March 7, 1961 C. W. GILDERBLOOM 2,973,534

DISHWASHING MACHINE

Filed Dec. 24, 1958 2 Sheets-Sheet 1

FIG. 1

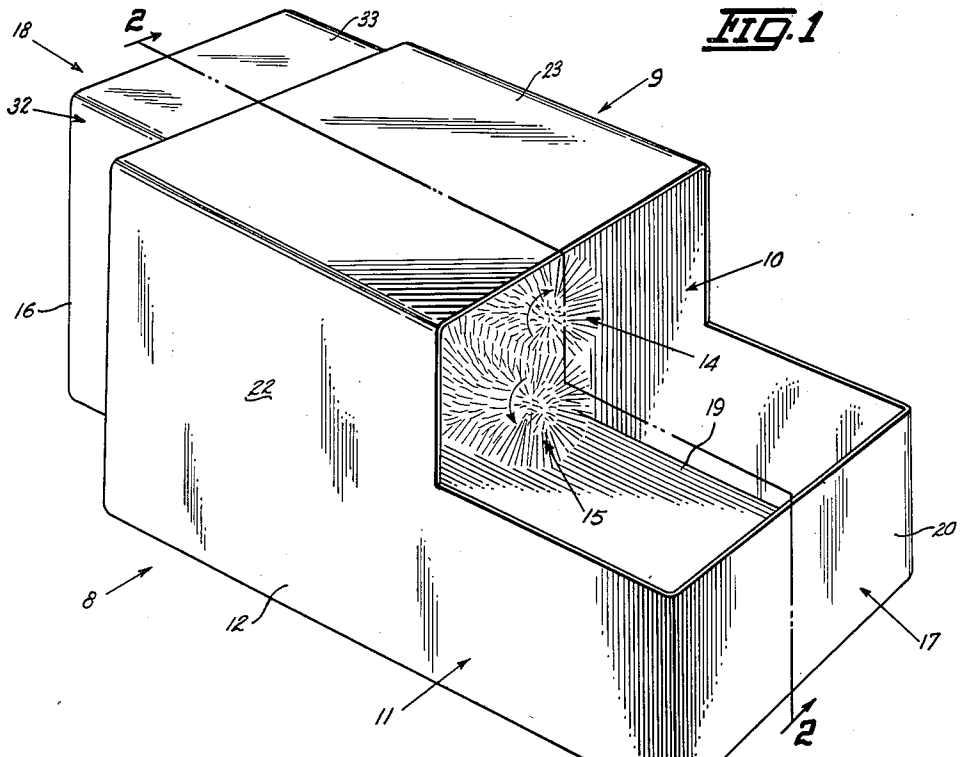
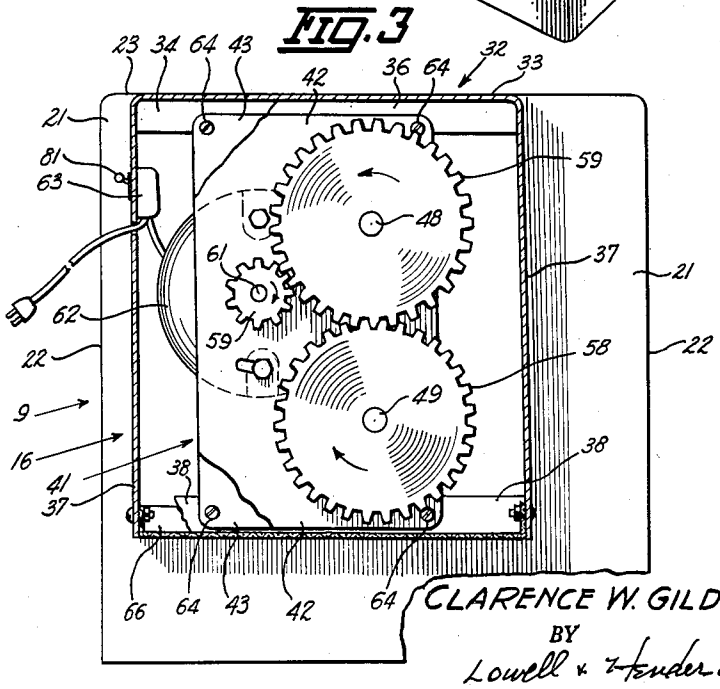


FIG. 3



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FIG. 2

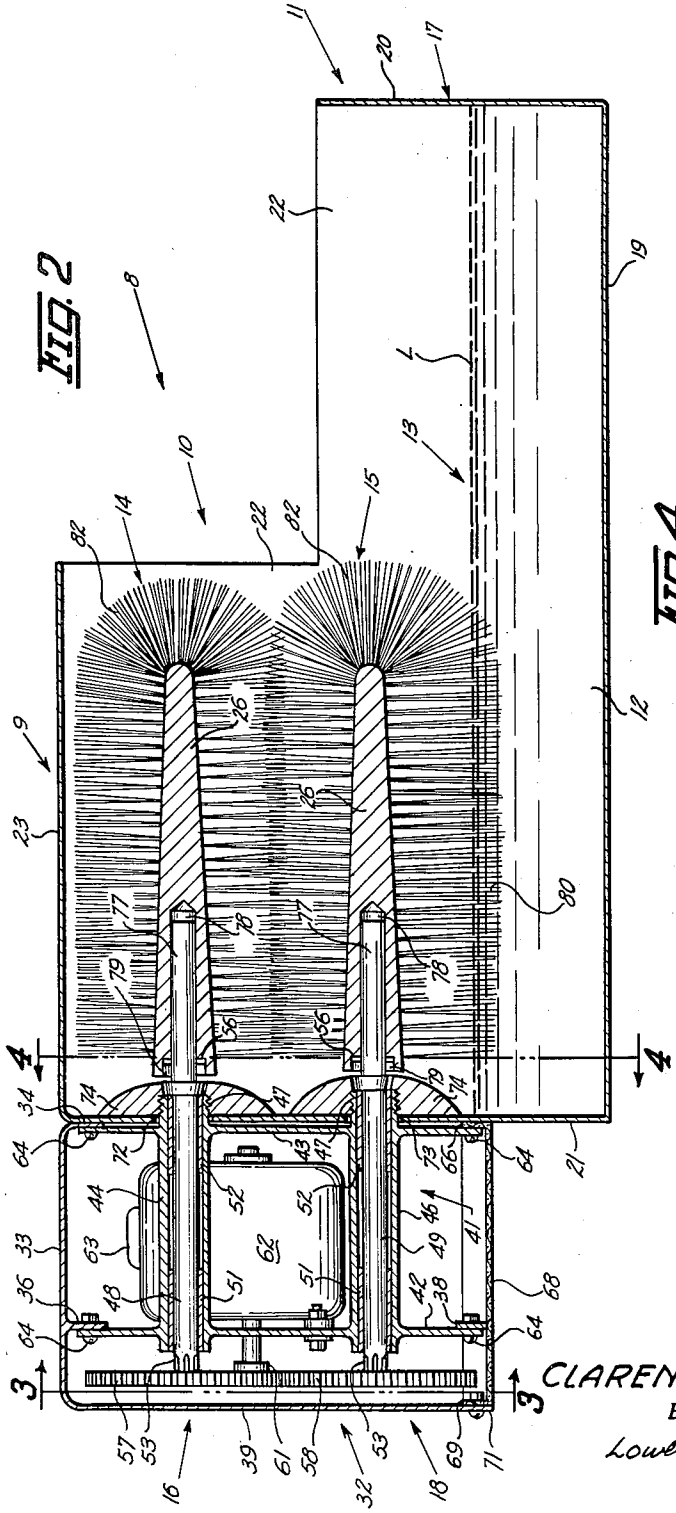
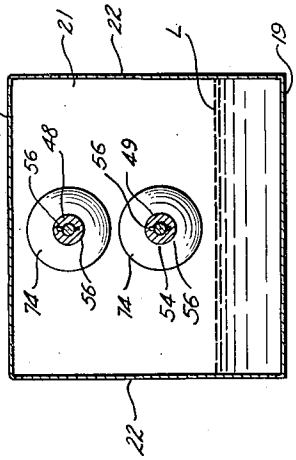


FIG. 4



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DISHWASHING MACHINE

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1 Claim. (Cl. 15—74)

This invention relates generally to a machine for washing dishes, glasses and like articles, and more particularly to a portable dish washing machine.

It is an object of this invention to provide an improved portable dishwashing machine which will thoroughly cleanse and wash dishes by an electrically operated brush device having a portion thereof immersed in a cleansing fluid retained by the machine.

It is another object of this invention to provide a portable dishwashing machine wherein a pan for containing a cleansing solution is open at one end and carries at the opposite end a housing for a brush unit open to the one end of the pan, so that dishes soaking in the open end may be manually picked up, moved within the housing and into the brushes for cleaning, and then removed therefrom.

Another object of this invention is to provide a portable dishwashing machine wherein a housing substantially encases the washing compartment so as to minimize the splashing resulting from the washing, while permitting a manual manipulation of the article in the washing compartment.

Another object of this invention is to provide a dishwashing machine having a unitary housing provided with a dish soaking compartment and a dish washing compartment with rotatable brushes therein, and a power unit for the brushes detachably mounted on the outside of the washing compartment.

Yet another object of this invention is to provide a portable dishwashing machine which is economical to manufacture, simple to operate and use, and effective in performance.

Other objects, features and advantages will become readily apparent by reference to the following description when taken in conjunction with the accompanying drawing, wherein:

Fig. 1 is a perspective view of one embodiment of the portable dishwashing machine of this invention;

Fig. 2 is an enlarged, sectional view taken along the line 2—2 in Fig. 1, with certain parts broken away for the purpose of clarity;

Fig. 3 is an enlarged, vertical sectional view taken along the line 3—3 in Fig. 2, with certain parts broken away for the purpose of clarity; and

Fig. 4 is a reduced, sectional view taken along the line 4—4 in Fig. 2.

Referring to the drawings and particularly to Fig. 1, the portable dishwashing machine 8 of this invention comprises generally a housing unit 9, open at one end 10, and integrally formed with a pan extension 11 projected outwardly from the lower portion 12 of the housing open end 10. The pan extension 11 and the housing lower portion 12 constitute a bottom pan for containing a dish washing fluid, indicated at 13, and the housing unit 9 forms a compartment for a pair of rotatable washing brushes 14 and 15. A power unit 16 for the brushes is detachably mounted on the rear of the housing unit 9. For the purpose of convenient terminology, the

front of the machine 8 is indicated at 17 (Fig. 1) and the rear thereof is indicated at 18.

Structurally, the combined housing unit 9 and pan extension 11 are formed by a base 19, front and back walls 20 and 21 respectively, and side walls 22. The back wall 21, and the side walls 22 over a longitudinal portion thereof from the back wall toward the front wall 20, are extended upwardly beyond the remainder of the side walls 22 and the front wall 20, and are connected across their upper edges by a top wall 23. It is seen, therefore, that the combined housing 9 and pan extension 11 is substantially L-shaped in side elevation (Fig. 2).

The brushes 14 and 15, rotatably mounted in a manner hereinafter to be described, are horizontally extended in a vertically aligned manner above the pan base 19 and within the housing 9. Both brushes include shafts or arbors 26 carrying bristles thereon in a conventional manner, the bristles being of a length relative to the vertical spacing between the stems such that they overlap therebetween (Fig. 2).

The power unit for the brushes includes a case 32 (Figs. 2 and 3) which comprises a top portion 33 having a depending flange 34 (Fig. 2) across the front edge and a depending rib 36 extended transversely of the top portion adjacent the rear edge thereof. The case 32 includes further a pair of side portions 37 joined at their bottom portions by a transversely extended, upstanding rib 38 (Fig. 2), and a rear portion 39 joining the rear edges of the side and top portions. Of note, the ribs 36 and 38 are vertically aligned, and the front and bottom of the case 32 are open.

A mounting member 41 (Figs. 2 and 3), adapted to be detachably mounted to the inside of the case 32, includes a vertically disposed rear plate 42 of a length such that the upper and lower edges thereof overlap the upper and lower ribs 36 and 38 respectively (Fig. 2), and a vertically disposed front plate 43 similar in size to the rear plate 42 so that its upper edge overlaps the flange 34.

The plates 42 and 43 are integrally connected in horizontally spaced relation by a pair of horizontally extended, vertically aligned tubular bearing elements 44 and 46 (Fig. 2) which extend through the plates 42 and 43 at locations offset from the center thereof (Fig. 3). The forward ends 47 (Fig. 2) of the elements 44 and 46 are externally threaded for a purpose hereinafter described.

A pair of elongated drive shafts 48 and 49 (Fig. 2) are respectively inserted through the tubular elements 44 and 46, each of the latter being provided with a pair of spaced bearing sleeves 51 and 52. Each drive shaft has a splined rear end 53 (Fig. 2), a collar 54 toward the front end, and a pair of diametrically opposed projections 56 formed forwardly of the collar. A pair of gears 57 and 58 are secured in meshed relation on the respective rear ends 53 of the shafts 48 and 49, with one gear 57 being also in mesh with a smaller drive gear 59 (Fig. 3).

The gear 59 is mounted on a drive shaft 61 (Fig. 2) which is driven by an electric motor 62 secured between and to at least one of the plates 42 and 43. An on-off switch box 63 with appropriate internal wiring to the motor and external plug-in wiring is provided for operating the motor 62 from any conventional wall outlet, the box 63 being mounted on a side portion 37 inside the case 32.

With the drive shafts 48 and 49, the gears 57 and 58, and the motor 62 and the accessories therefor mounted to the plates 42 and 43, the latter as a unit is detachably mounted by a plurality of fastening devices 64 (Figs. 2 and 3) to the transverse ribs 36 and 38, and

to the flange 34. The lower portion 66 (Fig. 2) of the front plate 43 is attached by a pair of the devices 64 to the upstanding front flange 67 of an open grill work 68 which extends across the bottom of the case 32, and which has an upstanding rear flange 69 secured to the lower portion 71 (Fig. 2) of the rear case portion 39.

The entire power unit 16 is readily mounted to the back wall 21 of the housing unit 9 by first inserting the drive shafts 48 and 49 through openings 72 and 73 (Fig. 2), respectively, provided therefor in the wall 21. The unit 16 is then secured by a pair of large, circular lock nuts 74 (Figs. 2 and 4), each of which is threaded onto the forward end 47 of a respective element 44 and 46 and into contact with the inside of the back wall 21, whereby to draw the unit 16 tightly against the outside of the wall 21.

To complete the machine 8, the pair of brushes 14 and 15 (Fig. 2) are removably attached to the forward ends 77 of the drive shafts 48 and 49. The arbor or stem 26 of each brush has a bore 78 formed at one end thereof of a size to receive a drive shaft end 77, and is provided at the open end of each bore 78 with a slot 79 for receiving the projections 56 of a shaft in a conventional bayonet and slot manner. By this arrangement, the brushes may be easily connected to and removed from the drive shafts.

In use, the machine 8 is of a size to be conveniently placed on a counter top or the like or within a usual kitchen sink (not shown). The bottom pan of the housing unit 9 is filled with a cleansing fluid 13 (Fig. 2) until the level L of the fluid is well above the ends 80 of the depending bristles of the lower brush 15. Should the user desire to soak the dishes and other articles (not shown) before washing, they may be placed in the open end of the bottom pan outside the washing compartment, assuming the brushes 14 and 15 are in their assembled positions (Fig. 2). Some of the articles to be soaked may of course be positioned under the lower brush 15.

The motor 62 is turned on by operating the switch 81 which causes a rotation of the brushes 14 and 15 in opposite directions as indicated by arrows in Fig. 1. As the lower portion of the brush 15 is continually within the fluid 13, it carries the fluid upwardly, and due to the overlapping bristles between the brushes, the fluid is also transmitted to the upper brush 14.

With the brushes thus rotating, dishes and other like articles (not shown) may be picked up from the open pan extension end of the bottom pan and inserted between the brushes, whereby the article inserted will be scrubbed and cleansed simultaneously on its top and bottom sides by the bristles of the upper and lower brushes 14 and 15, respectively. It may readily be seen that an article may be moved about by hand with complete safety. To cleanse glasses, cups and the like, each of such articles may be placed over the outer end 82 (Fig. 2) of either brush so that the end bristles contact the inside of the article.

During the washing process the cleansing fluid 13 is thrown radially outwardly by both brushes 14 and 15 due to their centrifugal action. Additionally, upon the insertion of dishes and the like in between or onto the brushes, a certain amount of splashing will occur. To contain this throwing and splashing action of the fluid within the washing compartment, the brushes 14 and 15 are completely surrounded and encased, except for the opening 10 at the front of the machine.

When the washing process is completed, the brushes 14 and 15 may readily be removed from the drive shafts 48 and 49, and the machine 10 may then be easily tipped in the sink so that the cleansing fluid may be poured out. With the brushes removed, the inside of the housing unit 11 may then be cleared and wiped dry. The brushes may be rinsed and dried as desired, it then being recommended that they be re-assembled in the machine 10 for storage purposes.

In summary, a compact, readily portable dishwashing machine has been disclosed which provides an open area in which dishes may be soaked, and a semi-enclosed washing compartment into which dishes from the soaking area may be readily and quickly inserted for cleansing, and then withdrawn, the entire operation being accomplished with a minimum of effort and with a maximum of safety.

Although one embodiment of the invention has been disclosed herein, it is to be remembered that various modifications may be made thereto within the full intended scope of the invention as defined in the appended claim.

I claim:

An apparatus for washing dishes or like articles comprising, a one piece housing for holding a washing fluid and having a base, a pair of end walls, a pair of side walls, and a top wall, said housing having an opening formed at an upper section of one end thereof by the removal of adjacent portions of said top wall and side walls and the end wall at said one end, said opening being of a size to permit an article to be washed to be inserted within said housing and beneath the remaining portion of said top wall, a power unit mounted on the other of said end walls, drive shaft means operatively connected to said power unit and extended completely beneath said top wall remaining portion, and coacting brush means connected to said drive shaft means for rotation completely beneath said top wall remaining portion.

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