in the container.

The valve 12 being closed the cock 24 is so adjusted that water from the hot water tank flows through pipes 28 and 22 into the machine. When the water has reached a level with the edge of the overflow pipe 13, the water supply from 28 is cut off by the cock and connection is opened between the container and pump.

Consequently water flows from the container through pipe 22 to fill pump 30 which is now started by any suitable motor. The water is forced up into the rinsers 33, 34, 36

forming jets directed to the dishes and is then collected in the container bottom 3. The jets of the side rinser 34 and top rinser 36 are so inclined that the plates are hit somewhat at an angle to a radial vertical plane. The jet impact will therefore cause the baskets to rotate so that the dishes constantly pass by the jets and are completely cleaned. The sieve 23 retains all solid particles. Hence the washing water is always comparatively clean, and the rinser holes are not choked. The washing usually is complete after about 3 minutes. Then by the cock 24 the pump is put in direct connection with pipe 28 from the hot water tank and the connection between container and pump is cut off. The dishes now are rinsed by constantly new clean water with increasing temperature. The first rinsing water which has been standing some time in the pipes has now been somewhat cooled, whereas the water flowing from the hot water tank is 80-100 C. hot. The dishes are thereby sterilized and the temperature they have obtained will suffice to evaporate quickly the water drops not already dripped off when the baskets are lifted out after complete rinsing. Drying by towel is consequently superfluous.

During the rinsing the superfluous water flows out through the overflow pipe 13. The water in the container is thereby clarified, and after final rinsing the container will contain clean water ready for the next operation.

After complete washing operation the cock 24 is closed and the spindle 10 lifted. The water in the container is then emptied through the bottom valve.

The top rinser 36 may be swung with pipe 34 as an axis so as to lie adjacent the flat wall 37, when the baskets 18, 19 are to be removed or inserted.

I claim:

1. A dish washing machine comprising a washing container having in its bottom a valve casing with an outlet and with a valve seat, a vertical sleeve extending upwardly in the container and having its lower portion resting on said valve seat and forming a drain valve, a vertical supporting shaft extending from the valve casing up through said sleeve, a dish basket carrier having a central hub extending downwardly between the valve sleeve and the shaft and supported revolubly by said shaft on a substantial part of its length, and means for operating the valve sleeve.

2. A dish washing machine comprising a washing container having in its bottom a valve casing with an outlet and with a valve seat, a vertical sleeve extending upwardly in the container and having its lower portion resting on said valve seat and forming a drain valve, a vertical supporting shaft extending from the valve casing up through

said sleeve, a dish basket carrier having a central hub extending downwardly between the valve sleeve and the shaft and supported revolubly by said shaft on a substantial part of its length, an annular space being left between the said hub and sleeve, whereby the latter will operate also as an overflow valve, and means for operating the valve sleeve.

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3. A dish washing machine comprising a washing container having in its bottom a valve casing with an outlet and with a valve seat, a vertical sleeve extending upwards in the container and having its lower portion resting on said valve seat and forming a drain valve, a vertical supporting shaft extending from the valve casing up through said sleeve, a dish basket carrier having a central hub extending downwardly between the valve sleeve and the shaft and supported revolubly by said shaft on a substantial part of its length, a bore extending axially in the lower part of the shaft, a transverse slot extending axially in the shaft above the valve casing, a valve lifting pin passing from outside slidingly up into the bore, a transverse pin attached to the valve lifting pin and to the valve sleeve and passing vertically movably through the slot.

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4. A dish washing machine comprising a washing container having in its bottom a valve casing with an outlet and with a valve seat, a vertical sleeve extending upwards in the container and having its lower portion resting on said valve seat and forming a drain valve, a vertical supporting shaft extending from the valve casing up through said sleeve, a dish basket carrier, having a central hub extending downwardly between the valve sleeve and the shaft and supported revolubly by said shaft on a substantial part of its length, an annular space being left between the said hub and sleeve, whereby the latter will operate also as an over-flow valve, a bore extending axially in the lower part of the shaft, a transverse slot extending axially in the shaft above the valve casing, a valve lifting pin passing from outside slidingly up into the bore, a transverse pin attached to the valve lifting pin and to the valve sleeve and passing vertically movably through the slot.

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