

[54] **SUCTION CLEANING NOZZLE FOR HIGH PILE RUGS**

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[51] **Int. Cl.**..... **A47I 9/06**

[58] **Field of Search**..... **15/325, 393, 396,**
15/397, 402

[56] **References Cited**

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[57]

ABSTRACT

A suction cleaning nozzle for high pile rugs having a longitudinal nozzle suction chamber enclosed at the bottom with a base having a plurality of aligned but spaced oblong tubular extensions. Apertures into the chamber may be provided between the tubular extensions.

The longitudinal extent of the oblong tubular extensions may be aligned both normally and transversely to the longitudinal extent of the nozzle suction chamber with each of such extensions provided with a pair of cutouts at its extended end.

5 Claims, 5 Drawing Figures

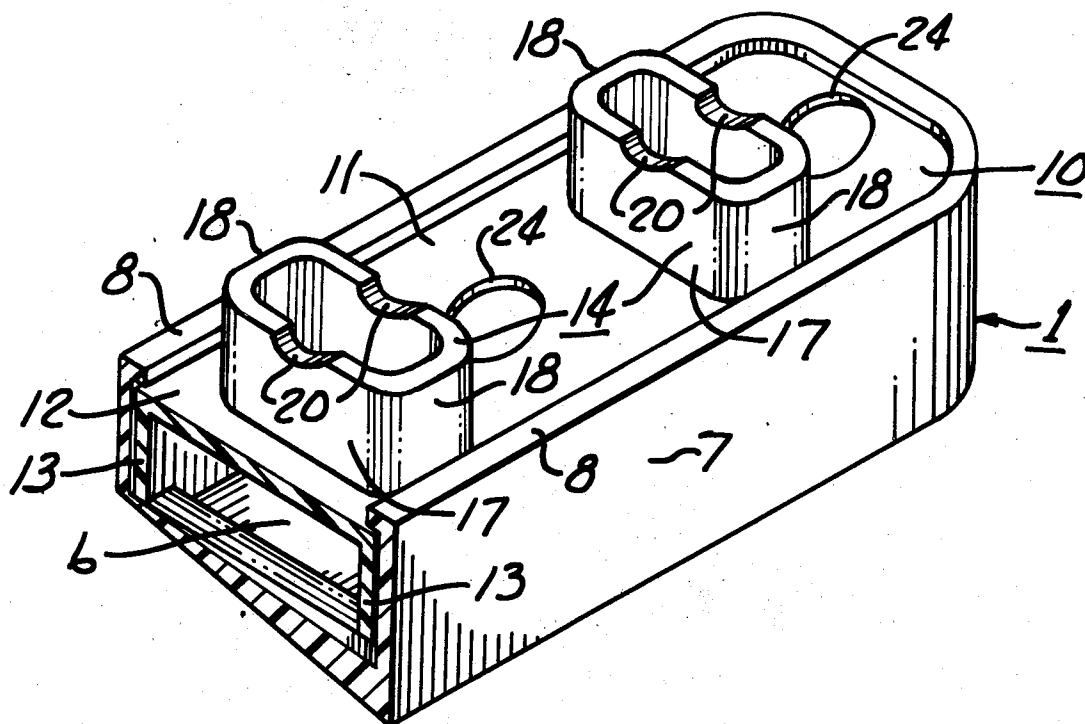


Fig. 1

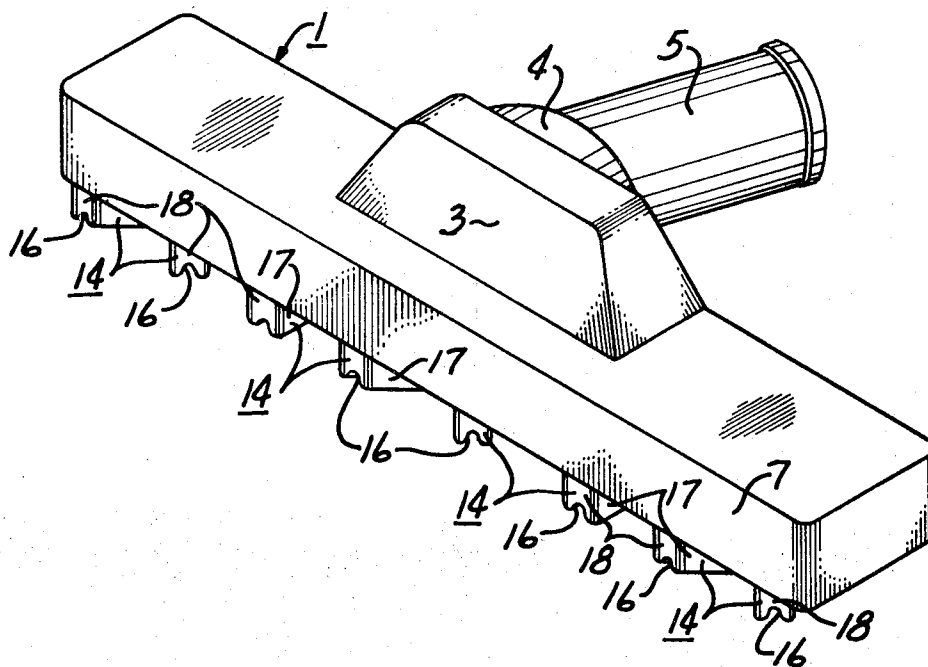
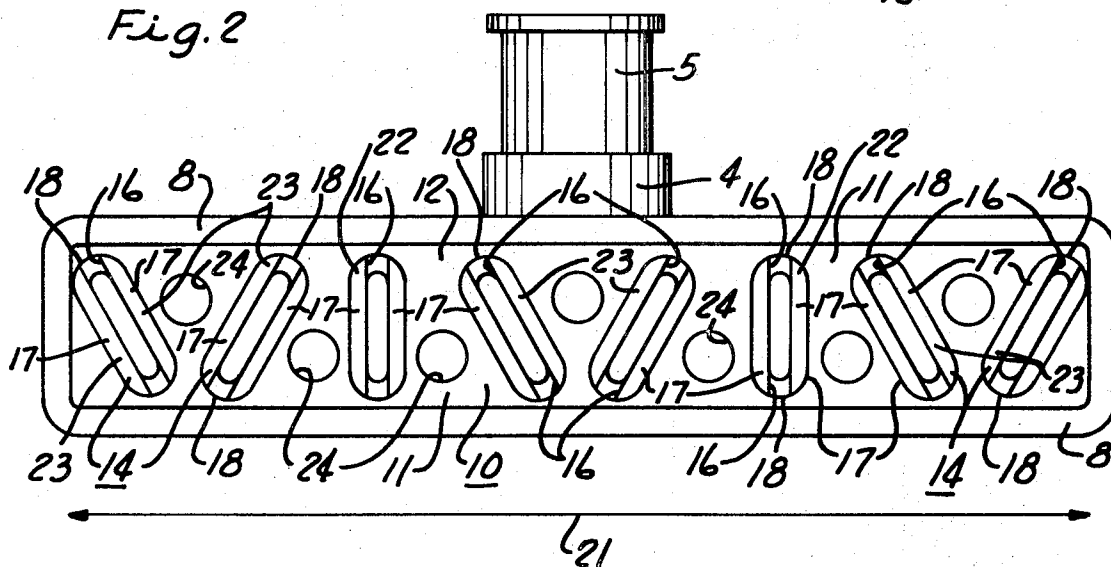


Fig. 2



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Fig. 3

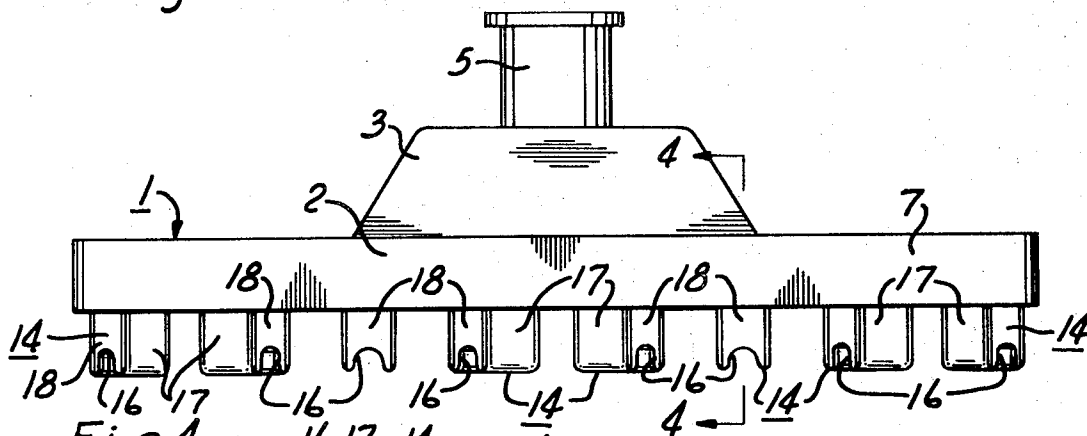


Fig. 4

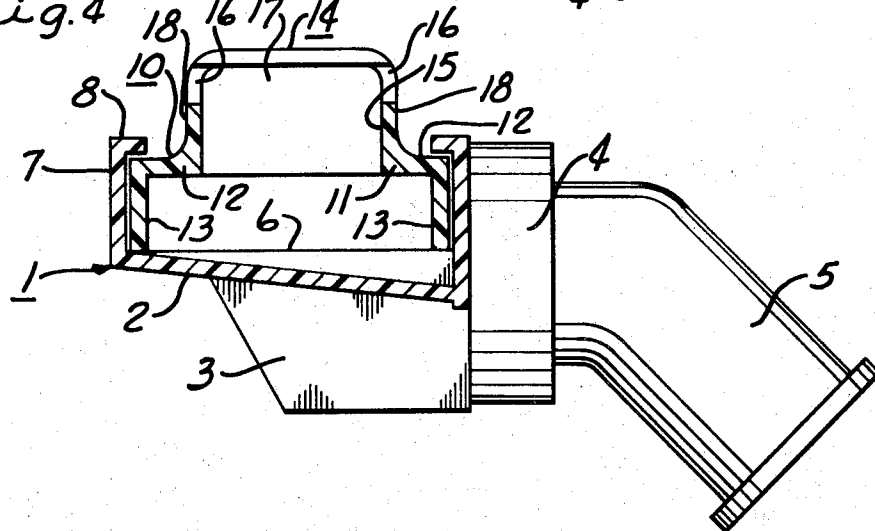
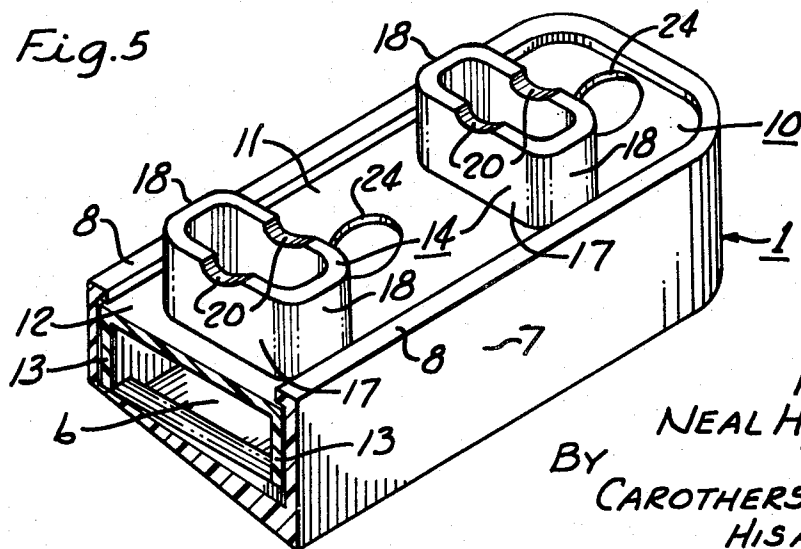


Fig. 5



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SUCTION CLEANING NOZZLE FOR HIGH PILE RUGS

BACKGROUND OF THE INVENTION

This invention relates to the art of vacuum cleaners and particularly to the suction cleaning nozzle used with such cleaners adapted primarily for use on high pile rugs.

The use of high pile rugs has been on the increase in recent years, necessitating extensive changes in the nozzle attachment for vacuum cleaners to adequately clean within the depths of the high pile rugs.

Attempts have been made in the art to provide for nozzle attachments well suited for rugs of the high pile type while at the same time adaptable to clean low pile rugs or bare floors. Such attachments have been proven unsatisfactory primarily because it is quite difficult to design a truly universal nozzle attachment for cleaning virtually every type of surface. Thus, most nozzles recently designed for high pile rugs are provided with a special attachment for vacuum cleaning high pile rugs such as shown in U.S. Pat. No. 2,975,456. Other suction cleaning nozzles for, or possibly used for, cleaning high pile rugs are known as exemplified in U.S. Pat. Nos. 963,049; 1,859,132; and 3,268,942. However, because of the types of downwardly disposed extensions employed on these nozzles, they are not easily adapted for passage over and through the high pile nap, particularly in the presence of a drawing suction causing the nozzle to become cumbersome, or even impossible, to push through the high pile nap in an efficient and adequate manner.

SUMMARY OF THE INVENTION

The principal feature of the present invention is the provision of a suction cleaning nozzle adapted principally for high pile shag rugs or carpets to efficiently clean these rugs at the base of their nap while also cleaning the nap itself and restoring the original depth without catching or otherwise damaging the rug or carpet nap.

Another feature of the present invention is a suction cleaning nozzle for cleaning high pile rugs through the provision of a plurality of downwardly disposed oblong tubular extensions positioned thereunder in a manner that each be substantially aligned in the direction of intended travel of the nozzle over the rug. Some of the oblong extensions may be normal relative to the longitudinal extent of the nozzle while the remainder may be transverse relative thereto.

Another feature of the present invention is the provision of cutouts on the ends of each of the oblong extensions to prevent the suction imposed by the nozzle through the tubular extensions from gripping by suction the rug backing thereby hindering the movement of the nozzle over the surface of the rug.

Another feature of the present invention is the provision of a plurality of apertures in the bottom of the nozzle between adjacent tubular extensions to aid in cleaning dirt and other such particles from the nap proper as well as lifting the nap to its original depth while the adjacent extensions act to separate and comb the nap to be raised by the suction imposed upon the nap proper through the apertures.

Other objects and advantages appear in the following description and claims.

The accompanying drawings show, for the purpose of exemplification without limiting the invention or the claims thereto, certain practical embodiments illustrating the principles of this invention wherein:

FIG. 1 is a perspective view of the suction cleaning nozzle comprising this invention.

FIG. 2 is a bottom view of the nozzle shown in FIG. 1.

FIG. 3 is a front elevation of the nozzle shown in FIG. 1.

FIG. 4 is a cross-sectional view of the nozzle taken along the line 4—4 of FIG. 3.

FIG. 5 is a partial perspective view of a modified form of the nozzle as shown in the previous Figures.

Referring now to the FIGS. 1 through 4, there is shown the suction cleaning nozzle 1 comprising this invention. The general details are primarily similar to the normal suction cleaning nozzle for vacuum cleaners wherein there is provided an elongated body portion 2 having a raised central portion 3 terminating in the nozzle neck 4 for supporting the connecting shank 5. The connecting shank 5 is for attachment to the flexible hosing of the vacuum cleaner.

The nozzle body portion 2 provides an elongated nozzle suction chamber 6 which is in communication with the tubular connecting shank 5. The nozzle suction chamber 6 is defined by the surrounding side wall 7 of the nozzle body portion 2, the bottom perimeter or edge of which is provided with the inwardly disposed surrounding flange 8. The flange 8 together with the side wall construction 7 are of a resilient type of plastic material in order to receive within the side wall and flange construction the high pile nozzle attachment 10. Thus, it can be seen that the high pile nozzle attachment 10 can be readily inserted within the area of the nozzle chamber 6 by slipping the flange 8 over the base 11 of the attachment 10. This not only provides for inexpensive construction and design in the manufacture of such nozzles, but also provides for the immediate disassembly of the attachment 10 from the nozzle body portion 2 and for subsequent insertion of other types of attachments, such as a brush type attachment for cleaning bare floors.

The high pile nozzle attachment 10 is provided with a base 11 which consists of the horizontal portion 12 and the side flanges 13 forming a continuous shoulder. As can be clearly seen in FIG. 4, the adjoining of the enclosing side wall 13 with the horizontal base portion 12 provides a corner which the flange 8 of the nozzle body portion 2 encompasses, thereby retaining the attachment 10 connected to the body portion 2.

A plurality of aligned but spaced oblong tubular extensions 14 are provided on the base portion 11 and as shown in FIG. 4 are in direct communication with the nozzle chamber 6 by means of the tubular opening 15 provided therethrough and through the longitudinal base portion 12.

The high pile nozzle attachment 10 is provided to be made of a hard type of plastic in order to maintain sufficient rigidity for use in connection with rug cleaning.

As noted from FIGS. 2, 3 and 4, each of the tubular extensions can be provided with one or more cutouts such as the pair of cutouts 16 provided on the end of the tubular extension 14 at the point of their longitudinal extent as illustrated clearly in FIG. 2. Thus, each of the tubular extensions 14 has longitudinal side walls 17 with end side walls 18, and the cutouts 16 are provided

as slots, as depicted in FIG. 3, in the end walls 18 at their upper ends.

The cutouts 16 need not always be employed in the end walls 18. As depicted in FIG. 5, the tubular extensions 14 are provided with pairs of cutouts 20 in longitudinal side walls 17 of each of the tubular extensions 14.

The cutouts 16 and 20 are provided in the tubular extensions 14 in order to prevent the force of the vacuum created through the tubular openings 15 from being directly active on the backing of the rug thereby hindering the purpose of deep cleaning provided by the tubular extensions 14.

It will be noted from FIGS. 2 and 5 that the longitudinal extent comprising the side walls 17 of the tubular extensions 14 may be aligned normally relative to the longitudinal extent of the suction chamber 6 or aligned transversely relative to the longitudinal extent of the suction chamber 6 or a combination of both. The longitudinal extent of the suction chamber 6, or for that matter the nozzle 1, is identified by the arrow 21 in FIG. 2. Thus, it can be seen that some of the tubular extensions 14 are aligned in a direction normal to the arrow 21 as indicated by the tubular extensions identified at 22 whereas the remainder of the tubular extensions 14 are disposed at an angle relative to the arrow 21 or transverse thereto as depicted by those tubular extensions identified at 23. This combination of tubular extensions positioned as shown at 22 and 23 gives rise to a good separating and combing action of the high pile nap in high pile rugs. Also, the transverse positioning of the tubular extensions 23 provides for more adequate surface cleaning provided by the tubular openings 15. It is this action in combination with the apertures 24 provided between adjacent tubular extensions 14 that gives the excellent cleaning capacity provided for by nozzle 1, the apertures 24 aiding in the cleaning of the high pile nap as well as lifting the high pile nap to its original high pile position.

The modification of the high pile nozzle attachment 10 as shown in FIG. 5 shows each of the tubular extensions 14 in the normally aligned position relative to the arrow 21 of FIG. 2 in all cases.

The use of the term "tubular" in connection with each of the tubular extensions 14 should not be construed as any particular desired shape. However, each of the tubular extensions should be generally oblong in shape and generally provided with a longitudinal opening 15 substantially conforming to their shape. Thus, the longitudinal tubular extent could be of an oval shape, rectangular shape, diamond shape, or any other such oblong configuration. Thus, when using the term "tubular," such term is intended to include any such oblong contour.

I claim:

1. A suction cleaning nozzle for use primarily with high pile rugs comprising in combination

a rigid elongated nozzle attachment having a base and integral side flange for the full perimetral extent thereof forming a shoulder,
a plurality of spaced oblong outwardly open tubular extensions integral with and aligned transversely relative to the longitudinal extent of said base, said extensions extending from said base in a direction opposite to that of said side flange, oppositely positioned cutouts provided on the lower end and at the longitudinal extent of each of said extensions,
a plurality of apertures in said base, each such aperture positioned between selected oblong extensions,
an elongated nozzle body portion having a connecting shank,
a continuous resilient side wall for the full perimetral extent of said body portion,
an inwardly disposed flexible flange integral for the full extent of said side wall,
said resilient side wall and flexible flange forming a chamber forming a chamber adapted upon flexure of said side wall and said flange to retainably receive said nozzle attachment therein due to the encompassment of said attachment shoulder by said flexible flange.

2. A suction cleaning nozzle essentially comprising a rigid elongated nozzle attachment adapted to be received and retained in an elongated nozzle body portion having a shank for connection to a vacuum cleaning hose, characterized in that said attachment comprises a base with a plurality of depending spaced oblong tubular, open ended extensions on one side thereof aligned transversely relative to the longitudinal extent of said base, an integral perimetral flange on the other side of said base forming a shoulder with the latter, said body portion having a perimetral resilient side wall with an inwardly disposed flexible flange integral with the outer edge of said side wall, said resilient side wall and flexible flange forming a chamber adapted upon flexure of said flange and side wall to retainably receive said nozzle attachment retained within said chamber due to the encompassment of said attachment shoulder by said flexible flange.

3. The suction cleaning nozzle of claim 2 characterized by a pair of oppositely disposed cutouts provided on the end of each of said extensions midway of its longitudinal extent.

4. The suction cleaning nozzle of claim 2 characterized by a plurality of apertures provided in said base, each such aperture positioned between selected oblong extensions.

5. The suction cleaning nozzle of claim 2 characterized by a pair of oppositely disposed cutouts provided on the end of each of said extensions at its longitudinal extent.

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