Nov. 30, 1943. D. G. SMELLIE 2,335,460

SUCTION CLEANER

Filed June 6, 1941 2 Sheets-Sheet 1

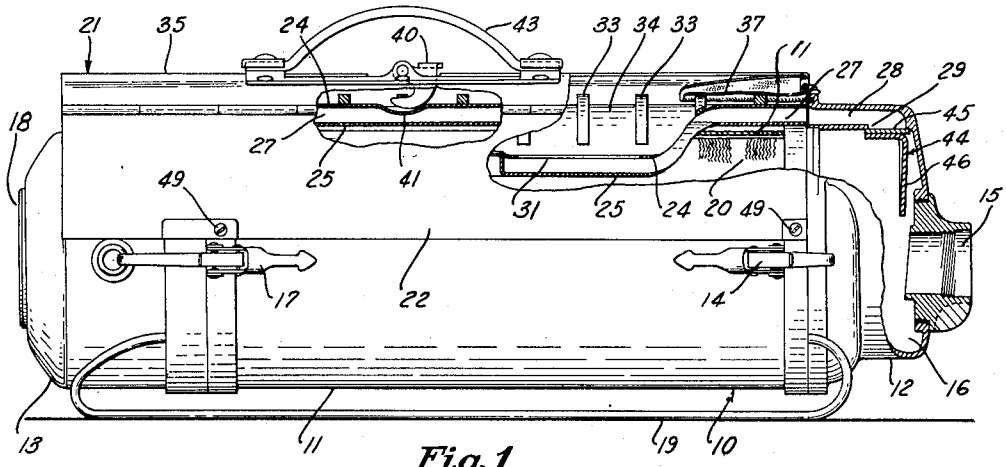


Fig. 1

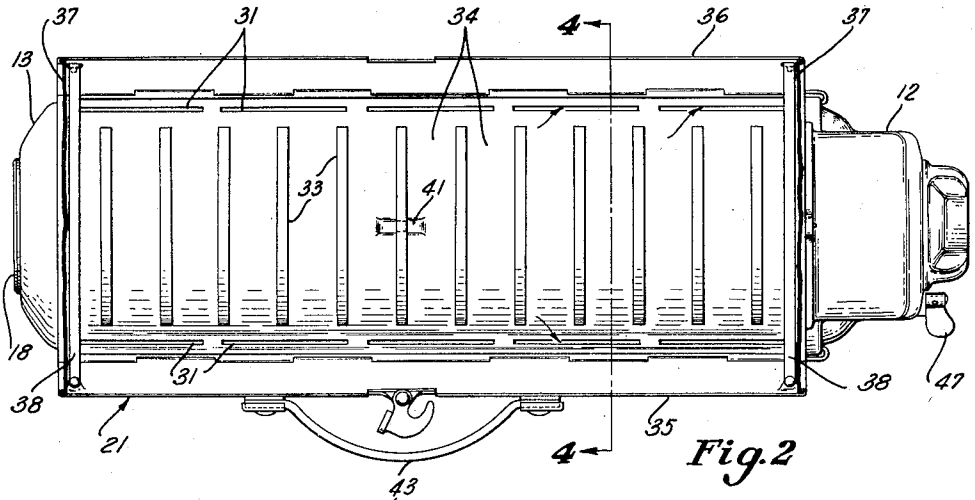


Fig. 2

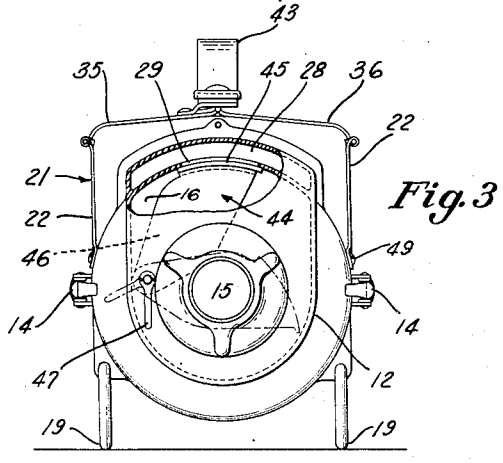


Fig. 3

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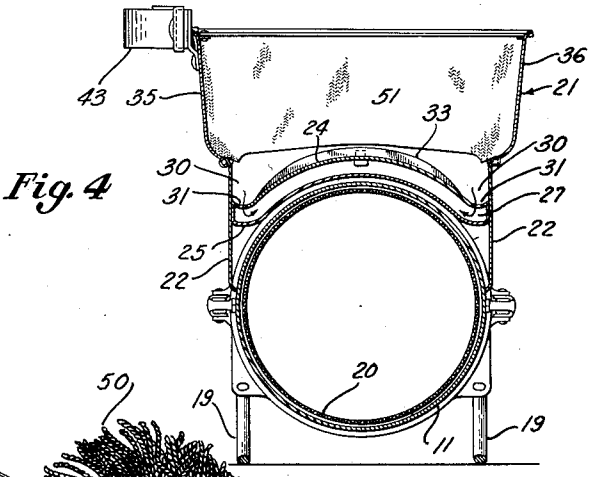


Fig. 4

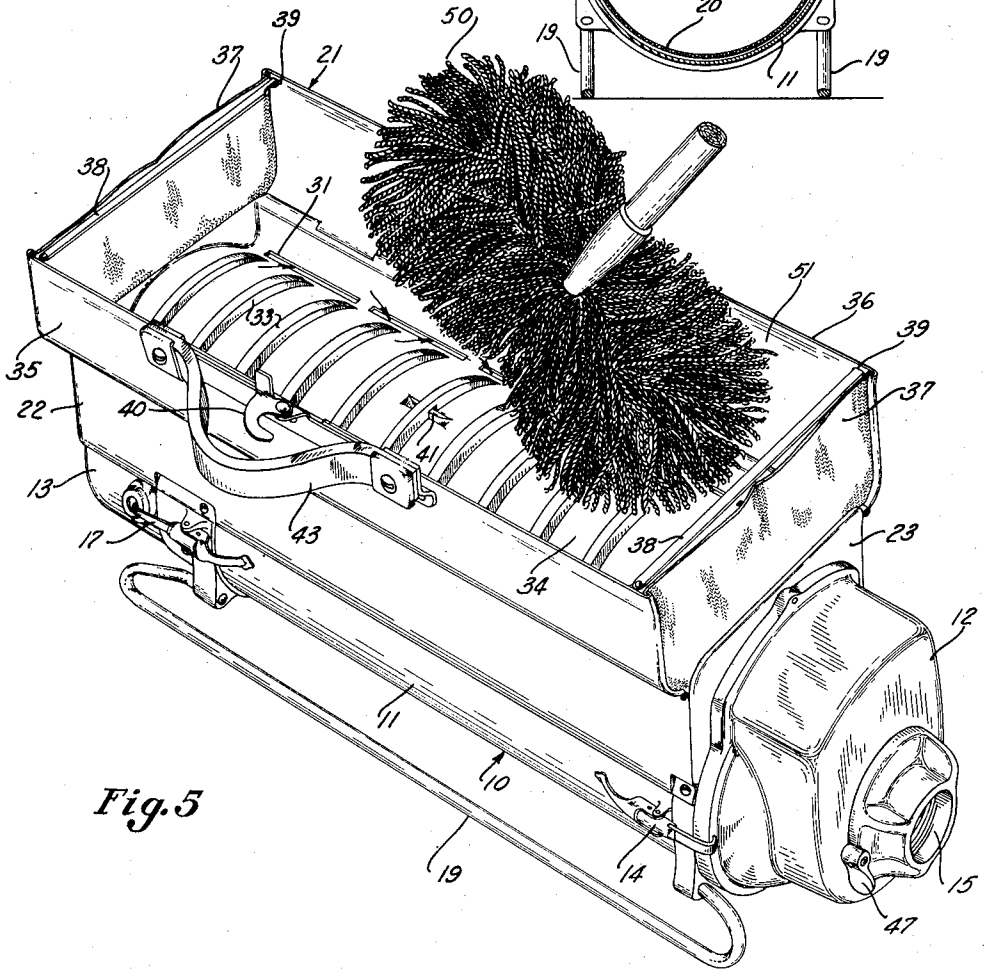


Fig. 5

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SUCTION CLEANER

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6 Claims. (Cl. 15—9)

This invention relates to improvements in suction cleaners and more particularly to a suction cleaner having a dust mop cleaning device.

It is an object of the invention to provide a new and improved suction cleaner. Another object is to provide a dust mop cleaning device which forms part of the suction cleaner. A further object is to provide a mop cleaner in a suction cleaner without obstructing the surface cleaning nozzle of the cleaner. Another object is to provide a suction cleaner embodying valve means for converting the suction cleaner from normal surface cleaning to a machine for removing dust from a mop head. A further object is to provide a suction cleaner having a mop receiving receptacle which is collapsible when not in use to conform substantially to the contour of the cleaner body. Another object is to provide a mop cleaning device which is attachable to tank type cleaners. Other objects and advantages of the invention will be apparent from the specification and drawings, wherein:

Figure 1 is an elevational view partly in section of an embodiment of the invention showing the mop cleaner receptacle in collapsed position;

Figure 2 is a plan view showing the mop cleaner receptacle open for receiving a mop head;

Figure 3 is a front view of the embodiment shown in Figure 1;

Figure 4 is a section along the line 4—4 of Figure 2, and

Figure 5 is a perspective view showing a mop head being placed in the mop cleaning chamber.

The embodiment of the invention herein disclosed comprises a suction cleaner having a hollow casing or body 10 including a central substantially cylindrical casing section 11 and front and rear caps or covers 12 and 13. The front cap 12 is removably secured to the central casing section 11 by a pair of clips 14 and is provided with a threaded opening 15 which communicates with a chamber 16 formed between the cover 12 and the extreme end of the central casing section 11. Adapted to be threaded into the opening 15 is an unshown hose provided with a surface cleaning nozzle in the manner well known in the art. The end cap 13 is removably secured to the central casing section 11 by a pair of clips 17 and is provided with an outlet opening 18. A pair of skids 19 are attached to the central casing section 11 and end cap 13 to support the cleaner on the floor and to permit movement of the cleaner by pulling on the unshown hose.

The interior of the central casing section 11 adjacent the front cap 12 is provided with a dirt filtering bag 20. An unshown fan and motor are arranged between the end cap 13 and the bag 20. Operation of the motor and fan creates suction which draws the dirt-laden air from the surface nozzle through the inlet opening 15 and chamber 16 into the bag 20 and clean air is discharged through the outlet opening 18.

Supported on the central casing section 11 is a mop cleaning device comprising a receptacle 21 having side and end walls 22 and 23 respectively, extending vertically upwardly above the top of the central casing section 11. The bottom of the receptacle 21 is formed by a pair of spaced members 24 and 25 which are arcuate in contour to conform to the shape of the central casing section 11 and are secured to the side and end walls 22 and 23. The spaced members 24 and 25 form a passageway 27 which is connected to the suction system of the cleaner by means of a passageway 28 and opening 29 in the cap 12. The member 24 forms the bottom wall of the mop receptacle and due to its convex configuration forms depressed areas 30 extending longitudinally along the side wall 22 without increasing the height of the cleaner. A plurality of openings 31 are provided in the bottom wall 24 in the depressed areas 30 and communicate with the suction passageway 27. Along the upper surface of the bottom wall 24 are transversely extending spaced ribs 33 forming a rough surface along which a mop head may be moved to dislodge dirt. A plurality of channels 34 are formed between the spaced ribs 33 and operate to direct the dirt removed from the mop head to the openings 31.

The upper part of the mop receptacle comprises collapsible side walls 35 and 36 pivotally mounted on the lower side walls 22, while the end walls 37, 37 are of flexible material secured to the lower end walls 23 and the upper side walls 35 and 36. A strut 38 is pivoted at each end of the side wall 35 and spans the receptacle opening for removable engagement in openings 39 in the side wall 36, to thereby support the side walls in extended position, thus forming an enlarged mop chamber 51. A latch 40 is pivotally supported on one edge of the side wall 35 and is removably inserted in a recess 41 in one of the ribs 33 to lock the side walls 35 and 36 in collapsed position. A handle 43 is mounted on the side wall 35 and is offset with respect thereto so as to be positioned along the longitudinal center line of the cleaner when the mop receptacle is collapsed, whereby the suction cleaner is well

balanced and can be easily carried from place to place.

Pivotally mounted in the front wall of the cap 12 is a valve member 44 having a valve 45 to close and open the port 29, and is further provided with a valve 46 to control the inlet opening 15 in the cap 12. A lever 47 is arranged exteriorly of the end cap 12 and is operable to manipulate the valve member 44 for selectively controlling the openings 15 and 29. If desired, the lever 47 can be connected to the collapsible walls of the mop receptacle whereby upon raising the side walls 35 and 36, the valve will uncover the opening 29 and close the opening 15, and upon collapsing the side walls the opening 29 will be closed and the inlet opening 15 is uncovered.

The mop cleaning receptacle and front cap 12 are connected together as a unit and assembled on the cleaner casing section 11 by means of screws 49 threaded through the lower side walls 22 into the cleaner casing section 11, and by means of the clips 14 which secure the front cap 12 in position at the inlet to the casing section 11. The mop cleaning receptacle can be attached to the conventional tank type cleaner by removing its front cap and attaching the receptacle 21 and front cap 12 as a unit to the casing section 11.

In operation, if it is desired to employ the suction cleaner for surface cleaning, the lever 47 is manipulated to shift the valve member 44 into full line position in Figure 3 to thereby close the opening 29 and uncover the inlet opening 15. Rotation of the fan and movement of the nozzle over the surface being cleaned causes the dirt-laden air to be drawn in through the surface nozzle and hose into the dust bag 20 which removes the dirt while permitting clean air to be discharged through the outlet 18. During this cleaning operation, the dust receptacle may be collapsed as in Figure 1, or maintained in operative position as shown in Figure 5.

As the operator proceeds with the cleaning, it is usually customary to employ a dry dust mop 50 to remove the dust on the exposed floor surfaces. When it is desired to remove the dirt from the dust mop 50 the latch 40 is unlocked and the side walls 35 and 36 pivoted upwardly and then the free ends of the struts 38, 38 are inserted in the openings 39 in the side wall 36 to form the enlarged mop chamber 51. The lever 47 is shifted to move the valve member 44 from the full line position in Figure 3 to the dotted line position to close the inlet opening 15 and uncover the opening 29, whereby the passageways 27 and 28 in the mop receptacle are connected to the suction system of the cleaner. The mop 50 may be shaken in the chamber 51 and moved across the ribs 33 to dislodge embedded dirt, which is then removed from the chamber 51 by the air stream passing from the chamber 51 through the openings 31, passageways 27 and 28 and chamber 16 into the dust bag 20. When it is desired to store the cleaner, the mop receptacle is collapsed by pivoting the struts 38, 38 to position along the side walls 35, and the flexible end walls 37, 37 are folded inwardly of the chamber 51 as the side walls 35 and 36 are moved toward the bottom wall 24 of the receptacle. Thereafter, the latch 40 is locked in the recess 41 to permit the cleaner to be carried by the handle 43.

I claim:

1. A suction cleaner comprising an elongated body, suction creating means in said body, a mop receptacle for receiving dirt from a mop head extending substantially the length of said elongated body and having collapsible walls which when extended project upwardly of said cleaner body to define an opening for receiving a mop head in said receptacle, said walls when collapsed conforming substantially to the contour of said cleaner body, a handle mounted on said collapsible walls, means for locking said handle to the cleaner body for carrying the cleaner, and means connecting said receptacle to said suction means for removing dirt discharged from the mop head into said receptacle.

2. A suction cleaner, comprising a cleaner body having an inlet for dirt-laden air during normal cleaning, suction-creating means, and a passageway between said inlet and suction creating means, a mop receptacle mounted on said body without obstructing said inlet, said mop receptacle having a bottom wall and pivoted side walls, means forming part of said side walls to maintain said side walls in projected position to receive a mop to be cleaned and shiftable for collapsing said side walls to close said receptacle, conduit means connecting the interior of said mop receptacle with said passageway, and valve means for closing said inlet and connecting said conduit means to said passageway for conveying the dirt removed from the mop in said receptacle to said suction creating means.

3. A suction cleaner, comprising a cleaner body having an inlet for dirt-laden air during normal cleaning, suction creating means, and a passageway between said inlet and suction-creating means, a mop receptacle mounted on said body without obstructing said inlet, said mop receptacle having spaced bottom walls defining a conduit therebetween and pivoted side walls, said side walls being movable to projected position to receive a mop to be cleaned and collapsible to close said receptacle, said conduit connecting the interior of said mop receptacle with said passageway, and valve means for closing said inlet and connecting said conduit to said passageway for conveying the dirt removed from the mop in said receptacle to said suction creating means.

4. An accessory for a suction cleaner having suction creating means, an inlet for dirt-laden air removed from a surface during normal cleaning and a passageway connecting the inlet to the suction creating means, and comprising a mop receptacle removably mounted on said cleaner without obstructing said inlet, said mop receptacle having a bottom wall and pivoted side walls, means forming part of said side walls to maintain said side walls in projected position to receive a mop to be cleaned, and shiftable for collapsing said side walls over said bottom wall to cover the latter, conduit means connecting the interior of said mop receptacle with said passageway, and valve means for closing said inlet and connecting said conduit means to said passageway for conveying the dirt removed from the mop in said receptacle to said suction creating means.

5. An accessory for a suction cleaner having suction creating means, an inlet for dirt-laden air removed from a surface during normal cleaning and a passageway connecting the inlet to the suction creating means, and comprising a mop receptacle removably mounted on the cleaner without obstructing said inlet, said mop receptacle having spaced bottom walls defining a conduit therebetween and pivoted side walls, said side walls being movable to projected position with re-

spect to said bottom walls to receive a mop to be cleaned and collapsible to cover said bottom walls, said conduit connecting the interior of said mop receptacle with said passageway, and valve means for closing said inlet and connecting said conduit to said passageway for conveying the dirt removed from the mop in said receptacle to said suction creating means.

6. An accessory for a suction cleaner having a body and suction creating means, and comprising a mop receptacle and end cap removably mounted on the cleaner body, said receptacle being attached atop the cleaner body and said end cap forming an end of the cleaner body, said end cap having an inlet for dirt removed in normal surface cleaning and communicating with suction creating means, said receptacle having collapsible side walls which when projected form a receptacle for a mop to be cleaned, conduit means in said accessory connecting the interior of said receptacle with said suction creating means, and valve means for closing said inlet and connecting said conduit means with the suction creating means to remove from said receptacle the dirt removed from the mop.

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