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DISHWASHING MACHINE

Original Filed May 5, 1921 2 Sheets-Sheet 1

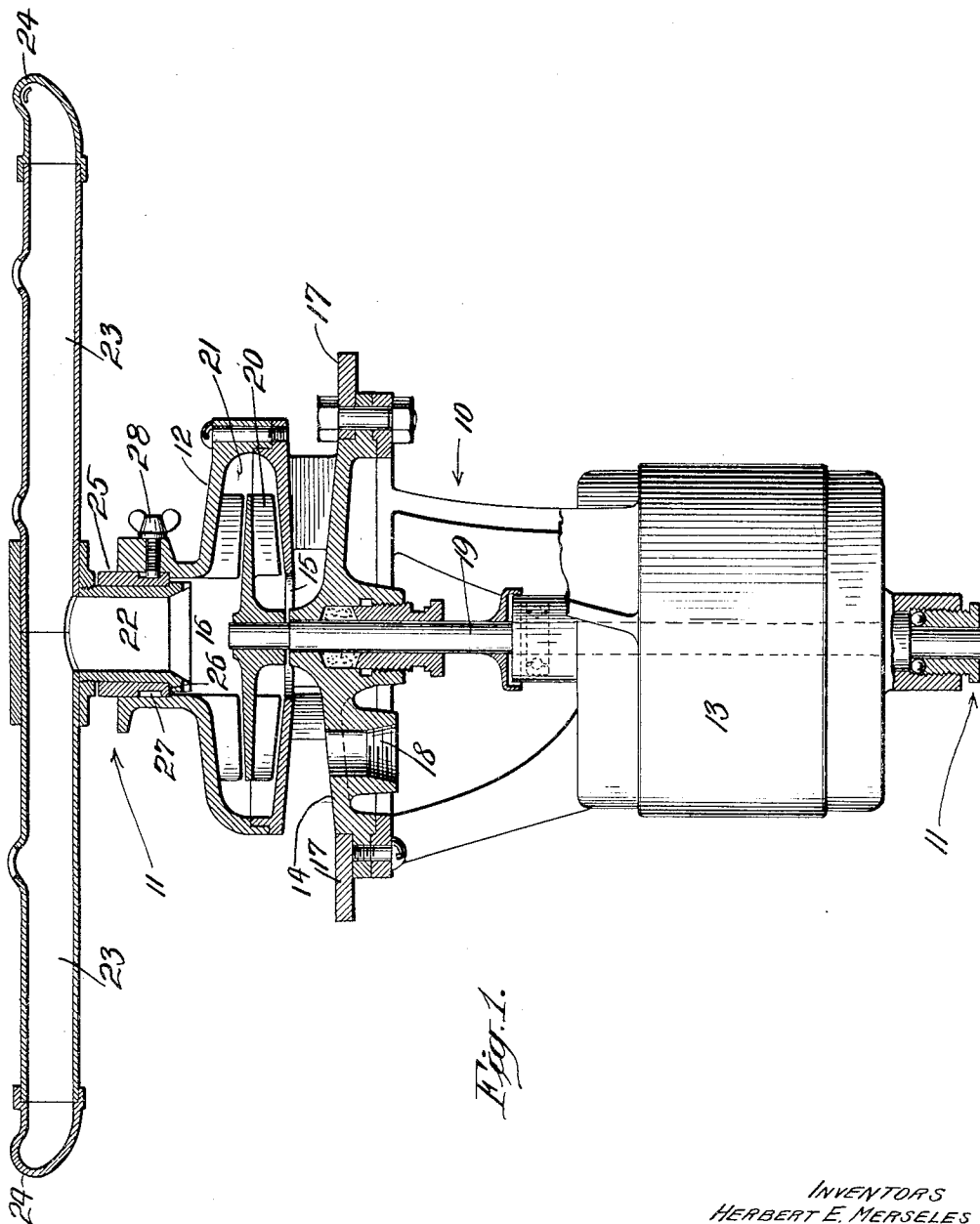


Fig. 1.

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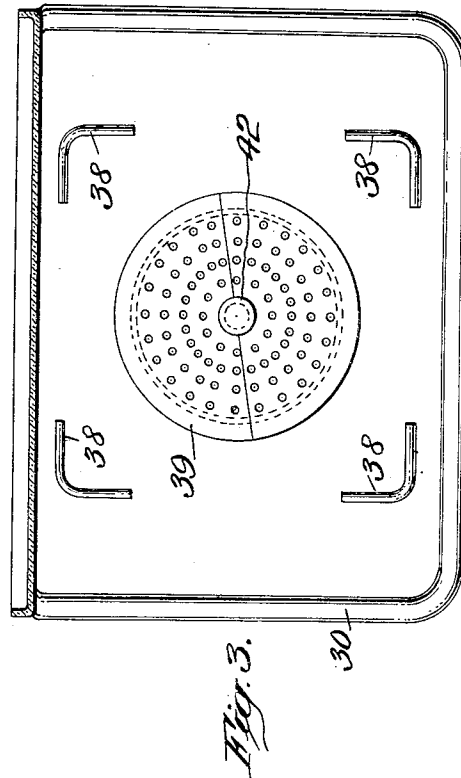
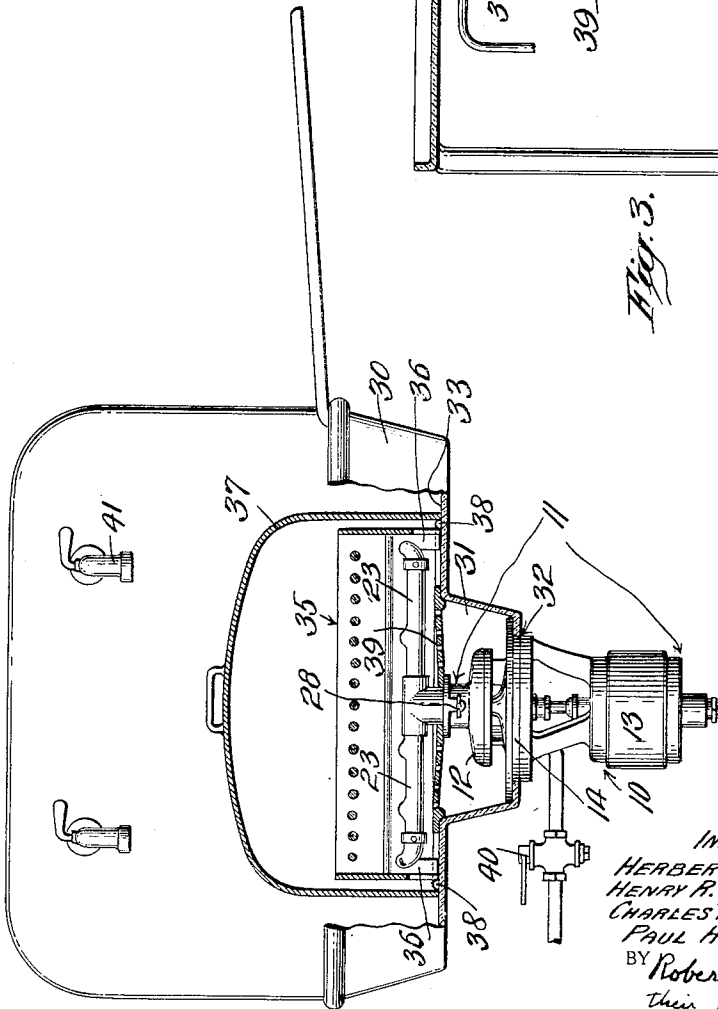


Fig. 2.



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UNITED STATES PATENT OFFICE.

HERBERT E. MERSELES AND HENRY R. MERSELES, OF BRONXVILLE, CHARLES F. SIMMONS, OF NEW ROCHELLE, AND PAUL H. ENGEL, OF NEW YORK, N. Y., ASSIGNORS, BY MESNE ASSIGNMENTS, TO HOBART MANUFACTURING COMPANY, OF TROY, OHIO, A CORPORATION OF OHIO.

DISHWASHING MACHINE.

Original application filed May 5, 1921, Serial No. 467,046. Divided and this application filed January 19, 1924. Serial No. 687,180.

This invention relates to dish washing machines and aims to provide an efficient dish washing machine adapted to household use. A further object of the invention is so to combine a dish washing machine with a kitchen sink that the dish washing machine occupies little or no floor space in addition to that required for the sink, or for the sink and its drain board, requires little or no additional plumbing, and in no way interferes with the ordinary use of the sink.

An important feature of the invention consists in combining with a sink a dish washing unit, that is, a complete self-contained device including dish washing mechanism and actuating mechanism, all compactly mounted on a single rigid frame so that the unit may be completely assembled before it is applied to the sink in which it is to be mounted. The combination of such a unit with a sink possesses important practical advantages, since it makes possible the manufacture and shipment of sinks by one manufacturer and the manufacture and shipment of another manufacturer of dish washing units completely assembled and adapted to be combined with such sinks at the place of use.

A self-contained dish washing unit is described and claimed in our co-pending application filed May 5, 1921, Serial No. 467,046, of which this application is a division. The present application is directed to the combining of such units with sinks.

The invention may best be understood from a detailed description of the specific embodiments of it which are illustrated in the accompanying drawings, in which:—

Fig. 1 is a side view, partly in axial section, of a dish washing unit;

Fig. 2 is an elevation partly in section showing a dish washing unit mounted in the bottom of a sink; and

Fig. 3 is a plan view of the arrangement shown in Fig. 1 with the part of the dish washing mechanism above the bottom of the sink removed.

A dish washing unit 10 of the type described and claimed in our aforesaid co-pending application is shown in Fig. 1. This unit combines dish washing mechanism and actuating mechanism therefor, and has

a single rigid nonrotary part or frame 11 which provides the stationary part of the dish washing mechanism, the stationary part of the actuating mechanism, and includes supporting bearings for the rotary portions of these mechanisms. In the form shown, the frame 10 includes a pump body 12 and a motor casing 13 secured to the bottom 14 of the pump body. The pump body is provided with inlet openings 15 just above its bottom 14 and with an upwardly directed discharge neck 16. A flange 17 at the periphery of the bottom 14 projects laterally further than any other part of the frame 11 and is adapted to be secured about the periphery of an opening in the bottom in any type of receptacle so that the bottom 14 of the pump body will provide a closure for such opening. The bottom 14 contains an opening 18 which may serve as the drain opening of the receptacle in which the unit is mounted. A rotary shaft 19 is mounted in the frame 11 and carries a motor armature within the motor casing 13 and an impeller 20 within an impeller chamber 21 in the pump body 12. In the discharge neck 16 of the pump body is mounted a rotary hub 22 bearing radial arms 23 provided with upwardly directed discharge nozzles 24, some of which are inclined so that the liquid discharged through them causes a rotation of the hub and arms. The hub 22 is retained in the discharge neck by a bushing 25 whose lower edge is engaged by an external flange 26 at the lower end of the hub. The bushing 25 is removably held in the neck 16 by a screw 28 which passes through the neck and enters the groove 27 in the bushing.

Figs. 2 and 3 show the dish washing unit 10 mounted in a kitchen sink 30. The sink 30 may be of the usual size and shape except that it is provided at the center of its bottom with a circular well 31 at the bottom of which is an opening 32. The unit 10 is mounted in this opening 32 by securing its flange 17 to the bottom of the well about the periphery of the opening so that the bottom 14 of the pump body 12 forms a closure for the opening 32. The depth of the well 31 is such that while the entire pump casing 12 is below the bottom 33 of the sink 30, the arms 23 are above the bottom

of the sink. A dish rack 35 is provided with legs 36 which are seated upon the bottom 33 of the sink 30 and serve to hold the rack above the arms 23. A removable dome-shaped cover 37, which may be either square or circular in cross-section, is placed over the dish rack 35 and the arms 23 to confine the water projected upwardly from the arms. The bottom 33 of the sink 30 may be provided with ribs 38 to position the legs 36 of the rack and the cover. The well 31 is covered by a screen 39 which is at the level of the bottom 33 of the sink. The drain opening in the bottom 14 of the pump body 12 of the unit frame may be connected to the drain pipe of the sink through a valve 40. It is not necessary to connect this opening with a source of hot water as the well 31 may be filled with hot water from the hot water faucet 41 of the sink. This is done before the cover 37 is placed in position.

In using the dish washing unit the well 31 is first filled with hot water from the faucet 41 to a depth sufficient to cover the inlet openings 15 of the pump body of the unit. A detergent may be added to this water. The dishes to be washed are placed in the rack 35 and the cover 37 is placed over the rack. The motor is then operated, rotating the shaft 19. This rotates the impeller 20, causing it to draw water into the impeller chamber through the inlets 15 and to force this water through the hub 22 into the arms 23 and out through the discharge nozzles 24. As the arms are rotated by the reaction of the water discharged through the inclined nozzles, the water is thrown forcibly upward against all the dishes or other articles in the rack 35, thoroughly cleansing them in a very short time. During this operation, the solid matter removed from the dishes is caught on the screen 39 and is thus prevented from entering the pump body. On the completion of the washing, the water in the well 31 is withdrawn by opening the valve 40. The cover 37 is then removed and the well 31 is filled with clean water from the faucet 41. The cover 37 is replaced and the motor is again placed in operation to rinse the dishes and remove all soapy water from them.

When it is desired to use the sink 30 independently of the dish washing unit, the cover 37 and the rack 35 are removed from the sink. The screen 39 may then be removed so that the screw 28 may be reached and loosened, permitting the withdrawal of the bushing 25 from the discharge neck 16 so that the arms 23, hub 22 and bushing 25 may be lifted out.

The screen 39 is then replaced and a plug or cap 42 placed in the discharge neck 16 (Fig. 3). When this has been done no portion of the washing mechanism remains within the sink 30 so that the sink may be used in the ordinary manner.

What is claimed is:

1. The combination of a sink having a substantially flat bottom and a well in its bottom, an upwardly directed conduit fixed in said well and terminating below the level of the bottom of the sink, means for forcing liquid upwardly through said conduit, and means for distributing said liquid in the sink located above the bottom of the sink and detachably secured to said conduit.

2. The combination of a sink having a well in its bottom and an opening at the bottom of said well, of a dish washing unit comprising a rigid frame including a pump casing located wholly below the bottom of the sink and having an intake opening communicating with said well, and an upwardly directed discharge neck terminating substantially at the level of the bottom of said sink, and a motor casing below the pump casing, and formed to provide a closure for the opening in the bottom of the well; a motor in said motor casing having a shaft projecting into said pump casing; an impeller mounted upon said shaft in said pump casing; a rotary hollow hub detachably mounted in said neck; and hollow spray arms extending radially from said hub above the bottom of said sink and provided with upwardly directed inclined discharge orifices.

3. In a dish washing machine, the combination of a support for articles to be washed, a casing enclosing the support and having opposite side walls merging gradually into its top to provide a deflecting surface arching over the support, and a distributor located wholly under the support, rotary about a vertical axis midway between said side walls, and having at its bottom an axial intake opening through which liquid is forced under pressure, and on its top at opposite sides of its axis discharge orifices directing liquid issuing therefrom up through the central and outer portions of the support and obliquely against opposite side portions of the deflecting surface at the same time.

In testimony whereof we have hereunto set our hands.

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