Jan. 1, 1963 S. PATERNO 3,070,826

FOUNTAIN SCRUBBING ASSEMBLY

Filed March 14, 1960

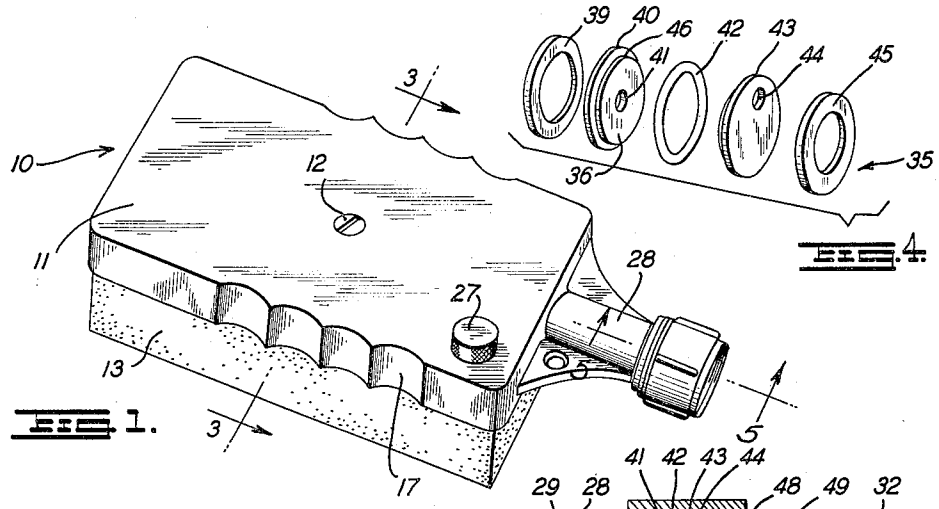


FIG. 1.

FIG. 4.

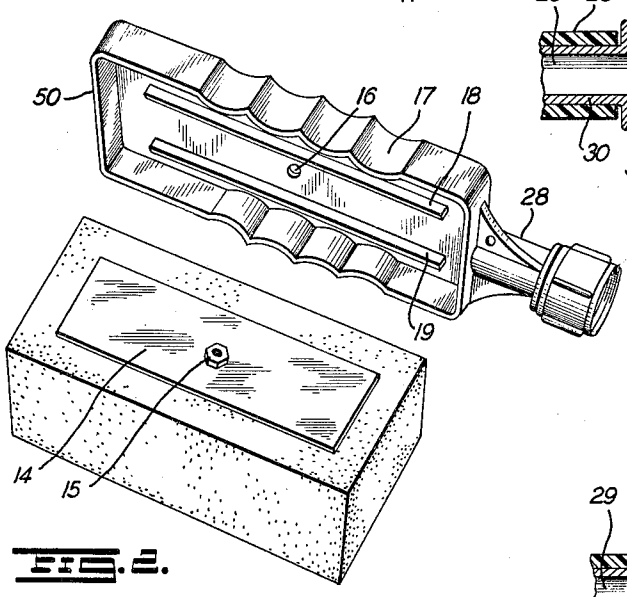


FIG. 2.

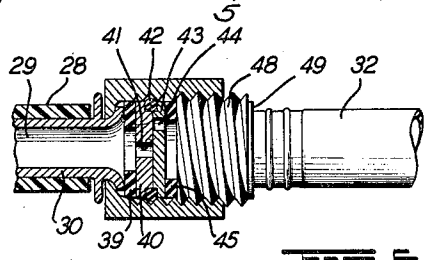


FIG. 5.

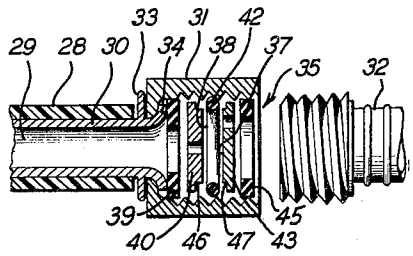


FIG. 6.

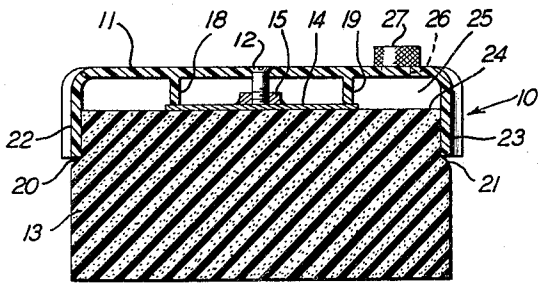


FIG. 3.

INVENTOR
SAM PATERNO

BY
Lowell V. Henderson

ATTORNEY'S

United States Patent Office 3,070,826 Patented Jan. 1, 1963

3,070,826 FOUNTAIN SCRUBBING ASSEMBLY

Sam Paterno, 1898 Payton, Des Moines, Iowa

Filed Mar. 14, 1960, Ser. No. 14,826
5 Claims. (Cl. 15—567)

This invention relates to a fountain scrubbing assembly with an inbuilt detergent supply for washing automobiles, windows, and the like, wherein the scrubbing element is readily connectable to a common garden hose or other source of water under pressure.

The primary object of this invention is to provide an improved hand fountain scrubbing assembly incorporating a detergent supply in association with the handle of the device, whereby a certain amount of the detergent may be entrained in the water from a garden hose during a washing operation.

Another object of this invention is to provide a fountain scrubbing assembly for washing windows, automobiles, and the like wherein the scrubbing unit is provided with a restrictor valve structure to regulate the supply of water to the scrubbing unit.

A further object of this invention is to provide a simplified scrubbing unit incorporating a detergent supply within the handle for use during a subsequent washing operation.

A still further object of this invention is to provide a scrubbing unit with a built-in valve structure in the liquid inlet terminal connection thereof for ready receipt of a common garden hose threaded fitting.

Another object of this invention is to provide an improved restrictor valve structure for use with scrubbing units of varied design whereby a complete shut-off of water flow to the scrubbing unit may be accomplished, avoiding the necessity of returning to the main outlet spigot for the hose to turn off a water supply.

A still further object of this invention is to provide a scrubbing unit for washing windows, automobiles, and the like, which is simple and economical to manufacture and which is easy to assemble for ready use.

Another object of this invention is to provide a scrubbing unit having an adjustable restrictor valve arrangement in combination therewith, whereby the flow of pressurized water to a scrubbing member may be varied, to thereby control the effective discharge of combined detergent and water from the unit during a washing operation.

Another object of this invention is to provide a simplified fountain scrubbing assembly incorporating a detergent material reservoir in the handle portion thereof in such a manner that the detergent will be trapped within the handle portion of the assembly until pressure is applied thereto.

With the foregoing and other objects in view, the invention resides in the following specification and appended claims, certain embodiments and details of construction of which are illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of the fountain scrubbing assembly comprising the invention;

FIGURE 2 is a perspective view of the fountain scrubbing assembly of FIGURE 1 with the top cover or handle portion thereof removed from the lower scrubbing member portion thereof;

FIGURE 3 is a section view taken along the lines 3—3 of FIGURE 1;

FIGURE 4 is an exploded view of the restrictor valve assembly embodied within the hose coupling of the fountain scrubbing assembly;

FIGURE 5 is a partially sectioned view in side elevation of the combination valve restrictor assembly as coupled to the end of an ordinary water hose, which is shown in fragmentary form; and

FIGURE 6 is a view similar to FIGURE 5 but illustrating the garden hose in disconnect position relative to the restrictor valve assembly coupling of the scrubbing assembly.

Referring now more particularly to the drawings, a fountain scrubbing assembly generally indicated at **10** is illlustrated as having a handle portion **11** connected by means of a screw **12** to a brushing or scrubbing member **13**. The scrubbing member **13** may consist of a piece of sponge rubber, or more specifically may be made of tenite polyethylene or a similar material. Bonded to the upper surface of the sponge **13** by any suitable adhesive is a metal plate **14**. Located on the upper surface of the plate **14** is a nut **15** which is preferably secured as by welding to the plate **14**. During the assembly of the parts **11** and **13** the screw **12** is directed through the opening **16** in the handle member **11** and into the threaded opening of the nut **15** whereby the two units **11** and **13** may be securely fastened together.

The handle member **11** preferably includes a plurality of finger grip recesses as indicated at **17** to prevent a slipping action within the palm of the hand of an operator during a washing operation. The handle member **11** may be made of plastic or any other suitable material. Preferably formed integral with the under surface of the handle member **11** are two depending rib members **18** and **19** which, during the assembly operation, engage upon the upper surface of the plate member **14**, as is best illustrated in FIGURE 3. It is therefore obvious that by tightening up on the screw member **12** that the ribs **18** and **19** of handle member **11** will be firmly affixed against the backing plate **14** of the sponge member **13**. It is to be further noted that the sponge member is depressed at **20** and **21** as illustrated in FIGURE 3, upon receiving the depending flanges **22** and **23**, respectively, of the skirt **50** of handle member **11**. As illustrated in FIGURE 3 the sponge material extends upwardly within the handle, as shown by the extension portion thereof **24**, a considerable distance within the skirt flanges **22** and **23**, to seal off the chamber **25** which is provided between the handle and the upper surface of the sponge. The handle is further provided with a fill opening at **26**, which is normally closed by a threaded cover member **27**. In use, the cover member **27** is removed and a suitable quantity of detergent, preferably in liquid form, is added to the chamber **25** in accord with the amount of detergent necessary for a particular washing job.

Integral with the handle member **11** at one end thereof is an extension portion **28** embodying a through liquid passage **29**. As illustrated in FIGURES 5 and 6, the passage **29** has fitted therein a hose coupling tubular extension member **30** as by a friction fit. The member **30** is so formed at one extremity as to permanently couple thereto an internally threaded sleeve **31** suitable for coupling the fountain scrubbing assembly **10** to a common garden hose **32**. As illustrated, the sleeve **31** is placed against the integral flange **33** of the member **30** after which the extremity of the member **30** is flared outwardly as at **34** so as to permanently affixed the sleeve to the member **30** in relatively loose fit relationship. As further illustrated in FIGURES 4, 5 and 6, a restrictor valve assembly generally indicated at **35** is provided within the sleeve **31**. The restrictor valve assembly **35** includes a common rubber sealing washer **39**, a circular metal plate **40** including a centrally located orifice **41**, an O-ring member **42** used for biasing purposes, a second circular metal plate **43**, having an axially offset orifice **44**, and a second sealing washer **45** preferably of rubber. The adjacent faces of the metal plates **40** and **43** are provided with peripheral under cut areas **46** and **47**, respectively, to provide a common complementary seat for the O-ring **42**. The

dimensions of the seat portions of the plates 40 and 43 are such that under normal conditions, the inherent resilience of the O-ring 42 will tend to bias the two plate members away from each other. In other words, the normal assembly as indicated in FIGURE 5 will be such that with the adjacent faces 36 and 37 of the members 40 and 43 in contact with each other, the O-ring 42 will be under a certain amount of compression. The amount of compression exerted on member 42 is controlled by the position of the sleeve 31 on the threads 48 of the hose coupling 49, which is secured by any suitable means to the end of the garden hose 32. Thus by releasing the sleeve somewhat from the degree of takeup on the threads 48, the O-ring 42 will be permitted to exert its biasing force against the plate 43 to move the same so that there will be a slight space 38 between the washer members 40 and 43. In this position, water will then be able to flow from the garden hose 32 through the orifice 44 into the space 38 between the plates 40 and 43, then through the orifice 41 and through the scrubbing unit tube fitting 30 into the scrubbing unit handle. As the water enters the scrubbing unit from the orifice 41 it will be slightly diffused and will entrain a suitable amount of detergent before passing through the sponge 13 to the surface of an object under a cleaning action. It will therefore be obvious that by tightening the sleeve 31 sufficiently on the threads 48 of the coupler 49, that the bias of the O-ring 42 will be overcome sufficiently to move the orifice 44 of the washer 43 in facial contact with the surface 36 of the washer 40, thereby assuring a complete cut-off of water from the hose 32 to the scrubbing member. It is also obvious that, by backing off the sleeve 31, the flow of water may be readily regulated to agree with a particular amount of desired dispensing of combined water and detergent from the sponge member.

With further regard to the construction of the scrubbing member, the chamber 25 provided by the cooperative relationship between the cover 12 and the sponge 13 is such as to maintain even a liquid detergent in a confined condition until subjected to the pressure of water flow through the inlet connection from the hose 32, or by the physical pressure applied by an operator to the handle member 11 as by pressing firmly against the surface. Under normal conditions, of course, the water will entrain only a certain portion of the detergent as it flows through the sponge, such portion being suitable for the proper cleaning of a surface.

It will be obvious that this invention is suitable to many structural modifications well within the scope of the disclosure and the appended claims to which a liberal interpretation should be given with regard to such modifications.

I claim:

1. A fountain scrubbing assembly including a hollow handle member and a scrubbing member secured thereto comprising a hose coupling integrally connected with said handle, said coupling including an internally threaded, rotatable sleeve for receiving a similarly threaded coupling on a liquid supply hose, a plurality of adjacent plate members positioned within the sleeve of said coupling, each said plate member having an orifice and said orifice in each said plate being offset from that in the adjacent plate, resilient biasing means positioned between said plates to exert a separating action on said plates, said biasing means being subjected to an opposing force by the tightening action of said sleeve on the hose coupling whereby the spacing between said adjacent restrictor plates may be varied to control the flow of water from the supply hose to the scrubbing assembly.

2. A fountain scrubbing assembly including a handle member and a scrubbing member comprising means to couple the handle member to a liquid supply hose for receiving liquid under pressure therefrom, plural restrictor plate means within said coupling means, O-ring means positioned between and contacting said plate means, whereby to bias said plate means against contact, each said plate means being provided with an orifice and the orifice in each plate means being offset from that in the other plate means, said coupling means acting under preselected adjustment to vary the bias effect of the O-ring on said plate means whereby to vary the spacing between the plate means so as to effect a controlled flow of liquid into the scrubbing assembly.

3. The combination of a fountain scrubbing assembly including a handle member and an integral extension and hose coupling means therefor for coupling the assembly to a fitting on a liquid supply hose with a restrictor valve assembly, said restrictor valve assembly being housed within a coupler sleeve comprising a portion of said coupling means, a pair of spaced plate members, one said plate member having a substantial centrally located orifice, and the other said plate member having a centrally offset orifice, said plate members being positioned in a normally slightly spaced relationship, each said plate being recessed on facing peripheral edges whereby to partially accommodate a resilient biasing O-ring, said coupling means cooperating with said hose fitting to force said plate members toward an abutting relationship during a coupling operation to vary the spacing between said members against the bias of said O-ring whereby to regulate the amount of liquid from said hose that may enter the scrubbing assembly through said coupling means.

4. A liquid restrictor valve assembly comprising a pair of coupling members, one said coupling member comprising an internally threaded sleeve and the other said coupling member comprising a tubular externally threaded member for engagement with the internal threads of said sleeve, each said coupling member being connected to a tubular passage member for the passage of liquid therethrough, a pair of plate members, each provided with an orifice offset in relation to each other, positioned within said sleeve and one of said plate members being normally abutted by the end of said tubular coupling member, and resilient biasing means positioned between said plate members to normally oppose the contact of said plate members and the effect of the coupling between said sleeve and said tubular coupling member whereby to create a space between said plate members and thereby establish a flow passage from the one coupling member to the other through the orifices in said plates and through the space between said plates, the spacing between said plates being manually adjustable by the takeup of the sleeve coupling member on the tubular coupling member.

5. A fountain scrubbing assembly comprising a handle member, a scrubbing member secured to said handle member in such a manner as to establish a sealed chamber between the two said members, integral tubular extension means connected with said handle, tubular hose coupling means fitted within said tubular extension means, means to secure a hose coupling sleeve to the end of said tubular coupling means in a loose fit relationship, said hose coupling sleeve normally receiving therein a mating end of a male hose coupler, a pair of spaced sealing washers within said sleeve whereby to prevent liquid leakage about said coupler sleeve when connected to the male hose coupler, a pair of plates mounted freely within said sleeve and between said sealing washers, one said plate having a substantially central orifice and the other said plate having a centrally offset orifice, and an O-ring of substantially the same diameter as said plates positioned between said plates, said O-ring acting normally to bias said plates apart to establish a space between the facing surfaces of said plates, said plates and O-ring constituting a variable restrictor valve assembly whereby the space between said plates will determine the flow of liquid from the male hose coupler into said scrubbing assembly, the position of the coupling sleeve on the male hose coupler determining the spacing effect of the O-ring on said plates.

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