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2,281,484

DISHWASHING SPRAY HEAD

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Fig. 6.

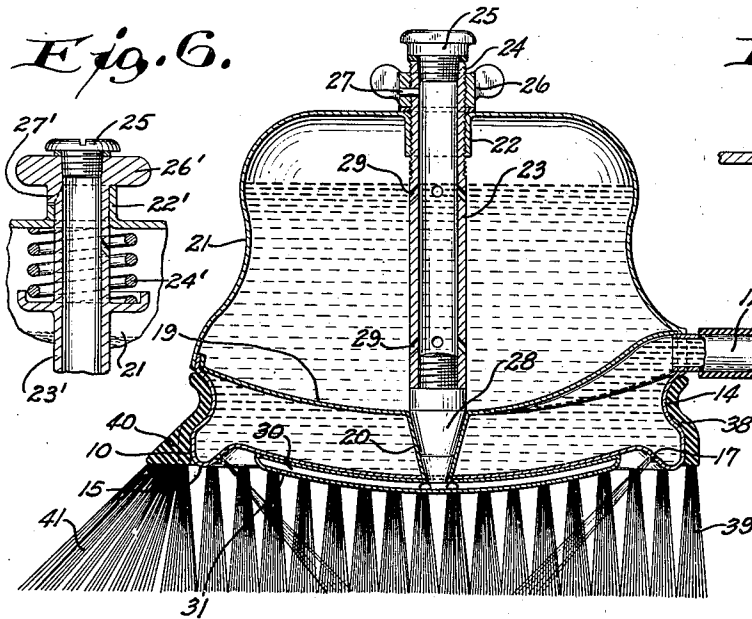


Fig. 5.



Fig. 1.

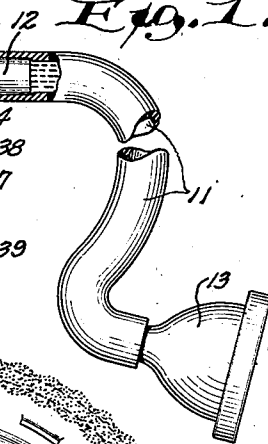


Fig. 2.

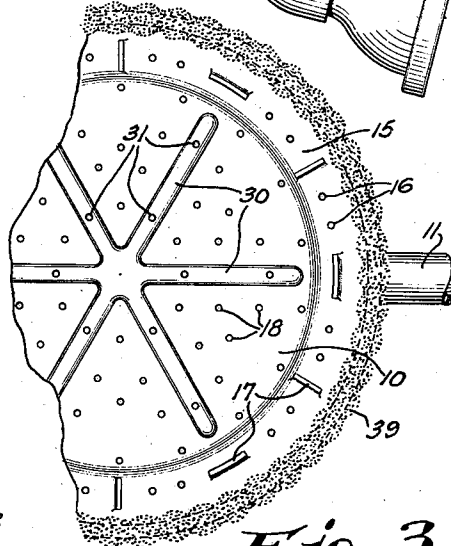
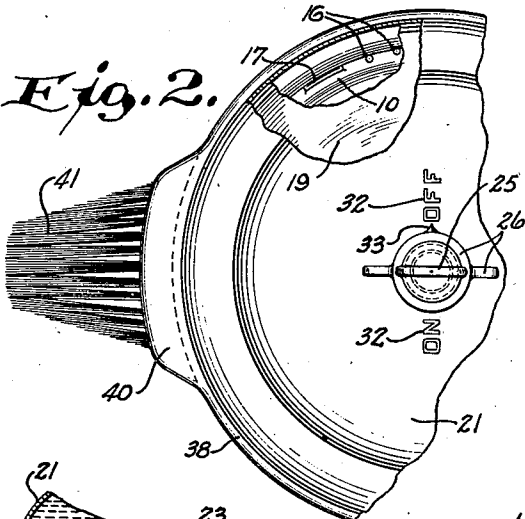


Fig. 3.

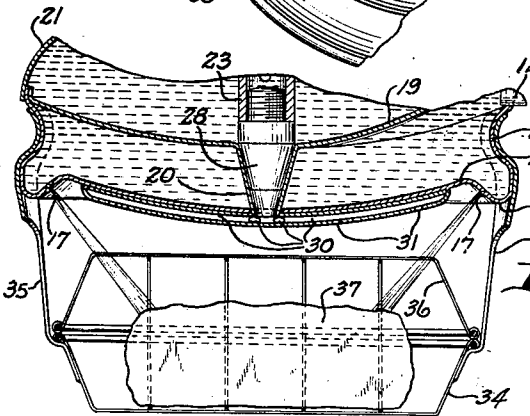


Fig. 4.

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DISH WASHING SPRAY HEAD

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4 Claims. (Cl. 299—84)

My present invention relates generally to improvements in cleansing implements and relates more specifically to improvements in the construction and operation of water sprays co-operable with soap dispensers and brush units especially adapted for washing dishes or the like.

Generally defined, an object of the invention is to provide an improved spray head which is simple and compact in construction and highly efficient in use.

Some of the more specific objects of my invention are as follows:

To provide a combined spray head and soap dispenser with which either liquid or bar soap may be utilized.

To provide a conveniently manipulatable soap dispensing spray head operated with hot water without endangering the user.

To provide a spray head which will most effectively deliver the jets of liquid to the dishes, and which is adapted to be provided with an effective brush for cleaning corners.

To provide a spray head which may be used interchangeably with liquid soap, with bar or flake soap, or with a brush, or with a combination of two or all of these auxiliaries.

To provide a new and useful kitchen sink utensil which is especially adapted for dish washing, and which may be merchandised in segregated parts.

To provide an improved dish washing appliance which will rapidly and thoroughly cleanse the dishes with constantly clean soap and water and with minimum effort on the part of the operator.

To provide a simple dish washing assemblage which will effectively remove grease and other accumulations from the surface of the dishes, and will immediately carry the removed substances away from the zone of washing.

To provide an improved portable dish washing device which may be used to effectively cleanse all types of kitchen utensils such as dishes, silverware, pots, pans and the like.

To provide an improved spray head for hot water which can be safely manipulated, and wherein a most effective spray for dispensing and for lathering soap is produced.

To provide an improved spray head which is adapted to be put to diverse uses, and which can be manufactured and sold at moderate cost.

These and other specific objects and advantages of my invention will be apparent from the following detailed description.

A clear conception of the features constituting my present improvement, and of the mode of constructing and of utilizing spray heads built in accordance with my invention may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the several views:

Fig. 1 is a central vertical section taken through the liquid soap container, spray head and brush attachment, and showing a portion of a flexible water supply hose and coupling attached to the assemblage;

Fig. 2 is a fragmentary top view of the assemblage with portions broken away to disclose the interior thereof;

Fig. 3 is a fragmentary bottom view of the assemblage shown in Fig. 1;

Fig. 4 is a fragmentary central vertical section of the spray head showing a container for bar soap attached thereto;

Fig. 5 is an enlarged section of a portion of the spray nozzle showing the formation of one of the elongated spray slots; and

Fig. 6 is a fragmentary sectional view showing a modified type of mechanism for controlling the delivery of liquid soap.

While my invention has been shown and described herein as being specifically applied to a spray head for dish washing use, it is not the intent to thereby unnecessarily limit the scope of the invention or the uses to which it may be applied.

The present invention comprises generally the provision of a portable spray head assemblage, and a plurality of accessories such as a liquid soap dispenser, a bar or flake soap dispenser, and a brush assemblage, which may be utilized either individually or combined, in conjunction with the spray head assembly.

Referring to Figs. 1, 2 and 3 of the drawing, the improved spray head assemblage shown therein comprises in general, an annular spray head or nozzle 10 attached to one end of a flexible tube 11 by means of a nipple 12, tube 11 being formed for attachment to a faucet by means of an elastic coupling 13 secured to the opposite end thereof. The annular nozzle 10 is provided with a peripheral recess 14 and a depending annular lip 15 having alternately arranged circular spray holes 16 and elongated spray slots 17, circular spray holes 18 also being provided in the convex lower face of the nozzle 10 within the lip 15. The top wall of the nozzle 10 constitutes a dish-shaped plate 19 formed with a conical

thimble 20 providing a tapered valve seat located centrally thereof and penetrating the liquid chamber of the spray head 10.

The liquid soap container consists of an inverted cup-shaped housing 21 having a central sleeve 22 at the top thereof and being rigidly secured as by soldering to the head or nozzle 10 and constituting a suitable gripping handle for the portable assemblage. As shown in Fig. 1, a hollow tube 23 having an externally threaded portion 24 for cooperation with internal threads in the sleeve 22 is disposed centrally within the housing 21, and the upper end of the tube 23 which extends above the housing 21, is provided with a closure plug 25 and an actuating ring 26 having ears thereon, the ring being rigidly secured to the tube 23 by means of a locking pin 27. As shown in Fig. 6 the tube 23' is slidable in the sleeve 22' and is pressed downwardly by a spring 24', the tube 23' being provided with an integral grip ring 26' and with a lug 27' co-operable with a notch and with the top rim of the sleeve 22'. The lower end of the tube 23 is provided with a solid tapered closure plug 28 adapted for snug engagement with the valve seat 20 in the plate 19, and downwardly directed angular openings 29 extend through the medial portion of the wall of the tube 23. The valve seat 20 connects centrally with radially extending conduits 30 secured to the convex lower face of nozzle 10 and having perforations 31 therein. However, these conduits need not be radially disposed nor need they be located on the outer lower face of the spray head; but they may be of various shapes such as a single spiral conduit and may be secured to the lower face of the spray head on the interior thereof. Convenient markings 32 may be provided on the top of housing 21 adjacent the ring 26 and a pointer 33 may be formed on the ring 26 for indicating the open and closed position of the valve.

If it is desired to utilize bar or flake soap with the assemblage rather than liquid soap, an attachment such as shown in Fig. 4 may be readily furnished. The bar or flake soap attachment comprises a wire cage or basket 34 having upwardly extending resilient and laterally curved arms 35 adapted to be snapped about the nozzle 10 within the peripheral recess 14 and be retained thereby. The case 34 may be provided with a removable cover or door 36 for insertion of the soap 37 into the cage, and this entire attachment may be readily manufactured of perforated sheet metal instead of wire.

A brush attachment as shown in Figs. 1 and 2 may also be provided for use with the spray head either independently of the soap assemblages or in combination therewith. The brush consists of a resilient and stretchable annular band 38 adapted to be stretched over and seated within the peripheral recess 14 of the spray head 10 to be retained thereon, and downwardly directed bristles 39 are carried by the band 38 and surround the zone of action of the jets delivered from holes 16 and slots 17. The band 38 preferably has a thickened portion 40 carrying laterally directed bristles 41 adapted for reaching into and cleaning corners of the dishes, and these bristles 41 may obviously be located at any desired place around the spray head. Obviously the band 38 may be provided in any width and may be utilized with the bar soap attachment shown in Fig. 4 as well as with liquid soap.

Fig. 5 shows an enlarged cross-section of one of the spray slots 17 formed in the lip 15 of the

spray nozzle. These slots are preferably formed with a sharp-edged tool so that a relatively long and narrow opening will be provided which will direct a comparatively narrow and long impinging jet in a desired direction. Several of these slots 17 are preferably located along the lip 15 at the outer ends of and facing the conduits 30 to direct flat jets which impinge the soap dripping from the perforations 31 in conduits 30. Other slots 17 may also be located on the lip 15 and are so directed as to deliver jets which impinge the jets delivered from holes 16, 18 of the spray nozzle within the zone of action of the soap mixing. The force and mixture of these several impinging jets with the soap and spray from holes 16, 18 within a limited zone creates abundant lather for washing. When bar or flake soap is used with the assemblage, the jets delivered from slots 17 are directed upon the soap in cage 34 and impinge the spray delivered from holes 16, 18, to create lather in substantially the same manner as with liquid soap.

In normal operation of the assemblage, coupling 13 is attached to a hot water faucet and water is passed through tube 11 and nipple 12 into the spray head 10. As spray head becomes filled with water, the pressure created therein forces jets of water through the holes 16, 18 and slots 17 with considerable force, the jets delivered in various directions within the zone of action by slots 17 impinging the jets from holes 16, 18.

The soap housing 21 is filled with liquid soap by removing the closure plug 25 from the tube 23, 23' and pouring soap therein. The soap is admitted to housing 21 by means of annular perforations 29 in the tube 23, and closure plug 25 may then be replaced in the tube. The ring 26, 26' rigidly secured to the tube may then be actuated in the proper direction, as indicated by the markings 32, to move the tube 23 upwardly within the housing either by cooperation of the threads in sleeve 22 with the threaded portion 24 of the tube in Fig. 1, or by merely lifting and rotating the tube 23' in Fig. 6. This upward movement of the tube removes the tapered closure plug 28 from its previous snug engagement with valve seat 20 in plate 19 and permits soap from housing 21 to flow slowly through the thimble 20 into the central portion of conduit 30 from which the soap drips through perforations 31 into the zone of action of the spray delivered by holes 16, 18 and is forcefully impinged by the jets delivered by slots 17. Plate 19 is preferably dish-shaped with valve seat 20 located centrally therein because the soap is delivered from the housing through the valve and conduits by gravity, and the provision of a dish-shaped plate with the valve located in the center permits utilization of all of the liquid soap in the housing due to drainage toward the lower central portion and provides for effective feeding of the soap through the valve to the conduits.

When the bar or flake soap appliance shown in Fig. 4 is utilized with the assemblage, the jets delivered by holes 16, 18 are directed against and about the soap, and cross jets from the slots 17 strike against the soap and the other jets to for a lather. When this assemblage is utilized it is customary to have the closure plug 28 in snug engagement with the valve seat 20 to stop the flow of liquid soap. When the brush shown in Figs. 1 and 2 is utilized either with or without the soap units it is preferably positioned on the

spray head as shown, with the bristles 39 pointing in a downwardly directed position surrounding the zone of action to aid in cleaning corners of the objects being washed. The thickened toe portion 40 provided with laterally projecting bristles 41 is especially useful for reaching into inaccessible corners for cleaning the same.

From the foregoing detailed description it will be apparent that my present invention contemplates the provision of a simple but highly efficient dish washing assemblage which may be conveniently and economically manufactured of sheet metal with the aid of punches and dies and which is durable and compact in construction. The soap housing is so shaped as to form a convenient gripping handle for the appliance without endangering the operator, and the formation of the spray head is such that bar or flake soap attachments as well as a brush may readily be utilized. The formation of the slots and holes in the nozzle provide for impingement of the jets against each other and against the soap within a relatively confined zone of action, thus insuring provision of a constantly flowing lather to the objects being washed. It should further be noted that fresh soap and water is constantly being supplied for the washing operation by the present assemblage.

It should be understood that it is not desired to limit this invention to the exact details of construction or the precise mode of use, herein shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

I claim:

1. A spraying device comprising, a fresh liquid supply chamber having an annular series of lower liquid discharge slots directed toward a common axis and also having a plurality of lower dis-

charge openings within the annulus, a soap chamber disposed above said liquid supply chamber, and means for conducting soap from within said soap chamber through a plurality of lower discharge openings disposed within said annular series of slots.

2. A spraying device comprising, a fresh liquid supply chamber having an annular series of lower radially and circumferentially disposed liquid discharge slots directed toward a common axis and also having a plurality of lower circular discharge openings within the annulus, a soap chamber disposed above said liquid supply chamber, and means for conducting soap from within said soap chamber through a plurality of lower discharge openings disposed within said annular series of slots.

3. A spraying device comprising, a fresh liquid supply chamber having an annular series of lower liquid discharge slots directed toward a common axis and also having a plurality of lower discharge openings within the annulus, a soap chamber disposed above said liquid supply chamber, and means for conducting soap from said soap chamber through a plurality of radially arranged lower discharge openings disposed within said annular series of slots.

4. A spraying device comprising, a liquid soap housing, a spray nozzle, a plurality of radially extending perforated conduits secured to the exterior surface of said nozzle, a passage communicating with said housing and the central portion of said conduits, means for supplying water to said nozzle, means for controlling the flow of soap through said passage to said conduits, and spray openings in the nozzle for directing a spray of water across the soap drippings and toward the objects to be washed.

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