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VALVED CLEANING TOOL FOR SUCTION CLEANERS

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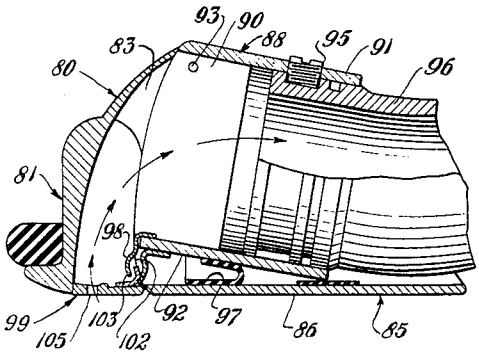


Fig. 1

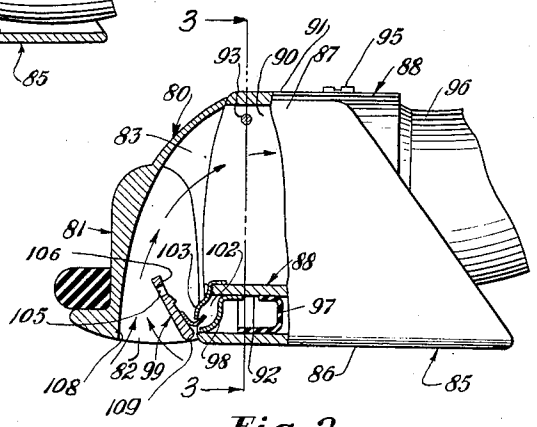
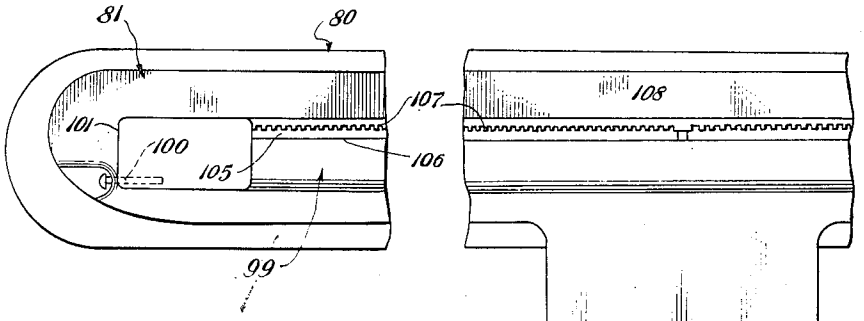


Fig. 2



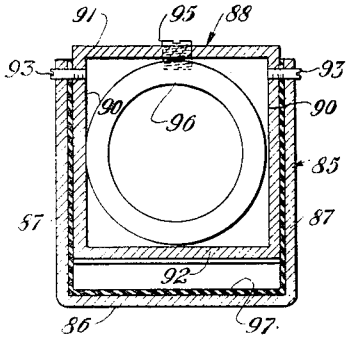


Fig. 3

Fig. 4

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VALVED CLEANING TOOL FOR SUCTION CLEANERS

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2 Claims. (Cl. 15—416)

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The present invention relates to suction cleaners and more particularly to cleaning tools for use with suction cleaners.

An object of the invention is to provide a cleaning tool having a valve actuated by relative movement between the wand and nozzle body to control connection of the latter with the source of suction. Another object of the invention is to provide a cleaning tool having an air passageway for directing a high velocity air stream over the surface to be cleaned. A further object is to provide a cleaning tool having a valve provided with a nozzle and also defining another nozzle. Other objects and advantages of the invention will be apparent from the following description and drawings wherein:

Figure 1 is a sectional view of the invention illustrating the valve and its nozzle connected to a source of suction;

Figure 2 is a section partly in elevation showing the large nozzle connected to the source of suction;

Figure 3 is a section taken along the line 3—3 of Figure 2; and

Figure 4 is a broken bottom view of the cleaning tool.

The embodiment of the invention herein disclosed comprises a cleaning tool 80 provided with an elongated nozzle 81 having its mouth 82 communicating with a centrally disposed air passageway 83. Projecting rearwardly from the passageway 83 is a substantially U-shaped housing 85 having a bottom wall 86 and opposed side walls 87—87. Disposed in the housing 85 is a conduit 88 having a rectangularly shaped exterior surface formed by opposed side walls 90—90, top wall 91 and bottom wall 92. Rotatably mounted in each housing side wall 87 is a screw 93 threaded into the adjacent side wall 90 of the conduit 88 to pivotally mount the latter on the cleaning tool body. The outlet of the air passageway 83 communicates with the conduit 88 and the latter is connected by a swivel joint 95 to a curved tube 96 adapted to be connected to a suction cleaner in a well known manner. A resilient seal 97 is provided between the U-shaped housing 85 and the adjacent walls of the conduit 88 to prevent passage of air therebetween.

A valve 99 is pivotally mounted in the nozzle mouth 82 by a pin 100 projecting from each end lip 101 of the nozzle mouth into the valve. The valve 99 is actuated by a bifurcated member 98 attached to the lower wall 92 of the conduit 88 and its recess 102 receives a lug 103 projecting from the valve 99. When the tube 96 is raised or

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lowered to pivot the conduit 88 on the pins 93 with respect to the nozzle body, then the member 98 pivots the valve 99 about the pins 100 to either of the positions shown in Figures 1 or 2.

Arranged within the valve 99 is a nozzle mouth 105 defined at its surface contacting perimeter by a lip 106 having a portion serrated as indicated at 107, and the cross section of the nozzle mouth 105 is less than the nozzle mouth 82. One longitudinal edge 109 of the valve 99 cooperates with the end lips 101 and front lip 108 to define the surface contacting perimeter lip of the large nozzle mouth 82 as shown in Figure 2. A suitable air seal is disposed between the edge 109 of the valve 99 and the adjacent bottom wall 86 of the housing 85.

In operation, when it is desired to remove non-embedded dirt from the surface to be cleaned, the tube 96 is moved upwardly to position the valve 99 as in Figure 2. If the cleaning tool is in the position shown in Figure 1 the tube 96 is rotated about pins 93 upwardly relative to the nozzle body. Such rotation of the tube 96 moves the bifurcated member 98 counter-clockwise, as viewed in Figure 1, causing the valve 99 to rotate clockwise about its pins 100 to the position shown in Figure 2. In this position of the valve 99 the large nozzle mouth 82 is exposed to the rug, and the nozzle perimeter lip is defined by the front lip 108, end lips 101 and the edge 109 of the valve 99. The large nozzle mouth 82 permits passage of a relatively low velocity air stream over the rug to remove the loose dirt therefrom and thence through the passageway 83, conduit 88, tubes 92 and 96 to the source of suction.

If the litter and dirt is embedded in the surface to be cleaned, then the valve 99 is moved to the position in Figure 1. In order to shift the valve 99 to this position the tube 96 is moved downwardly about the pivot pins 93 relative to the nozzle body causing the bifurcated member 98 to move clockwise as viewed in Figure 2, to rotate the valve 99 about its pivot pins 100 to the position shown in Figure 1. When the valve is in this position, its defining edges close the large nozzle mouth 82 and the smaller nozzle 105 is in operative cleaning relation with the surface being cleaned. The small nozzle mouth 105 causes passage of a high velocity air stream over the surface being cleaned to remove clinging litter and the air stream flows through the small nozzle mouth 105, passageway 83 and conduit 88 to the source of suction.

While I have shown and described but a single modification of my invention, it is to be understood that this modification is to be taken as

illustrative only and not in a limiting sense. I do not wish to be limited to the particular structures shown and described, but to include all equivalent variations thereof except as limited by the scope of the claims.

I claim:

1. A surface cleaning tool comprising a body, means defining a first elongated nozzle mouth in said body engageable with the surface to be cleaned, a member substantially the area of said first nozzle mouth and movable into and out of said first nozzle mouth, means defining a second elongated nozzle mouth in said member and extending substantially the length thereof and engageable with the surface to be cleaned, means mounting said member on said body for movement of said member including said second nozzle mouth into said first nozzle mouth in operative relation with the surface to be cleaned, an air conduit pivotally mounted on said body for connecting said nozzle mouths to a source of suction, and means connecting said member and said conduit for relative movement therebetween upon pivotal movement of said air conduit to effect movement of said second nozzle mouth and member into the full extent of said first nozzle mouth.

2. A surface cleaning tool comprising a body, means defining a first nozzle mouth in said body engageable with the surface to be cleaned, valve means substantially the area of said first nozzle mouth and movable into and out of said first

nozzle mouth, means in said valve means defining a second nozzle mouth substantially the length of said valve means and engageable with the surface to be cleaned, an air conduit for connecting said first and second nozzles to a source of suction, means mounting said air conduit on said body for pivotal movement to different positions, and means connecting said air conduit and said valve means for relative movement therebetween upon pivotal movement of said air conduit to its different positions to move said valve means into said first nozzle mouth to cut off the major portion of the latter from the source of said suction and place said second nozzle mouth in operative relation with the surface being cleaned.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,050,989	Niuffer	Jan. 21, 1913
1,740,001	Carlstedt	Dec. 17, 1929
2,029,668	McCardle	Feb. 4, 1936
2,035,688	Brock	Mar. 31, 1936
2,220,778	Groth	Nov. 5, 1940
2,239,384	Hansson	Apr. 22, 1941
2,269,447	Ell	Jan. 13, 1942
2,295,354	Peterson	Sept. 8, 1942
2,500,977	Beede	Mar. 21, 1950
2,516,205	Hallock	July 25, 1950