

May 7, 1963

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3,088,149

FLUID MOTIVATED ABRADING AND WASHING DEVICE

Filed Nov. 20, 1961

2 Sheets-Sheet 1

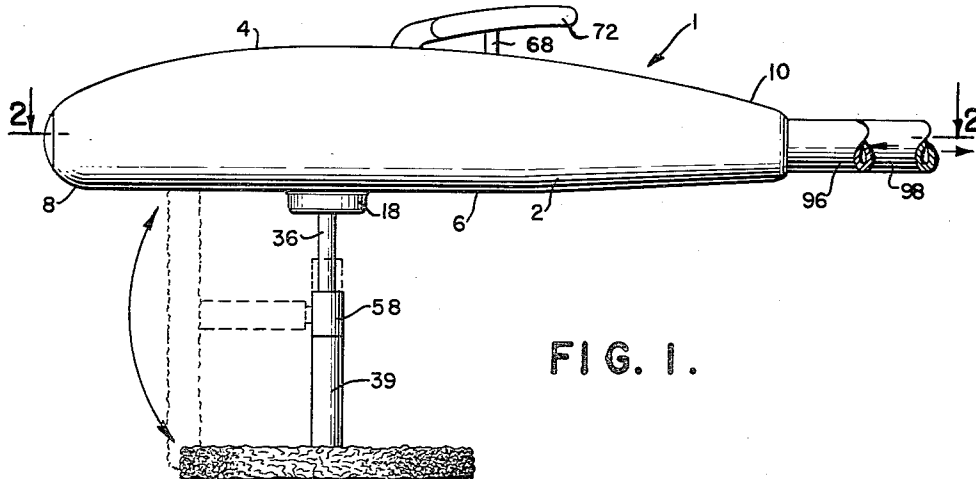


FIG. 1.

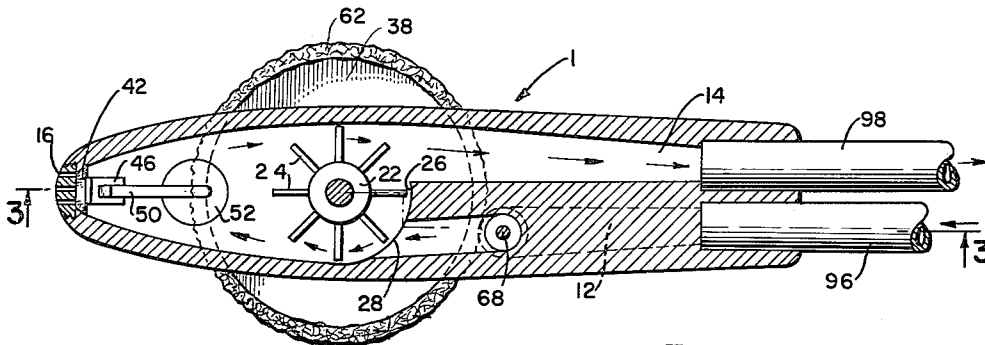


FIG. 2.

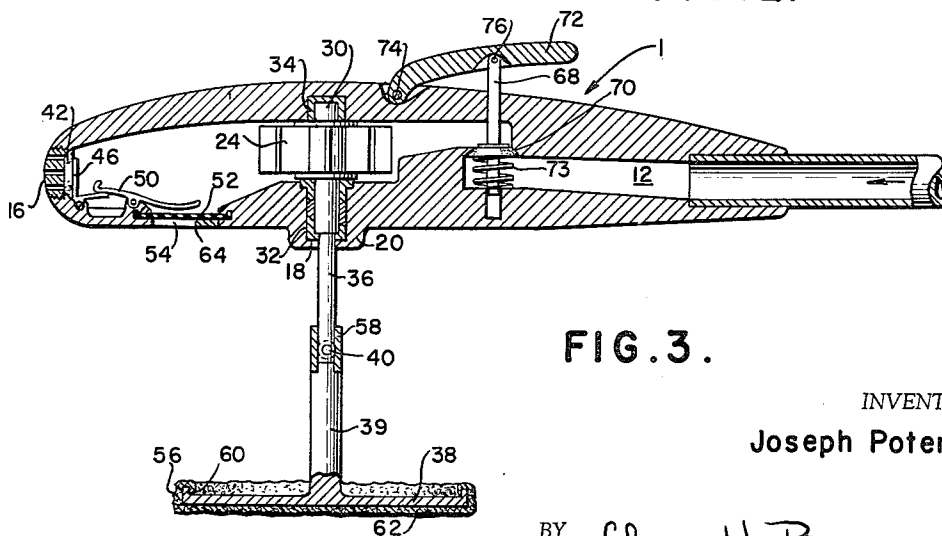


FIG. 3.

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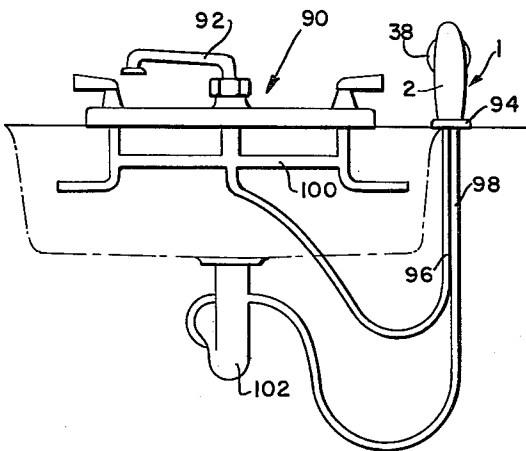
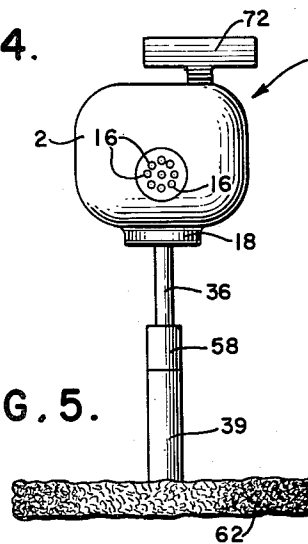
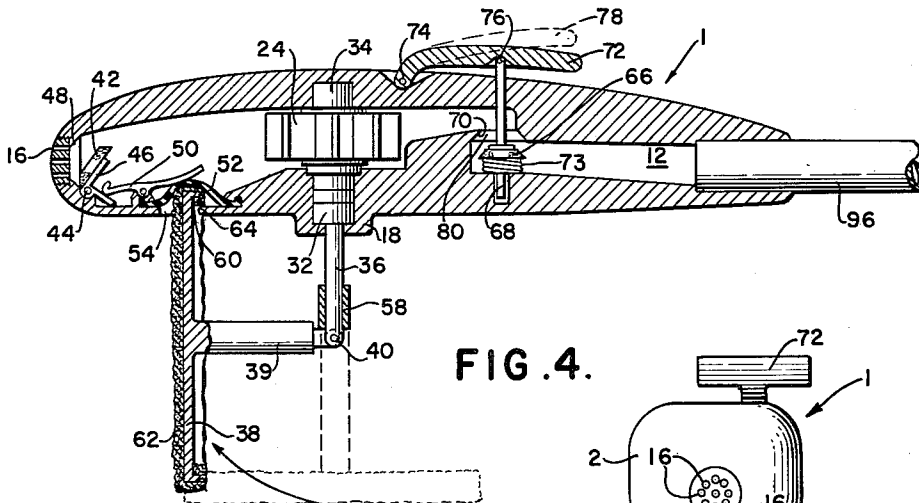
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FLUID MOTIVATED ABRADING AND WASHING DEVICE

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2 Sheets-Sheet 2



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FLUID MOTIVATED ABRADING AND WASHING DEVICE

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6 Claims. (Cl. 15—29)

This invention relates to novel and useful apparatus for scouring pots and more particularly to a water motivated abrading device adapted to be used in conjunction with a sink or adjacent surface thereof and to be further functional with respect to directing a spray of water against such scoured pots and similar utensils.

Objects and advantages of the invention will be set forth hereinafter and in part will be obvious herefrom, or may be learned by practice of the invention, the same being realised and attained by means of the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

FIG. 1 is a side elevational view of the device wherein the abrading disc is shown in alternately functional positions;

FIG. 2 is a top plan view of the invention taken along line 2—2 of FIG. 1;

FIG. 3 is a vertical cross-sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a vertical cross-sectional view of the device wherein the abrader disc is positioned to unseat the second fluid outlet opening valve;

FIG. 5 is a forward end view of the abrading and washing device; and

FIG. 6 is a view of the invention operatively installed as an adjunct to a conventional sink.

The invention is generally directed to providing a water motivated abrading device capable of obviating the need for hand scrubbing of cooking utensils having food deposits, grease or scum adhering and caked upon the surfaces thereof.

One object of the invention is to provide a fluid motivated device which is provided with a simply operated control valve whereby the passage of the motive fluid may be controlled for the purpose of varying the speed of rotation of the rotor.

Another object of the instant invention is the provision of a mechanical scrubbing apparatus which derives its power from the flow of water taken from conventional kitchen sink fittings.

A further object of the present invention is to provide a utensil scouring device in combination with means for directing a regulated flow of water for rinsing purposes.

Another object of the invention is the provision of an abrading device including means precluding rotation of the rotor during utensil rinsing periods.

Still another object of the instant invention is the provision of a fluid motivated scouring appliance readily adaptable as an adjunct of the modern sink and equally suitable as standard equipment in combination therewith.

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Another object of the present invention is to provide a device of this character which will be simple and inexpensive of manufacture, highly efficient in use, positive in action and a general improvement in the art.

It will be understood that the foregoing general objectives are exemplary and explanatory but are not restrictive of the invention, there being other features and advantages, some of which, together with the foregoing, will be specifically set forth in the detailed description of the preferred form of the invention hereunto annexed.

Referring now in detail to the present preferred embodiment of the invention illustrated by way of example in the accompanying drawings, FIGURES 1—6 show the fluid motivated abrading and washing device designated generally by numeral 1 in various operational positions and views. In general the elements comprising the complete apparatus consist of housing 2 having a top wall 4, a bottom wall 6, forward end 8, and rearward end 10, there being a fluid inlet passage 12, a first fluid outlet passage 14 and second fluid outlet passages 16, disposed within said housing. Extending outwardly from said housing 2 and through bottom 6 thereof is a boss 18 which is centrally bored to provide a journal for the shank portion 20 of a rotor comprising a central hub 22 having a plurality of radial blades 24 extending outwardly therefrom and terminating slightly short of the inner arcuate surface 26, the fluid current being directed therefrom at aperture 28 against the said rotor blades to rotate the rotor. The rotor is thus mounted for free rotation within the housing, said shank portion 20 and shank end 30 being journaled within sleeve bearings 32, 34 respectively.

Fixedly secured concentrically to shank portion 20 is shaft 36 which extends through said housing centrally of boss 18, which has disc 38 and shaft extension 39 connected at the outer end thereof and which has a pivotal joint 40 intermediate said housing and said disc as illustrated in FIGURES 1, 3 and 4 of the drawings. It will be observed that said shaft 36 is adapted to assume the linear position shown in FIGURES 1, 3 and 5 or the right angled position seen in FIGURE 4, the former being obviously suited to the end of utensil abrasion, the latter position being of a dual nature, i.e., firstly to curtail motion of the abrading wheel during utensil rinsing periods and secondly to unseat gate valve member 42 thereby accomplishing fluid flow through second fluid outlet passages 16.

Valve member 42, being normally urged to the seated position shown in FIGURES 2 and 3 of the drawings, is biased to that attitude by dint of fluid flowing thereagainst thus precluding fluid egress through said second outlet passages 16. Pivotal, however, at point 44, angle support 46 united with the said valve member 42 is adapted to occasion removal of the said valve member from annular seat 48 upon engagement thereof by pivotal lever 50 as shown in FIGURE 4, thus enabling flow through said passages 16 for rinsing. Lever 50 being pivotally mounted internally upon the said bottom 6 of housing 2 is moveable from without said housing by virtue of yieldingly flexible material 52 sealingly superposed with respect to cutout region 54. To motivate said lever 50 to thereby effectuate actuation of said valve member 42, edge 56 of disc 38 is brought into flexing engagement with said yieldingly flexible material 52 as seen in FIGURE 4 of the drawings, this being readily accomplished in view of

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the pivotal nature of shaft 36. Accordingly, annular sleeve coupling 58, slidably secured to the said shaft is raised to release said joint 40 for angular motion, thus enabling disc 38 to be manually pivoted to the broken line position shown in FIGURE 1 or to the operative position illustrated in FIGURE 4. Flange 60, extending peripherally of disc 38, purposeful in facilitating retention of scouring covers 62 comprised of any suitable abrasive material, e.g., natural or synthetic bristle, metallic wool, textile, paper, etc., is additionally functional to removably retain the said disc 38 upon lip 64 bordering said cut-out region 54, thereby maintaining self-sustaining engagement between lever 50 and valve member 42.

Valve member 66, concentrically disposed with respect to supporting-shaft 68 is normally biased for seating engagement with annular seat 70, compression spring 73 being arranged to occasion such closure. Lever 72, positioned surfacedly of top wall 4 and adapted to impart vertical reciprocating motion to said shaft 68 through the pivotal linkages at 74 and 76 respectively, thereby provides an instrumentality for effectively regulating the rate of fluid current flow through said inlet passage 12 to said rotor 22 and said outlet passages 16. Accordingly, depression of said lever 72 from the broken line position 78 observed in FIGURE 4 of the drawings will unseat valve member 66 thus allowing flow through valve passage 80 and thence through said passages 16 for washing or rinsing utensils. Upon return of disc 38 to the extended rotatable position shown in FIGURES 1-3 and 5, flow through passages 16 is curtailed by seated valve member 42, the rate of rotation of abrading disc 38 being directly variable with the degree of depression of said lever 72.

With reference to FIGURE 6 of the drawings, it will be appreciated that the instant abrading and washing device is shown retractibly mounted on a sink 90 having a common type faucet 92, by means of a supporting socket 94. Inlet passage 12 and outlet passage 14 are suitably connected with inlet conduit 96 and outlet conduit 98 respectively, the latter being communicably adapted to the water source 100 and the drain fixture 102, respectively.

In operation, the rotor is started by depression of lever 72, and the operator simply manipulates the rotating scouring disc contiguously with respect to the utensil being cleansed, together with any desired or required water and detergent. In the event rinsing is desired, disc 38 is pivoted upwardly as aforescribed, to inwardly flex yieldable material 52 and thus actuate valve member 42 to the unseated attitude as illustrated in FIGURE 4. As aforesaid, depression of lever 72 will educt water to the forward outlet passages 16.

Both the structural and operational characteristics of the invention having been described, it will be understood that the materials of construction may be synthetic or natural, metallic or non-metallic and that changes may be made in the form, construction and arrangement of parts from that disclosed herein without in any way departing from the spirit of the invention or sacrificing any of the attendant advantages thereof, provided, however, that such changes fall within the scope of the claims appended hereto.

What is claimed is:

1. A device of the character described comprising, in combination, a housing having a top, a bottom and forward and rearward ends, said housing having a fluid inlet passage and first and second fluid outlet passages, said first outlet passage being at said rearward end, said second outlet passage being at said forward end, rotor means journaled within said housing to be rotated by fluid flowing through the latter, a shaft extending through said housing, said shaft being at one end secured to and rotatable with said rotor means, said shaft having an outer end with a disc fixed thereon, first valve means interposed between said inlet passage and said rotor means, second valve means disposed at said second outlet passage, said shaft having a pivotable joint intermediate said rotor means

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and said disc to allow the outer end of said shaft to be pivoted, said disc being adapted to actuate said second valve means to thereby effectuate flow through said second outlet passage.

2. A device of the character described comprising, in combination, a housing having a top, a bottom and forward and rearward ends, said housing having a fluid inlet passage and first and second fluid outlet passages, said first outlet passage being at said rearward end, said second outlet passage being at said forward end, rotor means journaled within said housing to be rotated by fluid flowing through the latter, a shaft extending through said housing, said shaft being at one end secured to and rotatable with said rotor means and being provided at the other end with a disc fixed thereon, first valve means interposed between said inlet passage and said rotor means, second valve means disposed at said second outlet passage, a pivotably supported lever disposed for engagement with said second valve means, said lever being mounted within said housing bottom, a portion of said bottom being comprised of yieldingly flexible material, said lever being motivated upon inwardly flexing said bottom portion, thereby effectuating actuation of said second valve means.

3. A device of the character described comprising, in combination, a housing having a top, a bottom and forward and rearward ends, said housing having a fluid inlet passage and first and second fluid outlet passages, said first outlet passage being at said rearward end, second outlet passage being at said forward end, valve means disposed at said second outlet passage, rotor means journaled within said housing to be rotated by fluid flowing through the latter, a shaft extending through said housing, said shaft being at one end secured to and rotatable with said rotor means, said shaft having an outer end with a disc fixed thereon, said shaft having a pivotable joint intermediate said housing and said disc to allow the outer end of said shaft to be pivoted, a lever mounted internally of said housing bottom and adapted for pivotal engagement with said valve means, a portion of said housing bottom being comprised of yieldingly flexible material, said disc being arranged to inwardly flex said bottom portion to thereby effectuate pivotal movement of said lever to thereby actuate said valve means.

4. A device of the character described comprising, in combination, a housing having a top, a bottom and forward and rearward ends, said housing having a fluid inlet passage and first and second fluid outlet passages, said first outlet passage being at said rearward end, said second outlet passage being at said forward end, valve means disposed at said second outlet passage, rotor means journaled within said housing to be rotated by fluid flowing through the latter, a shaft extending through said housing, said shaft being at one end secured to and rotatable with said rotor means and being provided at the other end with a disc fixed thereon, said shaft having a pivotal joint intermediate said housing and locking means adapted to preclude pivoting of said shaft, a lever mounted internally of said housing bottom and adapted to actuatingly engage said valve means, an opening disposed within said housing bottom adjacent said lever, a yieldingly flexible member sealingly positioned across said opening, said lever being pivotally movable by inwardly flexing said flexible member from without said housing.

5. A device of the character described according to claim 4 wherein said locking means is comprised of an annular sleeve coupling slidably disposed upon said shaft, said coupling being positionable peripherally of said pivotal joint to preclude pivoting of said shaft.

6. A device of the character described comprising, in combination, an elongate housing having a top, a bottom and forward and rearward ends, said forward and rearward ends being at opposing ends of said housing, said housing having a fluid inlet passage and first and second fluid outlet passages, said first outlet passage being at

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said rearward end, said second outlet passage being at
said forward end, rotor means journaled within said
housing to be rotated by fluid flowing through the latter,
a shaft extending through said housing, said shaft being
at one end secured to and rotatable with said rotor means, 5
said shaft having an outer end there being a disc fixed
thereon, first valve means interposed between said inlet
passage and said rotor means, second valve means dis-
posed at said second outlet passage, said shaft having a
pivotable joint intermediate said rotor means and said 10
disc to allow the outer end of said shaft to be pivoted,

said disc being adapted to actuate said second valve means
to thereby effectuate flow through said second outlet
passage.

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