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DISHWASHER APPARATUS

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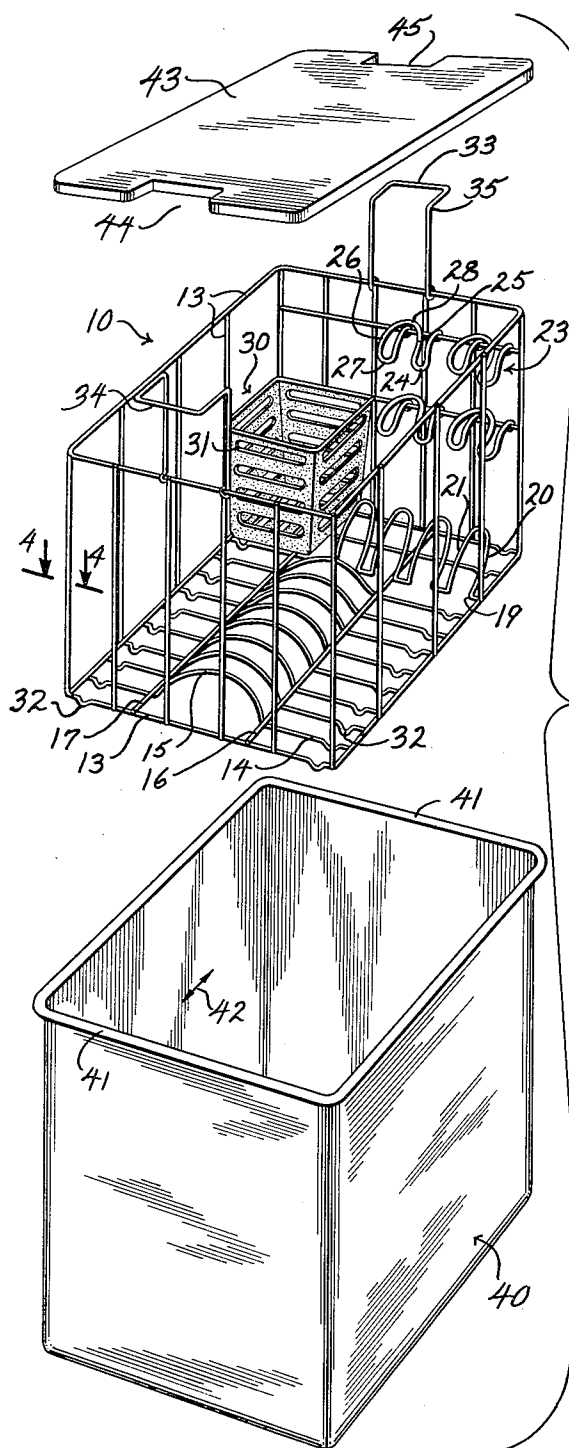


FIG. 1

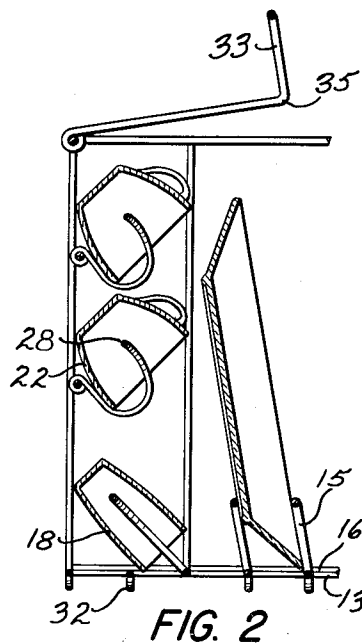


FIG. 2

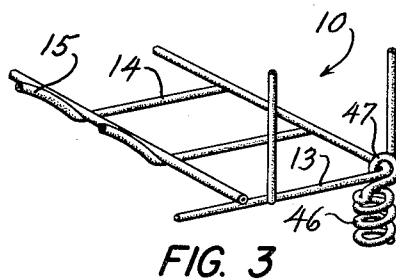


FIG. 3

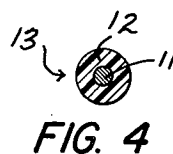


FIG. 4

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DISHWASHER APPARATUS

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This invention, generally, relates to dishwasher apparatus and, more particularly, to apparatus for washing dishes manually. There has been a long-felt need for a dishwasher apparatus that does not require electric current or extensive installation to operate, and that may be used manually in the home. Past efforts to provide such apparatus have not been entirely satisfactory in that such apparatus are structurally complicated, cumbersome to manipulate and uneconomical to manufacture.

Accordingly, it is an object of the present invention to provide a new and improved dishwasher apparatus for home use.

Another object of the invention is to provide a dishwasher apparatus that is both portable and manually operable.

Still another object of the invention is to provide a manual dishwasher apparatus capable of operation without requiring a user to come into contact with the cleansing fluid.

Generally, a dishwasher apparatus constructed in accordance with the principles of the invention is embodied in a unique and novel structural arrangement of a basket formed of spaced-apart members so that cleansing fluid passes readily therethrough. The arrangement of the basket permits cups, glasses, and the like, to be received therein and gripped to prevent movement that may tend to be caused by the circulating cleansing fluid. A separate receptacle is provided within the basket to receive and confine silverware, or the like. In addition, a separate container having, generally, the same configuration as the basket, is provided to receive a cleansing fluid into which the basket, along with dishes to be cleaned, is immersed repeatedly.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawing which discloses, by way of example, the principles of the invention and the best mode which has been contemplated of applying those principles.

In the drawing:

FIGURE 1 is an exploded view, in perspective, showing one form of the basket, the container and a lid;

FIGURE 2 is a cross-sectional view of one end of the basket shown in FIGURE 1;

FIGURE 3 is a partial view, in perspective, of one corner of the basket shown in FIGURE 1 with a coil spring to resiliently support the basket; and

FIGURE 4 is a cross-sectional view taken along the line 4-4 in FIGURE 1.

Referring now to one form of the invention, for illustrative purposes only, a basket 10 is formed of a plurality of spaced-apart members 13, preferably aluminum wire, as illustrated by the numeral 11 in FIGURE 4. The aluminum wire 11 is coated with a suitable material, such as plastic, rubber, or the like, indicated by the numeral 12 in FIGURE 4.

The members 14 that form the intermediate portions of the bottom are raised arcuately in the center, as indicated by the numeral 15, so that dishes may be received and gripped therebetween. Two of the members 13, FIGURE 4, are fixedly attached along each side of the arcuate portions 15 and are designated by the numerals 16 and 17, respectively. The members 16 and 17 prevent dishes inserted between the arcuate portions 15 from passing completely through the bottom of the basket.

At one end of the basket 10, provision is made for

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receiving and gripping glasses 18. Such means is formed of a wire-like member bent upwardly at a point 19 at an angle of approximately 45 degrees with the horizontal, FIGURE 2. The wire-like member is bowed outwardly at a point 20 in an opposite direction from a similar configuration indicated by the numeral 21 so that a glass inserted over the bowed portions 20 and 21 will move the portions 20 and 21 toward each other to effect a gripping action against the interior surface of the glass 18.

In the above manner, a glass 18 is gripped and maintained at an angle, as shown in FIGURE 2, so that when immersed in a cleansing fluid the agitated fluid will not form an air pocket beneath the inverted glass. An angle greater than approximately 45 degrees will prevent the formation of an air pocket only upon more severe agitation of the cleansing fluid. Therefore, it is preferred to limit this angle to a value not greater than 45 degrees.

Similarly, a plurality of cups 22 are supported in an inclined position, as shown in FIGURE 2, by bowed wire-like members 23 which are attached by any suitable means to the side of the basket 10. Each of the bowed wire-like members 23 is formed by a first bend 24, an outwardly-bowed portion 25, a portion 26 bowed in the opposite direction, and a second bend 27. As best seen in FIGURE 2, the end 28 of the bowed wire-like member 23 is inclined at substantially the same angle with the horizontal as the member that grips each glass 18. By this means, a plurality of cups are received and gripped within the basket and maintained at an angle to prevent the formation of air pockets therein.

A suitable receptacle 30 is provided in one corner of the basket 10 to receive silverware. Preferably, the receptacle 30 is formed to confine the silverware in a vertical position to permit maximum cleansing effect by the cleansing fluid.

The particular receptacle 30 shown in FIGURE 1 of the drawing is provided with a plurality of slots 31, although it is understood that other configurations of silverware receptacles 30 may be used, if desired.

Each of the bottom members 14 is provided at opposite ends with a depending bend 32 forming feet to support the basket on a surface. Such feet are well-known in the art.

To manipulate the basket 10, two handles 33 and 34 are provided at opposite ends and, preferably, are hinged to permit the handles to bend inwardly for storage purposes. Each handle 33 and 34 is provided with an outward bend, indicated by the numeral 35. The bend 35 is formed a predetermined distance above the feet 32 so that when the basket 10 is lowered into a container 40, the handles 33 and 34 come to bear against the rim 41 before the feet 32 strike the bottom of the container.

The container 40, as previously mentioned, is of substantially the same configuration as the basket 10, which permits greater economy in the quantity of cleansing fluid required. Also, having the sides of the container 40 only slightly larger in size than the sides of the basket 10 permits the development of a greater amount of agitation in the cleansing fluid as the basket is raised and lowered repeatedly. A watermark 42 is formed on the inner surface of one side of the container 40 to represent an optimum level for the cleansing fluid to be contained therein. This prevents an excess of cleansing fluid and the resulting overflow when a basket filled with dishes is immersed in the fluid. Such a mark 42 may be formed in the side of the container 40 at the time the container is fabricated or, if desired, may be painted or otherwise applied subsequently. Moreover, the material of which the container 40 is made may be molded rubber, or plastic, or any other suitable material to form a substantially rigid, leak-proof enclosure.

A lid 43 is provided with an outer perimeter slightly larger than the perimeter of the rim 41 so that the lid 43 will rest on the container 40. Rectangular notches 44 and 45 are provided at opposite ends of the lid 43 to permit the lid to be placed on the container 40 when the handles 33 and 34 are protruding from the container.

If desired, the depending feet 32 may be either replaced or supplemented by one or more coil springs 46, as illustrated in FIGURE 3. Such a coil spring 46 is attached at each corner of the basket 10 and provides resilient support for the basket. One end 47 of the spring 46 is looped around the member 13 and may, if desired, be secured further, as by welding, crimping, or the like. Such springs are particularly desirable when the handles 33 and 34 are completely straight, without bends. It may be desired in certain instances to mount the springs 46 permanently on the inside bottom of the container 40, which may be done, particularly when the springs 46 are used to supplement the feet 32. Moreover, other resilient means, such as one or more sponges, may be mounted in the bottom of the container 40.

It is contemplated that the size of the manual dishwasher apparatus described above be sufficiently small so that one person may manipulate the basket 10 readily without excessive exertion. For example, a size of 12½ x 14½ inches would permit the container 40 to fit in the bottom of most twin sinks found in the home. The height of the container 40 should be sufficient to prevent the agitated cleansing fluid from splashing out while the basket 10 is raised and lowered repeatedly. Of course, the container 40 may be permanently installed in a recess in a kitchen counter, if desired. However, it is a preferred feature of the invention that the container 40, as well as the basket 10, be movable readily. Also, the dimensions may be other than those mentioned above to accommodate any number and/or size of dishes.

In operation, dirty dishes are inserted in the basket 10 preferably immediately after use of the dishes, so that the basket 10 may be lowered into the cleansing fluid within the container 40 and allowed to stand for a period of time. In this manner, dirty dishes may be removed from sight and stored temporarily in a convenient manner. Moreover, dishes will be soaking in the cleansing fluid during this period.

The cleansing fluid used in the apparatus of the invention may be any that is available commercially, preferably a relatively strong detergent that a person normally would not be expected to use on the hands. Also, extremely hot water may be used, since it is unnecessary for the user's hands to come into contact therewith.

In most instances, it is contemplated that the soaking of dishes for a period of time would be sufficient for cleaning purposes. However, it is expected also that the cleaning fluid may be agitated by raising and lowering the basket 10 repeatedly to develop a further cleansing action.

When it is determined that the dishes are clean, the basket 10 is removed from the container and placed in a sink for rinsing. However, some detergents available now commercially do not require rinsing and, therefore, this step may be omitted, if desired. In other instances, the cleaned dishes may be rinsed or sprayed with hot tap water.

Alternatively, after the basket 10, with the clean dishes, has been removed from the container 40, the cleansing fluid may be poured out of the container and the container refilled with a suitable rinse water. Here, again, very hot water may be used since it is unnecessary for a user's hands to come into contact therewith. The basket and the clean dishes are rinsed by lowering the basket in the rinse water.

Still further, after the dishes have been cleaned and

rinsed, the container may be emptied and the basket of clean dishes reinserted for storage purposes. In this manner, the dishes are handled a minimal number of times, and the dishes may be covered until they are needed for future use.

It is contemplated that the term "dishes" refers generally to all utensils used normally in a kitchen, including pots and pans. Therefore, pots and pans may be cleaned in the same manner as described above.

Obviously, there are many advantages of the apparatus described above such as, for example, ease in manipulation, durability and economy of manufacture. Since the size of the apparatus is relatively small it provides greater convenience for processing a relatively small number of dishes in a convenient and sanitary manner.

It is to be understood that the above-described arrangement is simply illustrative of the application of the principles of the invention. Numerous other arrangements may be devised readily by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

I claim:

1. Dishwasher apparatus comprising a container having a predetermined inner configuration and adapted to receive a cleansing fluid, a basket formed of spaced-apart wire members of a configuration to permit said basket to fit relatively closely within said container and to permit cleansing fluid to pass readily therethrough, a plurality of dish receiving means within said basket to maintain dishes in a substantially vertical position, first means within said basket to receive cups, second means within said basket to receive glasses, said first and second means each including outwardly extending substantially U-shaped portions to engage and grip the interior of the cups and glasses, each of said first and second means to receive and grip cups and glasses being inclined at an angle with the horizontal so that cups and glasses will tend to inhibit the development of air pockets when said basket is raised and immersed repeatedly in cleansing fluid, receptacle means within said basket to receive and confine silverware, members depending from said basket to support said basket above a surface, handles on said basket by which said basket is raised and lowered in cleansing fluid to affect a cleansing action, said handles extending above said container when said basket is fully immersed, a lid to cover said container, and said lid having cut out portions to fit about said extending handles.

2. Dishwasher apparatus as set forth in claim 1 wherein said members depending from said basket to support said basket are formed of resilient coil springs attached to said wire-like members forming the bottom of the basket.

3. Dishwasher apparatus as set forth in claim 1 wherein said angle with the horizontal is less than 45 degrees.

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