HAND-HELD CARPET CLEANING DEVICE

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ABSTRACT

The hand-held carpet cleaning device includes a generally arcuate housing enclosing a fluid reservoir, a fluid exit port and an absorbent pad mounted to the housing. The fluid exit port directs fluid exiting the port towards the carpet area in front of the device. The pad has a layer of absorbent material and a mesh layer situated over the absorbent material layer. The mesh layer is made of nylon, has a substantially flat, low friction surface and a plurality of openings of approximately 4 mm diameter. A ring-like member removably mounts the pad to the front of the housing. The member includes resilient carpet agitating protrusions. The device housing also has a window for observing the fluid level in the reservoir. The fluid entrance port for the reservoir has a funnel-shaped recess associated with it. A bracket is provided for hanging the housing on a wall. The bracket includes a compartment for retaining absorbent pads when not in use.
HAND-HELD CARPET CLEANING DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Not Applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

REFERENCE TO A "SEQUENCE LISTING", A TABLE, OR A COMPUTER PROGRAM LISTING APPENDIX SUBMITTED ON COMPACT LISTING DISC

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention
[0005] The present invention relates to carpet cleaning devices and more particularly to a hand-held carpet cleaning device that dispenses cleaning fluid from a reservoir, includes a unique mesh pad removably mounted to the front of the device to absorb fluid from the carpet, a funnel-shaped fluid entrance port to facilitate refilling the reservoir and a liquid level observation window, and to a wall mount for the device including a compartment to retain extra pads.

[0006] 2. Description of Prior Art Including Information Disclosed Under 37 CFR 1.97 and 1.98
[0007] Various types of carpet cleaning devices are known in the art. However, none of those devices include a hand-held housing which dispenses cleaning fluid to the carpet area being cleaned and utilizes a mesh pad mounted to the front that glides over the carpet area and absorbs the dispensed fluid. Further, none include a structure for removably mounting the pad that carries multiple resilient protrusions for working the cleaning fluid into the carpet as the device is moved.

[0008] A problem with carpet cleaning devices that have a refillable fluid reservoir is that the reservoirs are difficult and messy to refill because of the location and/or configuration of the fluid entrance port. Accordingly, it would be advantageous to have a fluid entrance port which will funnel the fluid into the reservoir in order to facilitate refilling of the fluid reservoir.

[0009] Another problem with carpet cleaning devices that include a housing enclosing a fluid reservoir is that it is difficult to determine when the reservoir is empty and requires refilling, without removing the fluid entrance port closure. Accordingly, it would be advantageous to have a means for ascertaining the fluid level in the reservoir without having to remove the closure of the fluid entrance port.

[0010] Another problem with hand-held devices is that there is no means for mounting same to the wall such that the device is readily available when needed. Accordingly, it would be advantageous to have a wall mounting bracket for the device.

[0011] Another problem with carpet cleaning devices that utilize disposable and/or reusable absorbent pads is that there is no way to store extra pads. Accordingly, it would be advantageous to provide a mounting bracket capable of retaining extra absorbent pads.

[0012] It is, therefore, a prime object of the present invention to provide a hand-held carpet cleaning device.

[0013] It is another object of the present invention to provide a hand-held carpet cleaning device that dispenses cleaning fluid and utilizes a mesh pad that glides over the carpet area being cleaned and absorbs the dispensed fluid from the carpet.

[0014] It is another object of the present invention to provide a hand-held carpet cleaning device wherein the absorbent pad is removably mounted to the front of the device.

[0015] It is another object of the present invention to provide a hand-held carpet cleaning device wherein the absorbent pads are disposable and/or reusable after washing.

[0016] It is another object of the present invention to provide a hand-held carpet cleaning device that has a structure for removably mounting the absorbent pad carries multiple resilient protrusions for working the cleaning fluid into the carpet as the device is moved.

[0017] It is another object of the present invention to provide a hand-held carpet cleaning device that has a fluid entrance port structured to funnel fluid into the port.

[0018] It is another object of the present invention to provide a hand-held carpet cleaning device that has means for observing the fluid level in the reservoir without having to remove the closure of the fluid entrance port.

[0019] It is another object of the present invention to provide a hand-held carpet cleaning device that has a wall mounting bracket.

[0020] It is another object of the present invention to provide a hand-held carpet cleaning device that has a mounting bracket with a compartment for retaining extra absorbent pads.

BRIEF SUMMARY OF THE INVENTION

[0021] In accordance with one aspect of the present invention, a hand-held carpet cleaning device is provided including a housing enclosing a fluid reservoir, a fluid exit port and absorbent pad mounted to the housing. The pad has a layer of absorbent material and a mesh layer situated over the absorbent material layer.

[0022] The device has means for removably mounting the pad to the housing. The mounting means includes carpet agitating means. The carpet agitating means takes the form of a plurality of resilient protrusions.

[0023] The pad mounting means includes a member with a rim defining an opening smaller than the pad. The member is adapted to engage a flange on the housing. Preferably, the member is also formed of resilient material.

[0024] The fluid exit port is mounted on the housing and directs fluid exiting the port towards the carpet area in front of the device.

[0025] The mesh layer of the absorbent pad is made of nylon. It has a substantially flat, low friction surface with a plurality of openings of approximately 4 mm diameter.

[0026] The device also has a window in the housing for observing the fluid level in the reservoir. Preferably, the window is elongated.

[0027] The housing is preferably arcuate.

[0028] In accordance with another aspect of the present invention, a hand-held carpet cleaning device is provided having a housing enclosing a fluid reservoir. A fluid entrance port for the reservoir is provided. A funnel-shaped recess is associated with the fluid entrance port.

[0029] The device also includes a cap for closing the entrance port. The cap has external screw threads. The
entrance port has internal screw threads adapted to engage the external screw threads of the cap to removably mount the cap in the port.

In accordance with another aspect of the present invention, a combination including a hand-held carpet cleaning device having a housing and a bracket for hanging the housing is provided. A cleaning pad is mounted to the housing. The bracket is adapted to hang the housing on a surface, such as a wall.

The bracket includes a compartment for retaining absorbent pads when not in use.

**BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF DRAWINGS**

FIG. 1 is a perspective view of the device of the present invention as used would appear nested in the wall mounting bracket;

FIG. 2 is an exploded perspective view of the device and bracket of FIG. 1;

FIG. 3 is a perspective view of the device with the fluid entrance cap, pad and pad mounting member exploded;

FIG. 4 is a perspective view of the device without the fluid entrance port, pad and mounting member, showing the reservoir being refilled.

FIG. 5 is a side plan view of the device;

FIG. 6 is a perspective view of the absorbent pad with its components exploded; and

FIG. 7 is an enlarged idealized view of a section of the absorbent pad.

**DETAILED DESCRIPTION OF THE INVENTION**

As seen in FIGS. 1, 2 and 5, the present invention is a hand-held carpet cleaning device which consists of a generally arcuate, rigid housing 10. Housing 10 has a rear handle portion 12 and a forward portion 14 enclosing a cleaning fluid reservoir 16, the latter being visible in FIG. 5.

Reservoir 16 is a bladder with a flexible wall generally the shape of the interior surface of housing portion 14. A fluid exit port 18 is mounted in a recess 20 on the top surface of the housing. Also located on the top surface of housing 10, at a location behind port 18 and toward the rear of portion 14, is a pushbutton 22.

Pushbutton 22 is mounted to housing 10 by a flexible ring 24 that permits the button to be depressed relative to the housing. Depressing button 22 squeezes the fluid reservoir bladder 16 such that fluid from the bladder is expelled through port 18, when the device is held in the orientation shown in FIG. 5. Port 18 directs the fluid exiting the port toward the area in front of the device, where the carpet being cleaned would be situated.

Mounted on the front end of housing 10 is an absorbent pad 26. Pad 26 includes a layer 28 of absorbent material and a mesh layer 30 situated over the absorbent layer, see FIG. 6. Pad 26 is disposable and/or reusable after washing.

A ring-like mounting member 32 is provided for removably mounting the absorbent pad to the front of the housing. Member 32 is made of resilient material such as rubber and defines an opening that is slightly smaller than the size of pad 28. The pad is held securely in place on the front of the housing when member 32 is mounted on the housing.

As seen in FIG. 3, the front surface 34 of housing 10 has a circumferential flange 36. Flange 36 is adapted to be received within a channel or groove 38 in the interior surface of member 32 to removably mount the member and pad 28 on the front of the housing.

Member 32 carries a plurality of carpet agitating protrusions 40. Protrusions 40 are formed of resilient material, preferably the same resilient material as member 32 and may be integral with member 32. The purpose of protrusions 40 is to agitate the carpet fibers as the housing is moved relative to the carpet surface after cleaning fluid from port 18 is sprayed on the carpet. This will facilitate the removal of dirt from the carpet fibers as the fluid is absorbed by pad 26.

Pad 26 consists of mesh layer 30 which is preferably made of nylon. The nylon mesh has a substantially flat, low friction surface with a plurality of openings approximately 4 mm diameter, as illustrated in FIG. 7. The mesh surface has a low coefficient of friction such that the pad can slide along the surface of the carpet without substantial resistance.

Mesh layer 30 overlays absorbent layer 28 and functions to hold the surface of absorbent layer 28 in place and at the same time allows the dirt containing fluid from the carpet to pass through the mesh layer so that it can be absorbed by absorbent layer 28 as the device is moved over the surface of the carpet.

As seen in the figures, housing 10 has a window for observing the fluid level in reservoir 16. The window is elongated so as to follow the lines of the arcuate housing.

As seen in FIGS. 3 and 4, a fluid entrance port 44 is provided in a recess 46 in surface 34 to permit the fluid reservoir 16 to be refilled by a bottle 48. Recess 46 is tapered inwardly toward port 44 to create a funnel such that all of the fluid is directed into port 44.

A cap 50 is provided for closing fluid entrance port 44. The cap has external screw threads 52 adapted to engage internal screw threads in the port to such that the cap can be removed by rotating it relative to the housing.

As best seen in FIG. 2, a bracket 56 is provided for hanging the device on a vertical surface, such as a wall. Bracket 56 includes a housing engaging member 58 within which the device nests. Bracket 56 also has a pad retaining compartment 60 for holding absorbent pads when not in use. Bracket 56 may be mounted to a vertical surface by any conventional mounting means, such as screw 62.

It will now be appreciated that the present invention is a hand-held carpet cleaning device including a generally arcuate housing enclosing a fluid reservoir, a fluid exit port and an absorbent pad mounted to the front of the housing. The fluid exit port is mounted on the housing and directs fluid exiting the port towards the carpet area in front of the device.

The pad has a layer of absorbent material and a mesh layer situated over the absorbent material layer. The mesh layer is nylon. It has a substantially flat, low friction surface. The mesh layer has a plurality of openings of approximately 4 mm diameter.

The device has means for removably mounting the pad to the housing. The mounting means includes carpet agitating means which takes the form of a plurality of protrusions formed of resilient material.
The pad mounting means includes a member with a rim defining an opening smaller than the pad. The member is adapted to engage a flange on the housing. Preferably, the member is also formed of resilient material.

The device also has a window in the housing for observing the fluid level in the reservoir. Preferably, the window is elongated.

A fluid entrance port for the reservoir a funnel-shaped recess associated with it to facilitate refilling the reservoir through the entrance port.

A bracket is provided for hanging the housing on a wall. The bracket includes a compartment for retaining cleaning pads when not in use.

While only a single preferred embodiment of the present invention has been disclosed for purposes of illustration, it is obvious that many modifications and variations could be made thereto. It is intended to cover all of those modifications and variations which fall within the scope of the present invention, as defined by the following claims.

1. A hand-held carpet cleaning device comprising a housing enclosing a fluid reservoir, a fluid exit port, and an absorbent pad mounted to said housing, said pad comprising a layer of absorbent material and a mesh layer situated over said absorbent material layer.

2. The device of claim 1 further comprising means for removably mounting said pad to said housing, said mounting means comprising carpet agitating means.

3. The device of claim 2 wherein said pad mounting means comprises a member with a rim defining an opening smaller than said pad, said member being adapted to engage said housing.

4. The device of claim 2 wherein said pad mounting means comprises a member and a flange on said housing adapted to be engaged by said member.

5. The device of claim 2 wherein said carpet agitating means comprises a plurality of protrusions.

6. The device of claim 3 wherein said member is formed of resilient material.

7. The device of claim 5 wherein said protrusions are formed of resilient material.

8. The device of claim 1 wherein said fluid exit port directs fluid exiting said reservoir towards the area in front of said device.

9. The device of claim 1 wherein said mesh layer is made of nylon.

10. The device of claim 1 wherein said mesh layer has a substantially flat, low friction surface.

11. The device of claim 1 wherein said mesh layer comprises a plurality of openings approximately 4 mm in diameter.

12. The device of claim 1 further comprising a window in said housing for observing the fluid level in said reservoir.

13. The apparatus of claim 12 wherein said window is elongated.

14. The apparatus of claim 1 wherein said housing is arcuate.

15. A hand-held carpet cleaning device comprising a housing enclosing a fluid reservoir, a fluid entrance port for said reservoir and a funnel-shaped recess associated with said fluid entrance port.

16. The device of claim 15 further comprising a cap for closing said fluid entrance port, said cap comprising screw threads and said housing comprising screw threads adapted to engage said cap screw threads.

17. In combination, a hand-held carpet cleaning device comprising a housing and an absorbent pad mounted to said housing, and a bracket for hanging said housing on a surface.

18. The combination of claim 17 wherein said bracket comprises means for retaining an absorbent pad.