Dec. 5, 1967 T. SCHAAP 3,356,097

COMBINATION DISPOSAL AND WASHER

Filed May 21, 1965 3 Sheets-Sheet 1

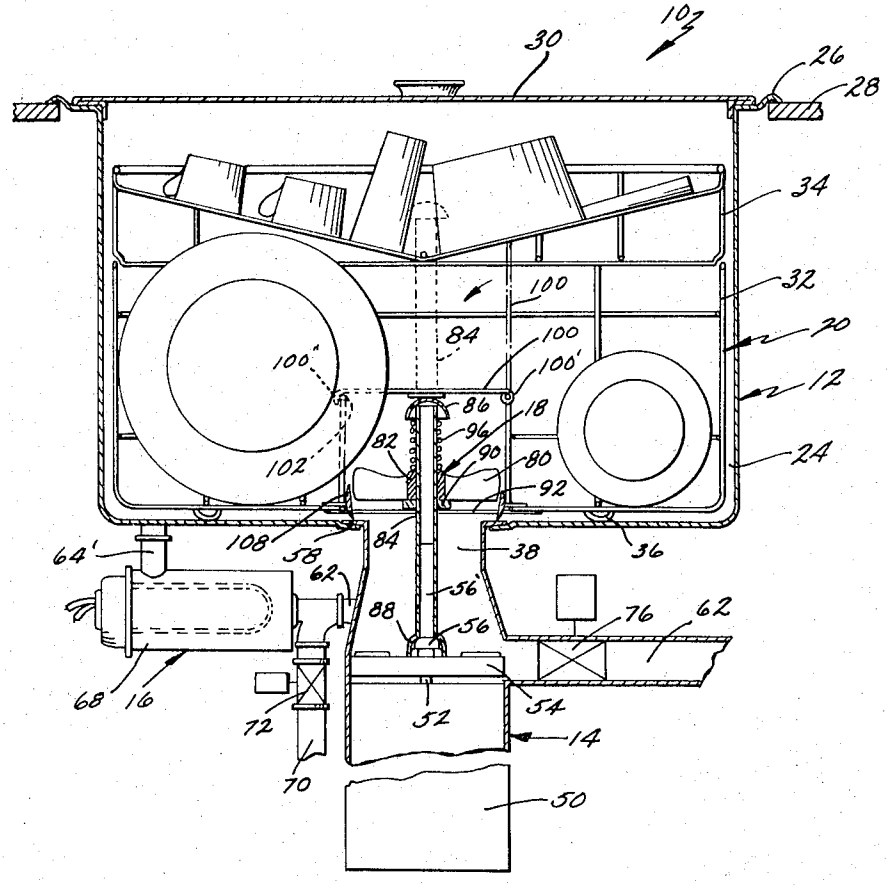


FIG. 1

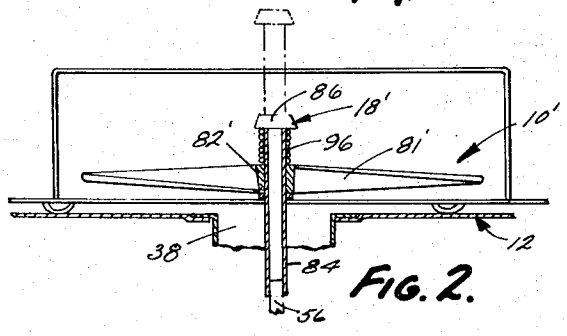


FIG. 2.

INVENTOR.
THEODORE SCHAAP

BY Price & Heneveld

ATTORNEYS

Dec. 5, 1967 T. SCHAAP 3,356,097

COMBINATION DISPOSAL AND WASHER

Filed May 21, 1965 3 Sheets-Sheet 2

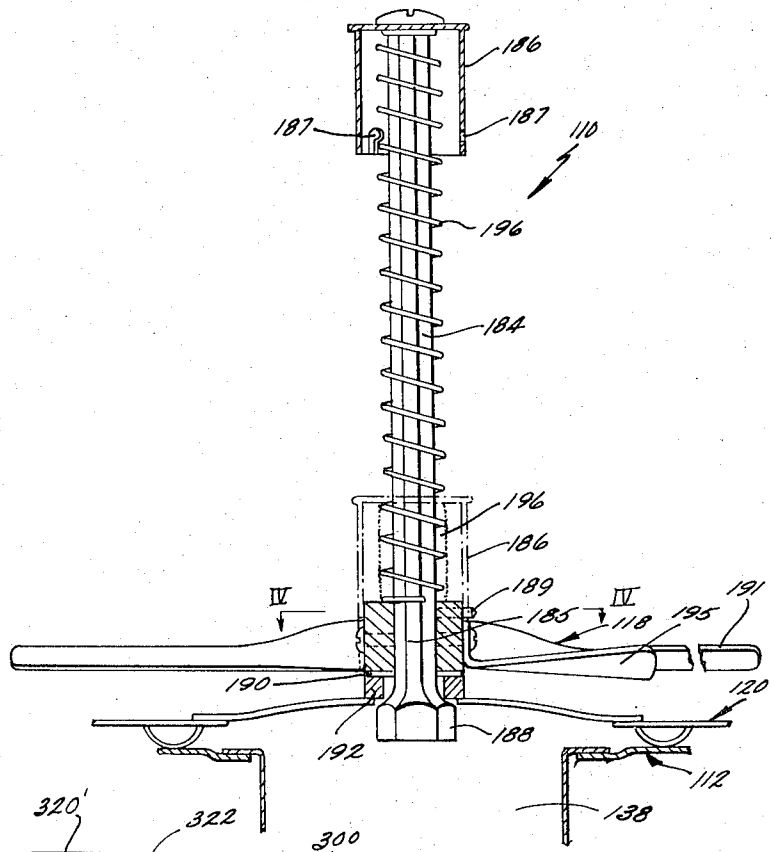


FIG. 3.

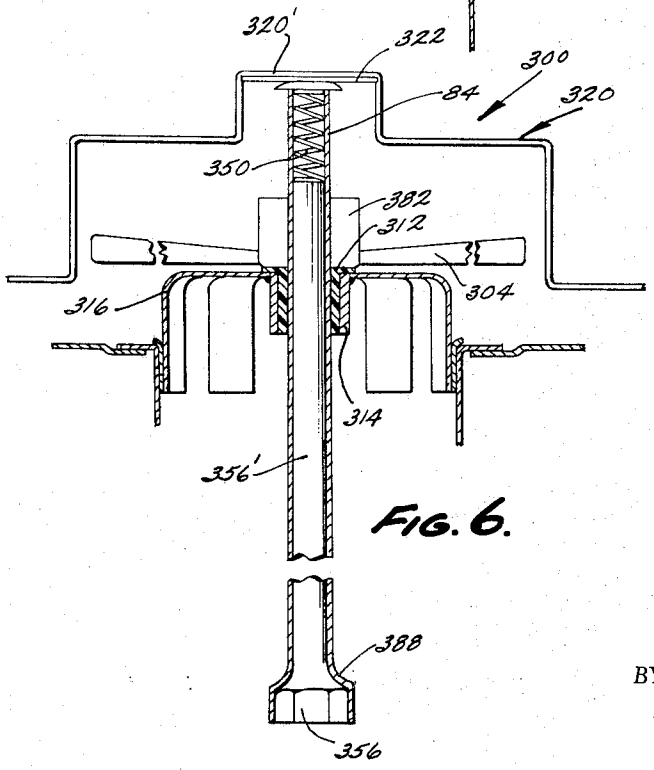


FIG. 6.

INVENTOR.
THEODORE SCHAAP

BY Price & Heneveld

ATTORNEYS

Dec. 5, 1967 T. SCHAAP 3,356,097

COMBINATION DISPOSAL AND WASHER

Filed May 21, 1965 3 Sheets-Sheet 3

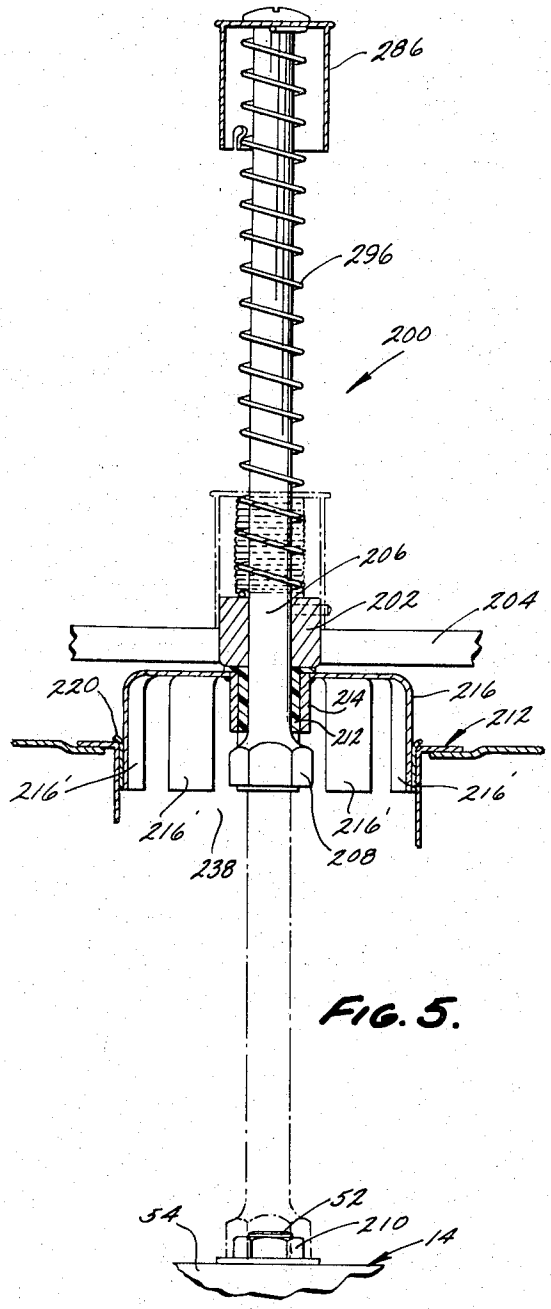


FIG. 5.

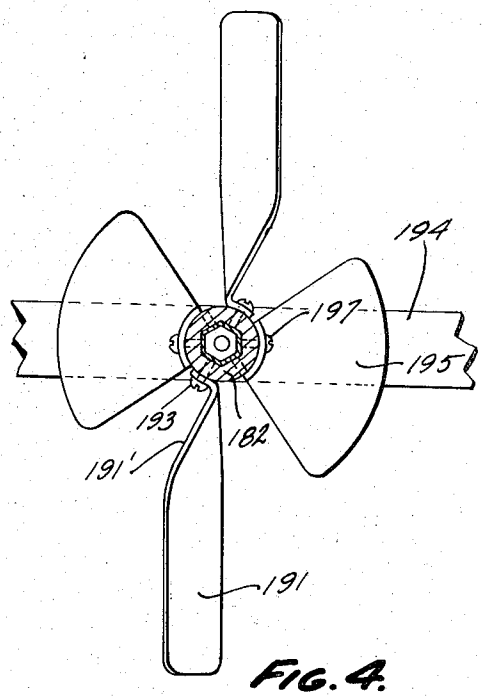


FIG. 4.

INVENTOR.
THEODORE SCHAAP

BY Price & Heneveld

ATTORNEYS

United States Patent Office

3,356,097

Patented Dec. 5, 1967

3,356,097

COMBINATION DISPOSAL AND WASHER

Theodore Schaap, 2521 Brookside Drive SE., Grand Rapids, Mich. 49507

Filed May 21, 1965, Ser. No. 457,760
12 Claims. (Cl. 134—112)

ABSTRACT OF THE DISCLOSURE

A multiple purpose sink having a garbage disposal and arranged to be utilized as a general purpose sink or as a dish washer. The sink has an outlet leading to a recirculatory passage and a fluid propulsion device is provided to recirculate the washing fluid, such device being driven by the motor of the garbage disposal. The fluid propulsion device is releasably attached to the garbage disposal motor and preferably rotatably mounted on the removable basket for the dishes. The basket also has a member which is required to be in a certain position with respect to the fluid propulsion device before such device is in operative engagement with the disposal motor. This eliminates accidents and assures that the basket and dishes therein are in proper position for the washing operation.

This invention relates to a multi-purpose sink assembly, and more particularly to a compact kitchen sink assembly with a unique insert basket and impeller structure and arrangement that enables the sink to be used conveniently as a sink with a garbage disposal, and alternatively as a dishwasher.

That the multiple of kitchen appliances presently used in homes today demands a substantial amount of space, requires a complexity of plumbing, wiring and drive arrangements, and necessitates a large cash outlay is a known fact. Yet, the tremendous convenience of a dishwasher and garbage disposal, as well as the conventional sink unit renders these extremely desirable.

However, some homes simply do not have the space to accommodate all of these, particularly the dishwasher. If space is available, it frequently is not adjacent the sink where a dishwasher is most handy. Also, some families cannot afford presently available dishwasher units, considering both the equipment cost and the installation cost for wiring and plumbing.

It is one object of this invention to provide a dual purpose sink that can be used in conventional fashion as a sink, and that can alternately be used for a dishwasher chamber, the conversion being simple, temporary, rapid, safe, and effective.

Another object of this invention is to provide a dishwasher sink assembly that enables a basket of dishes to be washed and dried and, when the basket of dishes is removed, automatically reverts to the normal usable sink. The insertion of another basket of dishes again causes the unit to automatically become a dishwashing assembly.

Another object of this invention is to provide a single sink having a multiple function of (1) a regular sink, (2) a garbage disposal receiver, and (3) a dishwasher chamber with fluid circulation for washing and drying dishes. The sink automatically converts into a dishwasher with the insertion of a basket of dishes.

Another object of this invention is to provide a sink assembly with a fluid circulating impeller assembly powered by the garbage disposal motor so that the same motor effectively serves a dual purpose.

Another object of this invention is to provide a sink that is convertible from a normal sink to that of a dishwasher by the insertion of a dish receiving basket, and upon the insertion of which power is automatically engaged from the conventional garbage disposal unit beneath the sink to an impeller assembly for washing dishes. Moreover, with release of the basket, power is safely disengaged from the garbage disposal motor to the impeller.

Another object of this invention is to provide a dual purpose sink that has a unique thermal fluid circulation for both washing and drying dishes, with the circulation being through the conduit connections to the garbage disposal unit itself, and using the power of the garbage disposal motor to cause the circulation.

Another object of this invention is to provide a unique dish receiving basket with impeller means, for insertion into a sink having a garbage disposal unit, and operably engageable with the disposal motor to automatically convert the sink into a dishwashing chamber having unique fluid circulation with thermal heating.

Another object of this invention is to provide a novel dish receiving insert basket for insertion into a sink having a garbage disposal unit, and having a unique impeller assembly supported on the basket, operably drivingly engageable with the disposal motor, to convert the sink temporarily to a dishwasher, and then back to its sink characteristics with removal of the basket. The impeller is inserted and removed automatically with the basket. The impeller is moreover shiftable into driving engagement with the disposal motor during or after basket insertion, and out of driving engagement with the disposal motor before or with removal of the basket.

Another object of this invention is to provide an insert unit for a sink, capable of converting the sink to a dishwasher chamber and having unique safety features preventing accidental injuries to a person's fingers by the circulation impeller when the dishwashing basket is removed.

Another object of this invention is to provide a simple, single, sink having a garbage disposal, and, with the insertion of a unique impeller and dish basket, converts instantly, easily, safely and temporarily to a dishwasher for washing and drying dishes, and which, with simple lifting out of the basket, converts simply and completely back to a normal sink.

These and several other objects of this invention will become apparent upon studying the following specification in conjunction with the drawings in which:

FIG. 1 is a side elevational, partially sectioned view of one form of the novel combination;

FIG. 2 is a side elevational, fragmentary, partially sectioned view of a second form of impeller means for the apparatus in FIG. 1;

FIG. 3 is a side elevational, fragmentary, partially sectioned view of a third form of the combination;

FIG. 4 is a sectional planned view of the apparatus in FIG. 3 taken on IV—IV;

FIG. 5 is a side elevational, partially sectioned view of a fourth form of the novel combination; and

FIG. 6 is a side elevational, fragmentary, partially sectioned view of a fifth form of the novel combination.

Referring now specifically to the first form of the device shown in FIG. 1, the basic combination **10** comprises a multiple-function, sink-dishwasher assembly employing the power of a conventional garbage disposal assembly under the sink.

More specifically, the complete assembly **10** includes a sink subassembly **12**, a garbage disposal subassembly **14**, a recirculatory and heater passage subassembly **16**, a fluid propelling impeller subassembly **18**, and a dish receiving basket subassembly **20** which preferably is combined with the impeller subassembly to form a combination impeller means-basket subassembly.

The sink subassembly **12** basically comprises a sink chamber **24** that may be of normal shallow sink depth or of slightly greater depth as desired. It includes an upper, integral, peripheral rim **26** suspended on a surrounding

peripheral shelf 28 to support the sing in conventional manner. The sink preferably includes a top cover 30 of matching configuration.

If the sink chamber is of shallow depth, it may receive one dish receiving basket 32, but if of greater depth, it may receive basket 32 and a stacked upper supplemental dish receving basket 34.

The basket 32 includes bottom portions 36 with supporting feet (as shown), or the bottom surfaces of the wires forming the basket bottom may support the basket directly. These rest on the bottom of the sink chamber. The basket substantially fills the chamber and is positioned over the normal drain outlet of the sink. This drain outlet comprises an opening connecting to a passage means which includes a passage portion 38 inside the hollow upper end of the garbage disposal subassembly 14.

This garbage disposal subassembly may be of the generally conventional form, having a vertically oriented electrical motor 50 which rotates a vertical upper output shaft 52. It is suspended from the center of the sink in conventional fashion, as by having an outwardly extending rim 58 resting and attached to the sink opening periphery. A typical garbage disintegrator 54 is mounted on the shaft to rotate with it, being mounted to shaft 52 by a fastener 56. This fastener normally is simply a polygonal exposed nut on the threaded shaft, usually a hexagonal nut. Preferably, for the invention, this conventional nut is removed and the vertical shaft-nut unit 56 and 56′ is placed thereon. This comprises a polygonal member such as the hexagonal member shown and an upstanding integral, cylindrical rod 56′ that extends up into the center of passage portion 38 of the garbage disposal assembly.

With the novel combination, water is recirculated through a special passage means from the sink and back to the sink. The conventional garbage disposal subassembly 14 includes a pair of side openings, one of which communicates with the normal drain line conduit 62, and the other of which can communicate with a conduit 64 from a conventional dishwasher. With this novel subassembly however, one of these lines is connected to form a recirculatory passage. In the form of the structure shown in FIG. 1, line 64, 64′ is utilized for this purpose. It includes a first portion 64′ that communicates with orifices in the bottom of the sink chamber, displaced from central outlet passage 38, and includes portion 64 that leads into passage portion 38 of the garbage disposal unit. A booster heater 68, as of the electrical resistance type is between these portions 64 and 64′, in communication therewith. Thus, water or air can flow up through passage 38 and over the dishes, down through passage portion 64′, through booster heater 68, through passage portion 64, back into passage 38, and back up into the sink. Hot water supply conduit means 70 leads into this recirculatory passage through a hot water solenoid control valve 72. The drain line 62 is also fitted with a solenoid control valve 76. It will be obvious from a study of these two conduit lines that drain line 62 could be used for the recirculatory passage means if desired, simply by extending a conduit from the sink bottom to drain line 62 upstream of valve 76.

Operatively associated with the garbage disposal power unit is impeller subassembly 18. This impeller subassembly preferably forms a component of an impeller means-basket combination, but may be separate from it in less preferred forms of the invention as described in detail hereinafter. In the device shown in FIG. 1, the impeller means is suspended on and rotatable with respect to the basket subassembly 20.

More specifically, the multiple blade, horizontally oriented, impeller 80 has a vertical axis with its hub 82 keyed to a central shaft drive sleeve 84 that extends vertically up into the basket. This shaft sleeve has an upper cap 86. It has a polygonally shaped outwardly flared bottom socket 88 on its lower end. This sleeve fits in bearing relation over the special vertical guide post 56′ extending upwardly from the garbage disposal unit, and is rotational and axially slidable with respect thereto. The sleeve of the impeller means can be vertically reciprocated between the solid line position shown in FIG. 1 where it is in rotational drive relationship with the garbage disposal unit, and an elevated position shown in phantom lines where it is out of driving relationship with the disposal unit. The impeller means and sleeve are suspended on a simple bearing washer 90, which is mounted to a horizontal strap 92 that is affixed to and forms part of the basket. This strap is like the one shown in FIG. 4 and described hereinafter.

A coil spring 96 extending between hub 82 of the impeller and cap 86 of this sleeve forms a biasing means which biases the sleeve into the elevated position (shown in phantom lines). Normally, the sleeve is biased axially upwardly into its upper position, out of driving engagement with the hexagonal nut-like member 56 on the garbage disposal unit. It can be depressed against the bias of this spring. To do so sleeve 84 is slid within hub 82 of the impeller, on its keyed rotational relationship thereto, to enable the hexagonally shaped, flared lower end 88 to fit around polygonal nut-like member 56 to be rotated by the garbage disposal unit.

This downward shifting to place it in an operative rotational engagement with the disposal unit can be done in different ways. Preferably, the basket itself includes means to achieve this downward shifting against the biasing force of spring 96.

In FIG. 1, the device for achieving this is part of the basket. Specifically, it is a pivotal strap 100 which will pivot from its vertical position (shown in phantom lines), to its lowered horizontal position. The center of the basket includes an upstanding, generally cylindrical or polygonal integral portion that forms a receiving pocket for the impeller means subassembly, and mounts this actuator 100. This center is integrally formed into the basket as by bending the wire elements upwardly. Strap 100 has one end 100′ curled about one of these wires on one side of the impeller subassembly, and the other end 100″ deformed in a curl to be releasably snappable over the wire on the opposite side. By lowering this element, it engages and depresses cap 86 and sleeve 84 to force socket 88 down over polygonal element 56, to place the impeller in drive engagement with the garbage disposal unit. Hence, when proper electrical switches are actuated to activate motor 50 of the disposal unit, this will rotationally drive the impeller. The impeller pushes water upwardly in a pattern over the dishes held in the basket, with the water then circulating radially outwardly and downwardly in the sink chamber, through one or more outlets and conduit section 64′, through booster heater 68, through conduit section 64, back into passage area 38, and back up through the impeller for a continuously recirculatory flow pattern.

If the impeller is of small radial extent to just cover passage outlet area 38, preferably a peripheral upstanding ring 108 is secured to the basket around the impeller blades to help direct the flow upwardly. This peripheral ring is not always necessary, as has been found for example with longer impeller blades as shown in FIG. 2.

More specifically, in this modified form of the assembly 10′, the same basic combination as shown in FIG. 1 is employed, including the sink subassembly 12, but with a modified impeller subassembly 18′. This impeller subassembly includes vertical drive sleeve 84 which fits around guide post 56′, includes a cap 86′ on the top of the sleeve, and a coil spring 96 between impeller hub 82′ and cap 86′. However, the impeller blades 81′ extend radially outwardly substantially beyond the periphery of passage area 38, and over a substantial portion of the chamber bottom. The upward flow of this impeller is generally uniform in its pattern.

A modified form of impeller subassembly is shown in FIGS. 3 and 4. It is manually actuable and includes a lockable holding means. More specifically, structure **110** (FIGS. 3 and 4) includes a sink subassembly **112**, like that shown in FIG. 1, with an outlet passage **138** forming the top portion of a garbage disposal unit (not shown), and with the impeller subassembly **118** aligned therewith. This impeller subassembly includes a drive shaft sleeve **184** which is vertically shiftable between an elevated unengaged position (shown in solid lines in FIG. 3), and a lowered engaged position (shown partially in phantom lines). Cap **186** and sleeve **184** are biased into the elevated position by a coil spring **196** between the cap and the impeller hub. Sleeve **184** is hexagonal in shape, but has a cylindrical inner passage **185** to fit around a cylindrical guide shaft similar to that at **56'** (FIG. 1) from the garbage disposal unit. The lower, hexagonal, flared socket end **188** again is adapted to fit around and be in rotational driving relationship with a hexagonal member like that at **56** in FIG. 1. The impeller hub **182** is rotationally keyed and axially slidably movable with respect to sleeve **184**. It is supported on a nylon or other lubricious polymeric aligning and supporting washer **190**, which in turn is supported on an elongated horizontal support strap **192**. This support strap is secured to the basket across the bottom thereof, while assuming only a small surface area (FIG. 4) to allow free fluid flow therearound.

Sleeve **184** can be lowered into operative engagement by depression of cap **186** either manually or with a basket, and can be retained in its lowered position (shown in phantom lines) by rotating it to lock one or more L-shaped cap slots **187** onto one or more corresponding, laterally extending lock pins **189** on hub **182**. The impeller means in FIGS. 3 and 4 also has particular desirable characteristics to achieve an improved fluid flow pattern in the sink chamber over the dishes. The first, radially elongated plurality of balanced blades **191**, mounted to hub **182** as by screws **193**, extend substantially beyond the boundaries of outlet passage **138** and a substantial portion of the way toward the peripheral wall of the sink chamber, i.e. over half of the way from the center line of the chamber to the peripheral wall. This forms a fluid flow pattern vertically of substantially large diameter to achieve good flow around the outer reaches of the sink chamber. However, since each of these plurality of elongated blades must be upwardly curved in the inner radial portions **191'** to achieve proper radially outward flow from passageway **138** prior to vertical flow, it has been found that a slow moving fluid flow zone occurs in the center of the sink chamber directly above passage **138**. To cause proper flow in this vertical pattern area, a second plurality of balanced, special blades **195** is mounted. These fan shaped blades have a slight curvature (FIG. 3) and are substantially shorter, i.e. about one half that of elongated blades **191**. These radially shorter blades have a substantial arc, for example of about 90 degrees. These fan type blades cooperate with the elongated blades to achieve excellent flow action over the chamber for optimum circulation.

Since blades **191** are secured to hub **182** by screws **193**, and blades **195** are secured to the hub by screws **197**, replacement of individual blades is easy.

In lesser preferred forms of the device, the impeller subassembly may be a separate subassembly from the basket, like that shown at **200** (FIG. 5). More specifically, this subassembly includes an impeller hub **202** with a plurality of blades **204** extending horizontally and radially therefrom. It has a center vertical drive-engagement shaft-type element **206** (in this case generally solid in nature), having an enlarged polygonal socket **208** on the lower end to engage with the conventional nut **210** on the top of a garbage disposal subassembly **14** (like that shown in FIG. 1). In this instance, extended shaft **56'** and element **56** have not replaced the conventional nut **210** on shaft **52** of the garbage disposal unit. The engageable shaft **206** can be lowered from its elevated position (shown in solid lines) by depression of its upper end cap **286** against the bias of coil spring **296**. It can be retained in engaged relationship by using a slot and pin connection shown, and explained previously.

Hub **202** rests upon a nylon thrust bushing **212** which in this instance is of substantial axial extent because it assumes a substantial share of the lateral bearing force of the impellers. (It will be realized that post **56'** in the structures previously discussed assumes most of the lateral bearing thrust.) In this instance, however, the nylon thrust bushing must do so. It is retained by a surrounding cylindrical metallic sleeve **214** which is affixed to a spider leg type alignment guide insert **216** having a plurality of legs **216'**. These legs have a surrounding centering ring **220** with an insertion limiting upper flange attached peripherally thereof. The flared upper end flange limits the insertion of the impeller means is illustrated. The impeller the bottom of sink subassembly **212**. With this type of device, the impeller means is inserted into and removed from the sink separately from the basket subassembly.

Referring to FIG. 6, a modified form of basket actuation of the impeller means is illustrated. The impeller means here is separate from the basket subassembly. The basket still has means for activating the impeller means, however.

More specifically, basket subassembly **320** in this assembly **300** includes an elevated, centrally positioned basket portion **320'** with a bearing surface **322** as of nylon or the like. It is engageable with a bearing surface cap **386** on the top of drive sleeve **384** of the impeller means subassembly. This drive sleeve is keyed to the impeller hub **382** to rotate it, but is vertically slidable with respect thereto. The hub is supported on a bearing member **312** in a surrounding sleeve **314** held by a spider guide **316** like that in FIG. 5. Hub **382** mounts the impeller blades **304**.

Sleeve **84** is hollow, having a coil compression spring **350** between the inner under surface of its cap **386**, and the top surface of alignment shaft **356'** extending up from the garbage disposal unit. Thus, with depression of sleeve **84**, by pressing down on its top bearing surface cap **386**, the hexagonal portion **388** on the lower end of the sleeve is pressed down into engagement over portion **356** on the top of the garbage subassembly (like that shown in FIG. 1). In this instance, the weight of the basket and the dishes therein depress this assembly downward as the basket of dishes is inserted into the sink (FIG. 6). Upon removal of the basket and dishes, coil spring **350** elevates the sleeve, causing flared socket **388** to lift off hexagonal nut **356** and release the driving engagement.

Operation

The operation of the various forms of the device are generally evident from the discussion of each form previously presented.

Briefly, referring to FIG. 1, the sink may be used with or without the dishwasher apparatus.

With the device only a single sink need be used for minimum space consumption. The impeller subassembly and the basket subassembly are not retained in the sink when it is to be used in conventional fashion. The only variation of the sink from a conventional type is the presence of extended shaft **56'** on the garbage disposal, and recirculatory line **64, 64'**, with heater **68**.

If it is desired to utilize the sink as a dishwasher chamber, the novel basket, preferably with the impeller mounted thereto, is loaded with dishes. The basket can be loaded while out of the sink, even when the impeller means is in combination with it, since the impeller retracts vertically up into the basket center, with its lower socket end at least sufficiently raised to be flush with the support means on the basket bottom (see e.g. FIG. 3). Therefore, the basket can be rested on any suitable flat surface when the dishes are being loaded. The basket is then lowered into

the sink with the impeller means aligned with the garbage disposal shaft. Since the impeller means preferably has a hollow drive sleeve, and the garbage disposal unit preferably has an alignment shaft sticking vertically upwardly in the outlet of the sink, these are easily slidably interengaged. The unit is not yet in operating condition, in its preferred forms. The engagement that enables subsequent operation of the impeller by the disposal motor is achieved in the device in FIG. 1 by lowering hold-down flange **100** from its elevated position to its depressed condition, to push cap **86** and the drive sleeve down so that socket end **88** fits around the hexagonal portion of the drive member of the garbage disposal unit. Then, when cover **30** is placed down upon the sink chamber to close a suitable safety switch, and activating switches are thrown, the garbage disposal motor is activated to operate the impeller. Water is therefore circulated upwardly over the dishes and downwardly through the recirculation and reheating system shown.

Upon completion of the washing cycle, waste drain valve **76** is opened to allow the water to drain. Then, air is circulated over the dishes by the same impeller, with the air being recirculated through the recirculatory heating system to dry the dishes. A suitable control circuit for the apparatus can be employed. With the basket and its attached impeller subassembly lifted out of the sink, the sink is automatically reverted to its normal condition to be useful as a sink.

In the form of the device shown in FIGS. 3 and 4, when the impeller is placed in its active condition, it can be retained thusly with or without cooperating means on the basket, by manually pushing the cap down and rotating it slightly to interlock it. This device, when removed from the sink, also reverts the sink automatically to its normal condition.

In the device in FIG. 5, when the sink is to be changed over to a dishwashing unit, the impeller subassembly is first inserted into the sink, and then the basket subassembly is inserted over the top of it. The basket may include means for actuating this impeller by lowering the drive shaft, or it may be actuated manually and locked in its operating condition due to the slot and pin connection shown.

In the structure in FIG. 6, the impeller assembly is likewise inserted first and the basket assembly second. With this form of the device, the basket automatically places the impeller subassembly into its operative condition upon insertion of the basket full of dishes, due to their weight which depresses the drive shaft sleeve.

Certain details of the apparatus may be modified to suit particular types of sinks, impellers, drive connections to the disposal, and the like. For example, the upper bearing around the impeller drive shaft can be widely varied without departing from the concept.

It will be obvious to those having ordinary skill in this field that the unique advantages resulting are many. The sink can be instantly, temporarily, effectively, easily and safely alternated between its normal sink usage and the dishwasher usage. The device is economically operated from the same garbage disposal motor normally used for that purpose too. The connection to the garbage disposal unit is uniquely, easily and effectively made to achieve an excellent drive relationship.

It will be realized that, while the direct simple drive connection from the impeller in the sink chamber down to a disposal directly under that sink chamber enables impeller removal in optimum fashion, conceivably a double sink unit could employ the impeller removal concept with a drive connection from a disposal under one chamber to a drive shaft in the other aligned with the impeller and releasable therefrom as in the manner shown.

The thermal fluid (water or air) circulation through the unit is effectively made through the garbage disposal assembly itself. In fact, the conventional garbage disposal unit with its typical openings can be employed without further modification, except preferably to add the vertical alignment shaft to the nut already mounted on the disposal unit. The thermal circulation through the sink chamber and the recirculatory passage means containing a heat source could be used for other purposes alternative to dishwashing. The advantages of this circulatory action for thawing frozen foods, hand washing delicate linens, substituting for a hot water heater, etc. are apparent.

These and several other advantages will be apparent upon studying the description. Also, although certain forms of the device are preferred over others, the different forms of the device can be employed in different combination arrangements to advantage depending upon the particular results desired, cost factors, assembly operations, type of sink and home involved, and the like. It is conceivable that certain minor details of the construction may be modified in various additional ways without departing from the concept presented. Hence, the invention is intended to be limited only by the scope of the appended claims and the reasonably equivalent structures to those defined therein.

I claim:

1. A multiple purpose sink assembly comprising: means forming a sink chamber with a bottom passage normally serving as a sink drain outlet; a motor driven garbage disposal unit operably beneath said outlet and bottom passage; recirculatory passage means from said sink chamber and including said bottom passage, to allow fluid recirculation from said sink and back into it; a dish receiving insert basket for said sink; fluid propulsion impeller means cooperative with said passage means to recirculate fluid to said sink chamber for flow over dishes in said basket; said impeller means having a releasable driving relation to said disposal unit to enable said sink chamber to be used as a dishwasher when in driving relation, and as a sink when not in driving relation; and means on said basket cooperative with said impeller means for placing said impeller means in driving relation with said disposal unit.

2. A multiple purpose sink assembly comprising: means forming a sink chamber with a bottom passage normally serving as a sink drain outlet; a motor driven garbage disposal unit operably beneath said outlet and bottom passage; recirculatory passage means from said sink chamber and including said bottom passage, to allow fluid recirculation from said sink and back into it; a dish receiving insert basket for said sink; fluid propulsion impeller menas rotatably suspended on said basket to be inserted therewith and removed therewith, and cooperative with said passage means when inserted to recirculate fluid to said sink chamber for flow over dishes in said basket; said impeller means having a releasable driving engagement to said disposal unit with basket and impeller insertion, to enable said sink chamber to be used as a dishwasher when in driving relation, and as a sink when not in driving relation.

3. A multiple purpose sink assembly comprising: means forming a sink chamber with a bottom passage normally serving as a sink drain outlet; a motor driven garbage disposal unit operably beneath said outlet and bottom passage and having a drive element on its upper portion aligned with said bottom passage; recirculatory passage means from said sink chamber and including said passage, to allow fluid recirculation from said sink and back into it; a dish receiving insert basket for said sink; said basket having impeller means rotatably supported thereon; said impeller means being cooperative with said passage means to recirculate fluid to said sink chamber for flow over dishes in said basket, when said basket and impeller means are inserted into said sink chamber; said impeller means having a depending central drive-element-engaging socket extending into said passage with insertion of said basket and impeller means into the sink chamber, forming releasable driving relation to said disposal

unit, to enable said sink chamber to be used as a dishwasher when in driving relation, and as a sink when not in driving relation.

4. The assembly in claim 3 wherein said disposal unit drive element comprises a polygonal member and an upstanding bearing post; said impeller means includes a vertical sleeve slidably and rotationally fit around said post, and a polygonal socket engageable with said polygonal member.

5. The assembly in claim 4 wherein said impeller means is vertically axially shiftable on said basket, to move into and out of driving engagement with said polygonal member, and includes means to retain said impeller means selectively raised and lowered

6. A multiple purpose sink assembly comprising: means forming a sink chamber with a bottom passage normally serving as a sink drain outlet; a motor driven garbage disposal unit operably beneath said outlet and bottom passage; recirculatory passage means from said sink chamber and including said bottom passage, to allow fluid recirculation from said sink and back into it; a dish receiving insert basket for said sink; fluid propulsion impeller means cooperative with said passage means to recirculate fluid to said sink chamber for flow over dishes in said basket; said impeller means having a releasable driving relation to said disposal unit to enable said sink chamber to be used as a dishwasher when in driving relation, and as a sink when not in driving relation; said impeller means being shiftable and including biasing means operably arranged to bias said impeller means out of driving relation to said disposal unit; and means on said basket cooperative with said impeller means for shifting said impeller means against said biasing means and into driving relation with said disposal unit.

7. The assembly in claim 6 wherein said means on said basket comprises a fixed surface area depressingly engageable with said shiftable impeller means with insertion of said basket into said sink chamber.

8. The assembly in claim 6 wherein said means on said basket comprises a shiftable portion of said basket operably engageable with said impeller means to clamp it in depressed condition when shifted.

9. An insert, dish receiving basket for insertion into a sink having a bottom outlet conduit and a motor driven garbage disposal unit on said conduit with a rotational end portion in said conduit, comprising: an open-mesh basket element having a bottom to rest on the sink bottom over the conduit; rotational bearing means mounted on said basket and thereby being integral therewith with a vertical axis in the center of said open-mesh basket bottom; fluid propulsion impeller means rotationally suspended on a vertical rotation axis in said bearing means to be rotatable with respect thereto and being movable with said basket as it is inserted into and removed from a sink; and said impeller means including a depending drive-element-engaging socket adapted for engagement with the rotational disposal end portion forming a releasable driving relation therewith.

10. An insert, dish receiving basket for insertion into a sink having a bottom outlet conduit and a motor driven garbage disposal unit on said conduit with a rotational end portion in said conduit, comprising: an open-mesh basket element having a bottom to rest on the sink bottom over the conduit; rotational bearing means in the center of said open-mesh basket bottom; fluid propulsion impeller means rotationally suspended in said bearing means to be inserted into a sink with the basket and to be rotatable with respect thereto; said impeller means including depending drive connections means for engagement with the rotational disposal end portion; said impeller means being axially shiftable with respect to said basket to enable releasable driving engagement thereof with the disposal unit, and shiftable from a raised position with said drive connection means elevated to at least the basket bottom to a lowered drive engagement position, and said basket including means for retaining said impeller means lowered in such driving engagement position.

11. An insert, dish receiving basket for insertion into a sink having a bottom outlet conduit and a motor driven garbage disposal unit on said conduit with a rotational end portion in said conduit, comprising: an open-mesh basket element having a bottom to rest on the sink bottom over the conduit; rotational bearing means in the center of said open-mesh basket bottom; fluid propulsion impeller means rotationally suspended in said bearing means to move as part of the basket and to be rotatable with respect thereto; said impeller means including depending drive connection means for engagement with the rotational disposal end portion; said impeller means being axially shiftable with respect to said basket; biasing means biasing said impeller means upwardly to be out of driving engagement with the disposal unit; and means on said basket for depressing and retaining said impeller means against said biasing means into a drive relation position.

12. An insert, dish receiving basket for insertion into a sink assembly having bottom outlet conduit means and a motor driven garbage disposal unit associated with said conduit means, with a drive rotational shaft in said conduit means, comprising: an open-mesh basket element having a bottom to rest on the sink bottom over the conduit means; rotational bearings means in the center of said open-mesh basket bottom; fluid propulsion impeller means rotationally suspended in said bearing means to move as part of the basket and to be rotatable with respect thereto; said impeller means including depending drive connection means for engagement with the rotational disposal shaft; said impeller means being axially shiftable with respect to said basket; biasing means biasing said impeller means upwardly to be out of driving engagement with the disposal shaft; and means on said basket for depressing and retaining said impeller means against said biasing means into a drive relation position.

References Cited

UNITED STATES PATENTS

2,286,520	6/1942	Tranbarger	134—115
2,403,526	7/1946	Harris	134—115
2,418,366	4/1947	Powers	134—115 X
2,579,393	12/1951	Modrey	134—115
2,603,097	7/1952	Kelley et al.	134—115 X
2,920,633	1/1960	Shepherd	134—115
3,025,864	3/1962	Ensign	134—115

FOREIGN PATENTS

933,869	8/1963	Great Britain.

CHARLES A. WILLMUTH, *Primary Examiner.*

R. L. BLEUTGE, *Assistant Examiner.*