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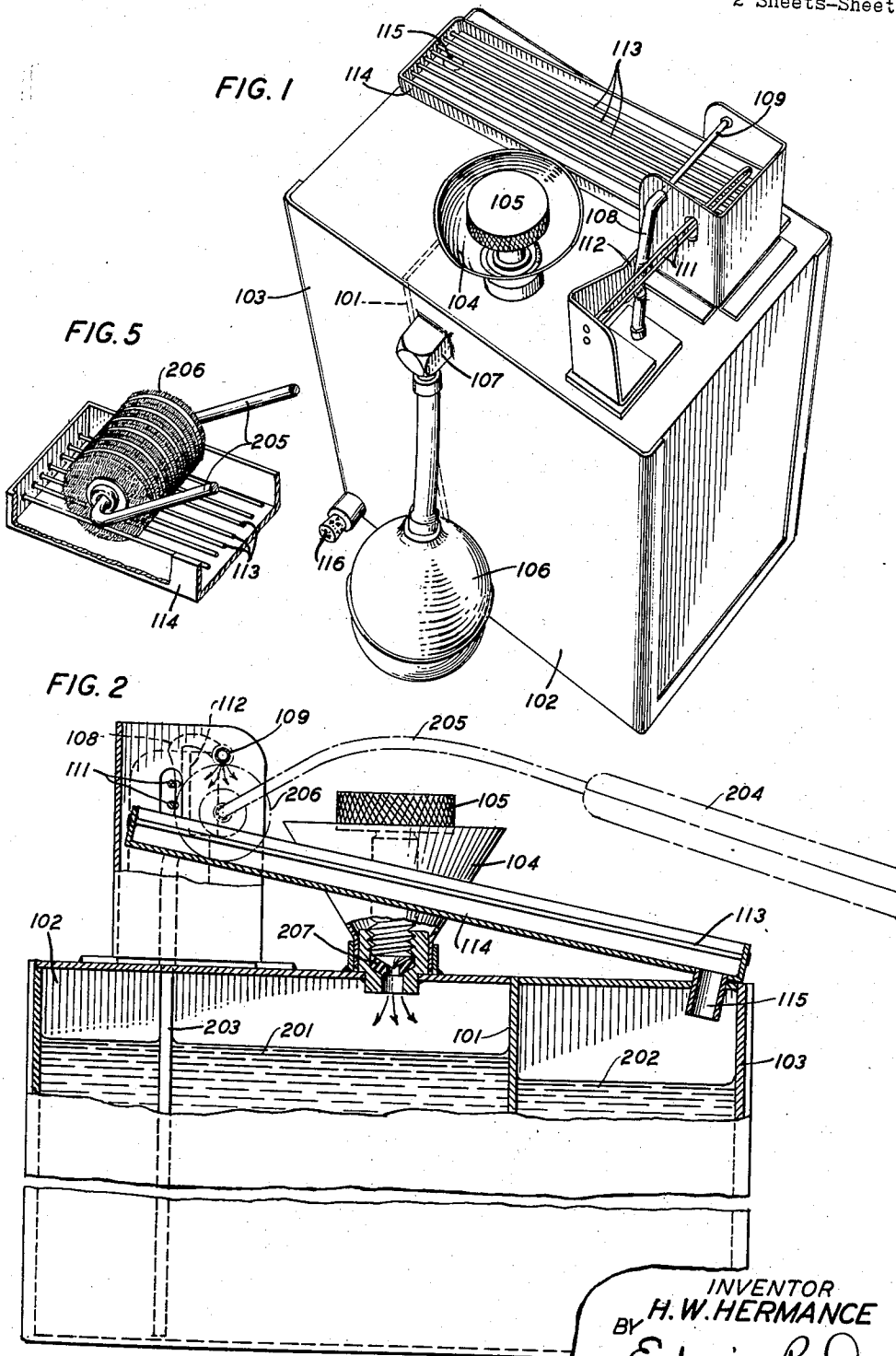
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FOUNTAIN TYPE CLEANER FOR SCRUBBING TOOLS

Filed April 2, 1956

2 Sheets-Sheet 1



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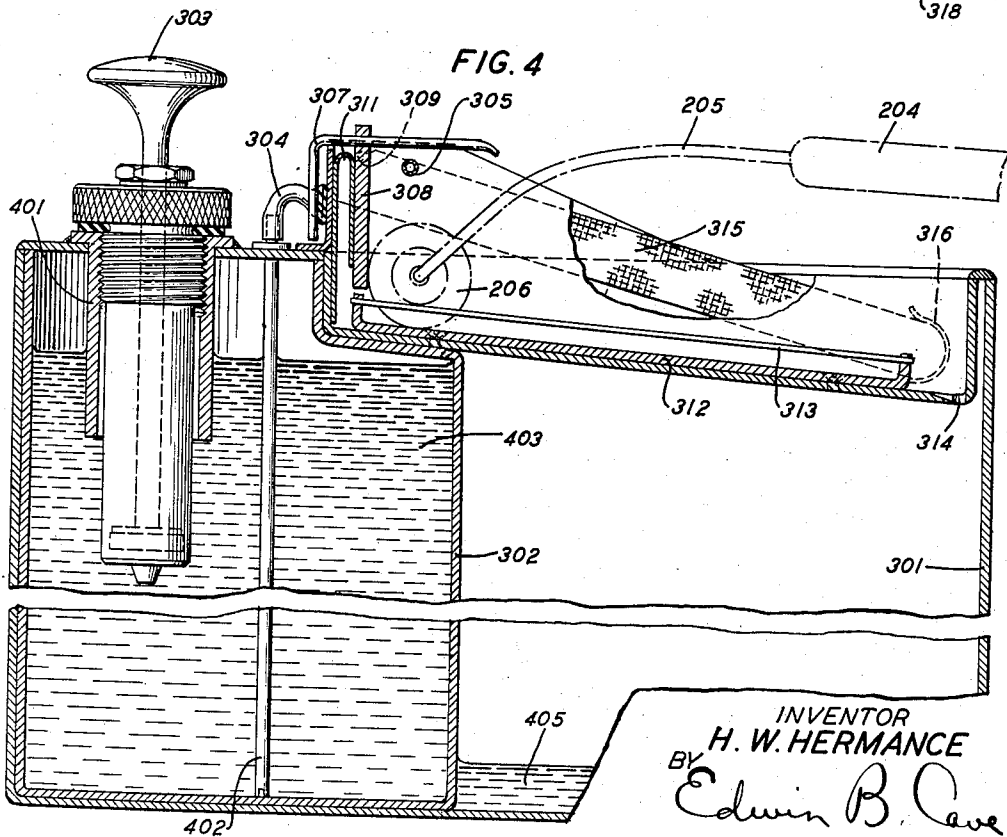
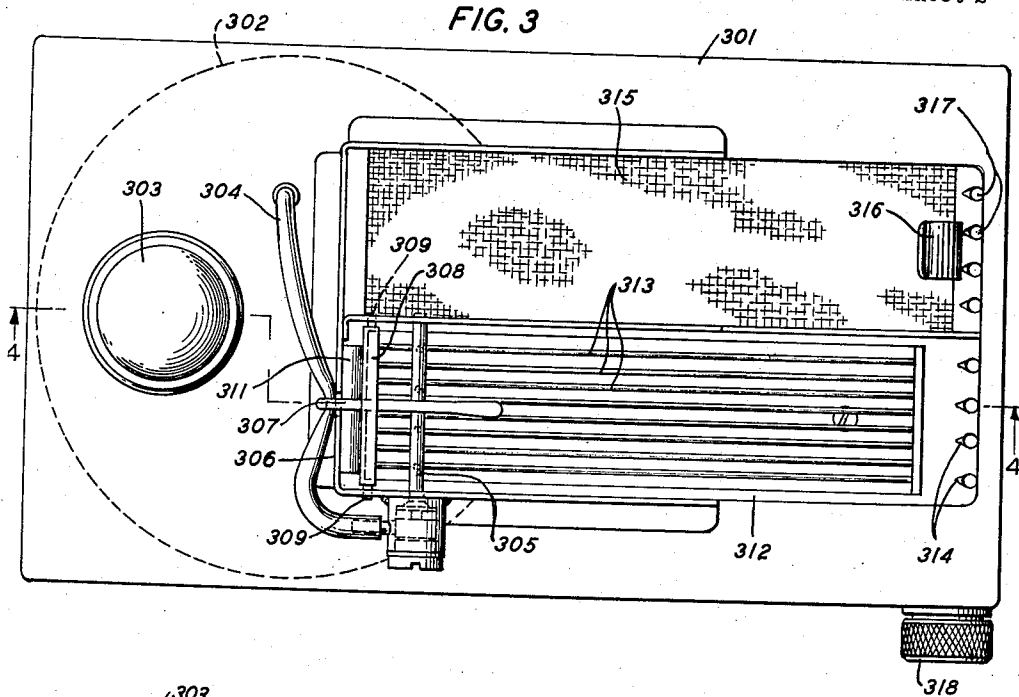
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1

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FOUNTAIN TYPE CLEANER FOR SCRUBBING TOOLS

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Application April 2, 1956, Serial No. 575,664

7 Claims. (Cl. 15—121.2)

This invention relates to a fluid dispenser, and relates more specifically to a fluid dispenser adapted to the cleansing of scrubbing tools.

The scrubbing tools which are particularly adaptable to being cleaned using the invention herein described are themselves disclosed in the copending application of H. W. Hermance, Serial No. 559,550, filed January 17, 1956, and now Patent Number 2,843,869. The tools, as there described in detail, comprise means for holding a scrubbing unit and a rotatable cylindrical scrubbing unit or scrubbing head made up of a plurality of rigid or slightly flexible stacked fabric-faced discs alternately mounted with spacer discs of smaller diameter on a common shaft. Such a device is particularly useful for cleaning "step-by-step" switching banks, known in the telephonic arts. In use of the tool, opposing fabric-faced discs in the scrubbing head, spaced and separated by smaller spacer discs, slip over and between the leaves of a rotary switching bank, cleaning both sides of the leaves simultaneously. Movement of the tool along the switching bank causes rotation of the scrubbing head, imparting a sweeping motion to the fabric cleaning surfaces while on the switching bank.

After use in cleaning several switching banks, the fabric-faced scrubbing discs, whose cleaning surfaces are preferably of a napped or piled fabric, may become loaded with oil residues and the accumulated debris removed from the switches. Cleaning of the fabric scrubbing surfaces is necessary to maintain cleaning efficiency. Because the spacing of adjacent scrubbing discs usually results in a touching of the opposed cleaning surfaces of the discs, a simple rinsing of the scrubbing unit in a cleaning fluid or solvent may be insufficient to dislodge solid particles from the napped or piled fabric surfaces. A flexing of the nap of the scrubbing discs is desirable, particularly if accompanied by a fluid rinse to dissolve or dislodge and to flush off soil.

Any rinsing of the fabric cleaning surfaces is preferably done with separate small portions of clean wash fluid. Repeated rinsing in the same large quantity of fluid would soon result in contamination of the whole fluid supply, resulting in a continuously lowered cleaning efficiency after each successive rinse.

Accordingly it is an object of the present invention to provide means for rapidly, thoroughly, and economically cleaning fabric cleaning surfaces of scrubbing tools.

More specifically it is an object of the present invention to provide means for cleaning a napped fabric scrubbing surface by flexing the pile of the fabric and flushing clean washing fluid thereover.

It is a further object of the invention to dispense cleaning fluid to a fabric surface being cleaned only in limited quantities when such application is most effective, thereby effecting sufficient economy of wash fluid that clean fluid may be used for each application.

Another object of the invention is to accomplish both a flexing of the napped material of a scrubbing tool being cleaned and a flushing thereof with wash fluid in

2

a single operation by the operator, thus saving both on the time and effort expended to clean scrubbing tools.

Still another object of the invention is to provide a device for accomplishing the aforementioned objects which is compact and portable, and which contains in a single unit all the necessary materials and features for cleaning the scrubbing head of a scrubbing tool.

Still other objects of the invention will become apparent from the following description of the invention.

A preferred successful embodiment of the invention, which may be used in illustration of the invention, comprises a portable container, such as of metal, divided into compartments. One such compartment, with airtight fittings, is a reservoir for clean wash fluid to be used in the tool-cleaning operation. A second compartment, separated from the first serves as a collecting receptacle for the fluid after its use in rinsing the scrubbing unit of a scrubbing tool.

In the airtight compartment, unused cleaning fluid is kept under pressure conveniently generated by means such as a squeeze bulb or a small hand pump. Such pressurization permits the transport of the fluid against gravity and, on delivery to the scrubbing surface to be cleaned, adds force to the fluid as an aid in the dislodgement of soil.

The clean fluid, under pressure, is released to the brushing surfaces in a stream or spray, each application being used but once before draining away. The total quantity of fluid used for cleaning is variable by the operator to conform with the degree of soiling of the tools being cleaned.

In the preferred embodiment, a drainboard, used to collect and conduct away spent cleaning fluid, is also outfitted with a series of parallel wires, spaced to fit between successive scrubbing discs in the scrubbing head. Friction of these wires on the nap flexes the nap, removing soiled debris and partially wringing wash fluid from the fabric. Clean fluid is sprayed directly on the fabric surface between the flexing operations, resulting in effective cleansing. Both the flexing and control of the wash fluid supplied to the scrubbing unit are accomplished by simple movement of the scrubbing tool, reducing the cleaning operation to a convenient one-handed operation.

Other features of the invention will become apparent from the following description of the drawings.

In the accompanying drawings:

Fig. 1 is a perspective view of a specific embodiment of the fluid dispenser herein discussed;

Fig. 2 is a side elevation, partly in section, of the same specific embodiment as in Fig. 1, showing some of its structure in more detail;

Fig. 3 is a plan view of a second specific embodiment of the invention;

Fig. 4 is a side elevation, in section, of the specific embodiment shown in Fig. 3, taken along line 4—4 of Fig. 3; and

Fig. 5 is a perspective view, partly in section, showing in detail one means employed in the present invention for flexing napped fabric faces of scrubbing discs.

In Figs. 1 and 2, showing one specific embodiment of the invention, the main body of the dispenser is shown, divided by bulkhead 101 into reservoir 102 for clean wash fluid 201 and second reservoir 103 for spent wash fluid 202. Flared funnel inlet 104 is provided for reservoir 102, to facilitate filling. Inlet 104 is provided also with airtight screw stopper 105 seated on a gasket 207. Squeeze bulb 106 and fitting 107 entrant into reservoir 102 permit an increase of air pressure within reservoir 102 to values above atmospheric. Leading from reservoir 102, where it is attached to rigid tube 203 extending into the reservoir, flexible hose 108 feeds into perforated sprinkler tube 109. When the dispenser is not dis-

pensing fluid, hose 108 remains clamped shut, retaining air pressure within reservoir 102. The clamping is accomplished by pinching pressure on hose 108, exerted by hairpin cantilever spring 111 forcing tube 108 against stationary member 112.

In cleaning scrubbing tools, comprising handle 204, yoke 205 and stacked fabric-faced discs 206 making up a cylindrical scrubbing head, said discs 206 are inserted between parallel spaced wires 113 mounted in inclined drainboard 114. Wires 113, fitting between spaced discs 206 of the scrubbing unit, flex the pile-covered cleaning surfaces of the discs as the scrubbing unit is rolled over drainboard 114, dislodging accumulated particles. When the tool reaches the end of its run up drainboard 114, horizontal pressure of the scrubbing head on hairpin spring 111 relieves the pinching of hose 108 against stationary member 112. Clean wash fluid 201, under pressure, from reservoir 102 is sprayed by perforated sprinkler tube 109 onto fabric discs 206, aiding the solution or flushing away of material soiling the fabric.

Spent wash fluid drains down inclined drainboard 114 through aperture 115 into reservoir 103. Reservoir 103 is fitted with stoppered outlet 116 through which spent fluid may be drained.

In Figs. 3 and 4, another different specific embodiment of the invention is shown. In the figures, reservoir 301, adapted in this instance to receiving and storing spent wash fluid 405 has mounted within it second reservoir, or container, 302 for a supply of clean wash fluid 403. Said second container 302 is fitted with hand pump 303 for generating above-atmospheric pressures within said container 302. Flexible tubing 304, connected to rigid tube 402 extending into container 302, leads from container 302 to spraying means 305. Tubing 304 is normally compressed against stationary member 306 by the action of rod 307, said rod being affixed to plate 308 which is pivoted at points 309. The pressure of leaf spring 311 against plate 308 exerts a counterclockwise torque transmitted to rod 307, favoring compression of tubing 304 against stationary member 306 by rod 307. Drainboard 312, fitted with spaced parallel wires 313 is positioned beneath spraying means 305. Excess wash fluid 405 drains from drainboard 312 through apertures 314 into container 301. In this embodiment, wad 315 of an absorbent material is further provided to aid in taking off excess cleaning fluid from cleaned scrubbing tools. Wad 315, which may be a woven cloth fabric or woven glass fabric for example, is held in position by clip 316. Excess fluid absorbed by wad 315 can drain into container 301 via apertures 317. Outlet means 318 are provided for emptying container 301. A filling inlet for reservoir 302 is provided by removal of pump 303 from threaded fitting 401.

In Fig. 4, a rotary scrubbing tool, comprising handle 204, yoke 205, and rotary scrubbing discs 206 is shown in position for cleaning. Discs 206 are interleaved with wires 313 fitted into drainboard 312. Forward pressure of discs 206 on plate 308, causing compression of leaf spring 311, will release the compressive force of rod 307 on tubing 304, permitting fluid 403 to flow to spraying or dispensing means 305.

Fig. 5 shows the fit of scrubbing discs 206 of a scrubbing head, held by yoke 205, into drainboard 114 equipped with spaced parallel wires 113. Rolling movement of the scrubbing head in the slots formed by wires 113 will flex the nap of the fabric facing on discs 206.

It is to be understood that the scope and spirit of the invention should not be construed to be necessarily limited by the descriptions of specific embodiments hereinbefore presented, as the embodiments are intended to be exemplary and illustrative of the invention only.

What is claimed is:

1. A device for cleansing a scrubbing tool made up of a plurality of spaced scrubbing discs having napped fabric faces for scrubbing, said device comprising a container for

clean washing fluid and a container for spent washing fluid, flushing means comprising a perforated member operable to play clean washing fluid over said scrubbing discs, connecting means for conducting clean washing fluid from the first of said fluid containers to said flushing means, regulatory means, comprising an elastic member, said regulatory means being restrictive of fluid flow through said connecting means to said flushing means when in a position of rest, said regulatory means, further, being so constructed as to be responsive to pressure from said scrubbing tool to permit fluid flow through said connecting means to said flushing means, draining means for conducting fluid, after it has contacted said scrubbing discs, to the second of said fluid containers, and means adjacent to said flushing means for flexing the nap of said scrubbing discs, said flexing means composed solely of a plurality of parallel longitudinal members adapted for insertion between said spaced scrubbing discs.

2. A device for cleansing a scrubbing tool made up of a plurality of spaced scrubbing discs having napped fabric faces for scrubbing, said device comprising a source of clean washing fluid under pressure, flushing means for directing clean washing fluid at said scrubbing discs of said scrubbing tool, connecting means for conducting clean washing fluid from said source to said flushing means, regulatory means for controlling the flow of fluid through said connecting means, said regulatory means being constructed so as to be actuated by contact with said scrubbing tool, a container for storing spent washing fluid, draining means for conducting washing fluid, after it has contacted said scrubbing discs, to said container for spent fluid, and means adjacent to said flushing means for flexing the nap of said scrubbing discs, said flexing means consisting solely of a plurality of filamentary elements adapted for insertion between said spaced scrubbing discs.

3. A device for cleansing a scrubbing tool made up of a plurality of spaced scrubbing discs having napped fabric faces for scrubbing, said device comprising separate containers for clean washing fluid under pressure and spent fluid, flushing means for directing clean washing fluid at said scrubbing discs of said scrubbing tool, connecting means for conducting clean washing fluid from said container for clean fluid to said flushing means, regulatory means for controlling the flow of clean fluid through said connecting means, said regulatory means being so constructed as to be actuated by contact with said scrubbing tool, means adjacent to said flushing means for flexing the nap of said scrubbing discs, said flexing means consisting solely of a plurality of filamentary elements adapted for insertion between said scrubbing discs, and draining means for conducting spent washing fluid from said flushing means to said container for spent fluid.

4. The device as described in claim 3 wherein said draining means for conducting spent washing fluid comprises a drainboard positioned beneath and downwardly inclined from said flushing means to said container for spent fluid.

5. A fluid dispenser for cleaning scrubbing tools, said dispenser comprising separate fluid containers for clean washing fluid under pressure and spent washing fluid, one of said containers being substantially air-tight, means for compression of clean washing fluid within said air-tight fluid container, flushing means comprising a perforated member, compressible connecting means for conducting clean washing fluid from said air-tight fluid container to said flushing means, regulatory means normally restricting fluid flow by compression of said compressible connecting means, said regulatory means comprising a spring member so constructed as to be actuated by pressure exerted thereon by a scrubbing tool being cleaned to relieve compression of said compressible connecting means by said regulatory means, permitting flow of fluid through said connecting means, and means consisting solely of a plurality of linear parallel filamentary elements mounted above and in substantially parallel relations with a drainboard

5

positioned beneath said flushing means, which drainboard drains spent washing fluid into the separate container therefor.

6. A fluid dispenser comprising two compartments for holding liquids, one of said compartments being substantially air-tight, means for generating air pressures greater than atmospheric within said air-tight compartment, a rigid tube extending to near the bottom of said air-tight compartment and connected by compressible tubing with flushing means comprising a perforated tube, a cantilever spring compressing said compressible tubing against an unyielding member in such manner that pressure against said cantilever spring, opposing the compressive force of said spring, releases compression on said compressible tubing permitting fluid under pressure to flow unimpeded therethrough from said air-tight compartment by way of said rigid tube contained in said compartment to said flushing means, and a planar drainboard positioned beneath said flushing means so as to drain into the second of said two compartments, said drainboard having fitted therein a plurality of coplanar spaced wires parallel to one another, and parallel to and above the plane of said drainboard.

7. A fluid dispenser comprising two compartments for holding liquids, one of said compartments being substantially air-tight, means for generating air pressures greater than atmospheric within said air-tight compartment, a rigid tube extending to near the bottom of said air-tight

6

compartment and connected by compressible tubing with flushing means comprising a perforated tube, regulatory means comprising a pivoted plate and rod affixed to said plate and a leaf spring exerting torque on said plate and rod to compress said compressible tubing against an unyielding member in such manner that pressure against said plate compressing said leaf spring and creating a counter-torque on said pivoted plate and rod affixed to said plate releases compression on said compressible tubing permitting fluid under pressure to flow unimpeded therethrough from said air-tight compartment by way of said rigid tube contained in said compartment to said flushing means, and a planar drainboard positioned beneath said flushing means so as to drain into the second of said two compartments, said drainboard having fitted therein a plurality of coplanar spaced wires parallel to one another, and parallel to and above the plane of said drainboard.

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