

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 792 612 A1

(12)

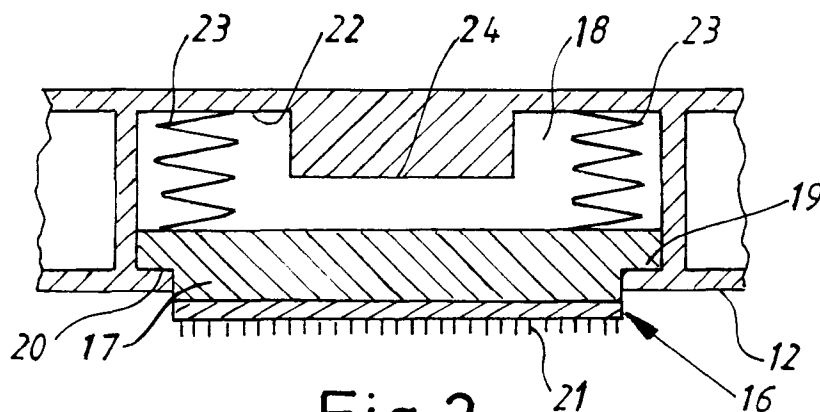
EUROPEAN PATENT APPLICATION

(43) Date of publication:

03.09.1997 Bulletin 1997/36(51) Int Cl.⁶: **A47L 9/02**(21) Application number: **97850026.2**(22) Date of filing: **20.02.1997**(84) Designated Contracting States:
DE FR GB SE(30) Priority: **28.02.1996 SE 9600771**(71) Applicant: **AKTIEBOLAGET ELECTROLUX**
105 45 Stockholm (SE)(72) Inventor: **Edin, Anders**
S-175 49 Järfälla (SE)(74) Representative: **Erixon, Bo et al**
c/o AB ELECTROLUX Corporate Patents &
Trademarks
105 45 Stockholm (SE)**(54) Device for a vacuum cleaner nozzle**

(57) This invention relates to a device for a vacuum cleaner nozzle comprising a bottom part (10) having a supporting surface (12) facing the floor and which at least partly surrounds a nozzle opening (11). The nozzle opening communicates with an outlet tube (14) arranged on the nozzle. Said bottom part comprises at least one element (16) which has a thread or fibre pick

up surface facing the floor, the element being so arranged in the bottom part that it has a limited movement possibility in the vertical direction. The element is under the influence of a downwardly directed force which means that the element with the thread or fibre pick up surface, when moving the nozzle on a soft carpet will float on the carpet surface.

**Fig.2****EP 0 792 612 A1**

Description

This invention relates to a device for a vacuum cleaner nozzle comprising a bottom part having a supporting surface facing the floor and at least partly surrounding a nozzle opening communicating with an outlet tube arranged on the nozzle, said bottom part comprising at least one element which is provided with a thread or fibre pick up surface facing the floor and consisting of a layer of textile or plastic material, preferably plush, provided with brushes being so arranged that they are inclined downwards from the thread or fibre pick up surface and towards the nozzle opening

Threads and fibres have, especially at soft carpets, a tendency to stick to the floor material thereby not following the air flow towards the nozzle opening when the nozzle is moved on the floor. In order to collect such threads or fibres it is common to provide the vacuum cleaner nozzles with a thread or fibre pick up device of the type mentioned above. See for instance DE 4406156. When these nozzles are used threads and fibres are collected by the brushes when the nozzle is moved in one direction whereas the threads or fibres are scraped off the brushes when the nozzle is moved in the opposite direction.

Even if the type of thread or fibre pick up devices mostly work rather satisfying they have some disadvantages. When being used on soft, thick carpets the nozzle sinks down into the carpet material which means that the threads or fibres instead are pushed down into the carpet such that the adherence to the carpet increases resulting in that the thread or fibre pick up device does not manage to collect the threads and fibres. Moreover after some time the brushes of the thread and fibre pick up device become worn-out so that they do not any longer touch the floor when the nozzle is moved on certain types of soft carpets for instance of the needle felted type.

The purpose of this invention is to achieve a device which does not have the disadvantages described above but which adjusts with respect to the nature of the floor and which moreover creates a better sealing against the floor when the nozzle is used on a hard surface. This is achieved by a device having the characteristics mentioned in the claims.

An embodiment of the invention will now be described with reference to the accompanying drawing on which Fig. 1 shows the bottom side of a nozzle provided with a device according to the invention, Fig. 2 shows in an enlarged scale a section on the line II-II in Fig. 1 whereas Fig. 3 is a further enlarged section on the line III-III in Fig. 1.

The figures show a nozzle having a bottom part 10 forming a textile carpet nozzle with an elongated nozzle opening 11 surrounded by a support surface 12. The nozzle opening communicates with an inlet opening 13 for the dust laden air the inlet opening being connected to an outlet tube 14 which is connected to the vacuum

cleaner via a tube shaft, not shown. The nozzle moreover is, at its front and rear edge, provided with an elongated brush or scraper blade 15 which automatically or by means of a switching- or arresting mechanism can be moved between an upper and a lower position. The blade is in the upper position placed above the floor surface when the nozzle is moved on the floor. In the lower position the brush or scraper blade touches the floor surface which means that the support surface 12 is placed somewhat above the floor surface. Vacuum cleaning of hard surfaces is achieved with the brush or scraper blade in the lower position whereas vacuum cleaning of soft surfaces is achieved with the brush or scraper blade in the upper position.

The nozzle is also provided with one or several thread- or fibre pick up elements 16. This element comprises a body 17 which is movable vertically in a pocket 18 arranged in the nozzle. The pocket is provided with a shoulder 19 which together with an edge recess 20 limits the downwardly directed movement of the body. The part of the body 17 which faces towards the floor is covered with a thread or fibre pick up surface 21, this surface being placed mainly at the same level as the supporting surface 12 of the nozzle. The thread or fibre pick up surface 21 consists of a textile or plastic layer 21a provided with several brushes 21b having a free length which is less than 3 mm and being inclined with respect to the layer so that the brushes extend downwards from the layer 21a towards the nozzle opening. The thread or fibre pick up surface 21 preferably is a plush material. Between the body 17 and a wall part 22 of the pocket one or several soft helical springs are tensioned pressing the element 16 towards the floor. The wall part 22 is also provided with a knob 24 limiting the upwardly directed movement of the element 16.

The springs 23 have such a characteristic that also very small forces which are applied on the element 16 from the floor material makes it possible to lift the element. Thus, the element will float on the floor when the nozzle is moved on a soft surface with the brush or scraper blade at its upper position.

It should be observed that it of course is possible to replace the springs 23 with other types of resilient elements for instance blade springs, elastic plastic- or rubber materials or to give the body such a weight that the gravity presses the body towards the floor.

Even if the device according to the invention is described in connection with a combination nozzle which is used on hard as well as soft floors it can of course also be used for other types of nozzles for instance such nozzles which are only used for cleaning soft carpets.

Claims

1. Device for a vacuum cleaner nozzle comprising a bottom part (10) having a supporting surface (12) facing the floor and at least partly surrounding a

nozzle opening (11) communicating with an outlet tube (14) arranged on the nozzle, said bottom part comprising at least one element (16) which is provided with a thread or fibre pick up surface (21) facing the floor and consisting of a layer (21a) of textile or plastic material, preferably plush, provided with brushes (21b) being so arranged that they are inclined downwards from the thread or fibre pick up surface (21) and towards the nozzle opening, **characterized in** that the element (16) is secured to the bottom part (10) and that there are means (18,19,20,24) provided making it possible to move the element mainly vertically a limited distance with respect to the bottom part and that the element (16) is under the influence of a downwardly directed force which means that the element with the thread or fibre pick up surface (21) will float on the floor surface when the nozzle is pressed down into a soft floor material.

2. Device according to claim 1, **characterized in** that the force directed downwardly on the element (16) is achieved by means of one or several springs (23), of an elastic rubber or plastic material or by means of the weight of the element.
3. Device according to any of the preceding claims, **characterized in** that the element (16) comprises a body (17) which is vertically movable in a pocket (18) in the bottom part (10) the pocket comprising shoulder portions (19,24) limiting the vertical movement of the body.
4. Device according to any of the preceding claims, **characterized in** that the element (16) is arranged closely in front of and/or behind a central inlet opening (13) with which the nozzle opening communicates.
5. Device according to any of the preceding claims, **characterized in** that the brushes (21b) have a free length which is shorter than 3 mm.

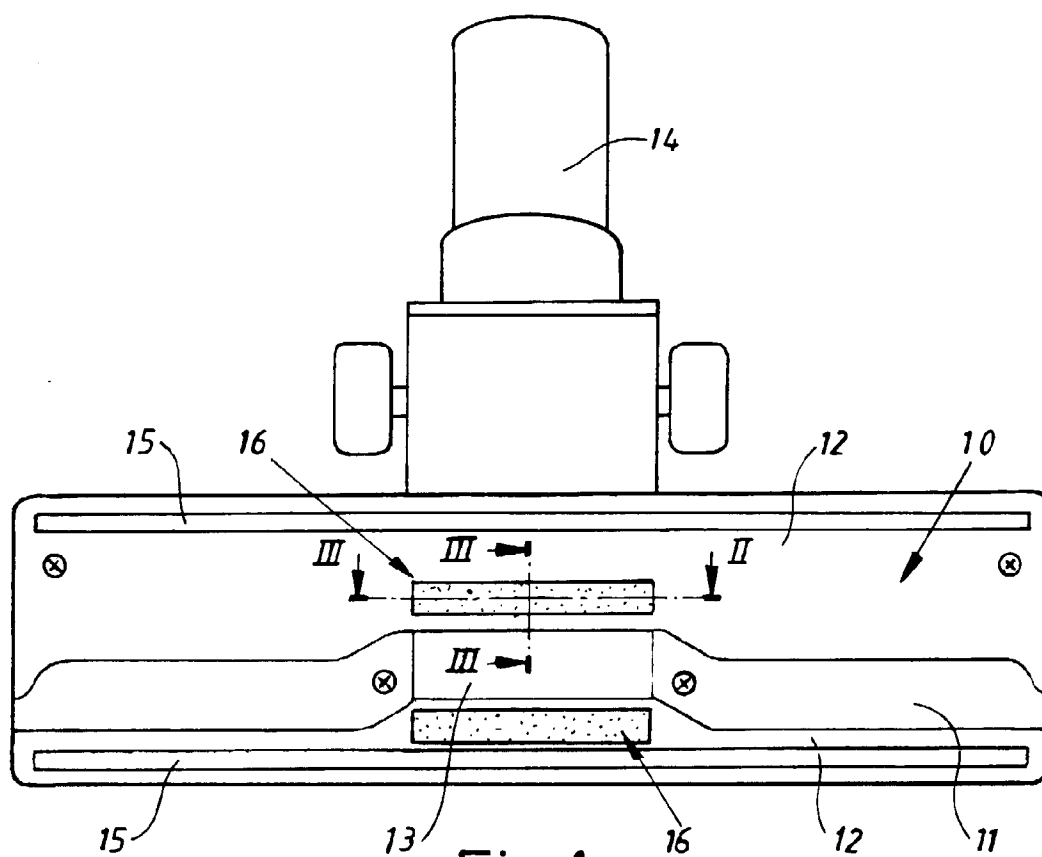


Fig.1

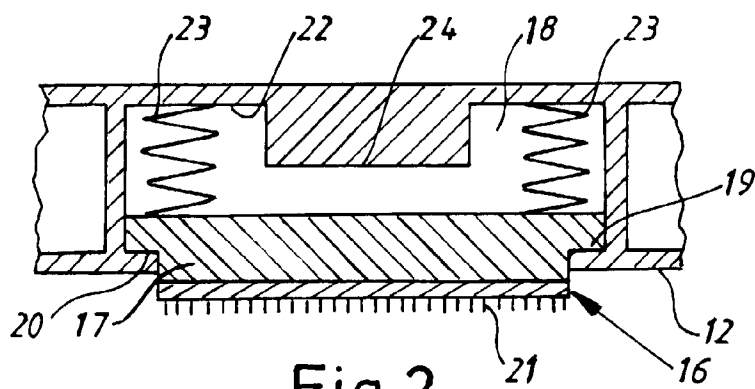


Fig.2

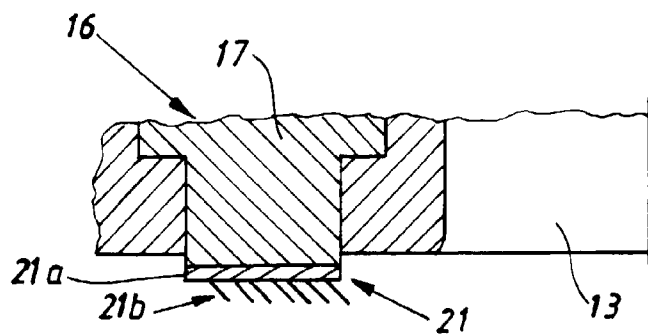


Fig.3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 85 0026

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y A	DE 23 64 750 A (WESSEL HANS) 3 July 1975 * claims 1,2; figure 1 * ---	1 2,4	A47L9/02
Y A	DE 84 04 250 U (SIEMENS AG) 5 April 1984 * claims; figure * ---	1 2,4	
A	DE 74 28 181 U (SIEMENS AG) 21 November 1974 * claims; figures * ---	1-3	
A	DE 19 02 478 B (LICENTIA PATENT-VERWALTUNGS-GMBH) 4 November 1971 * column 3, line 19 - line 31; claims 1-4,12; figures * ---	1-3	
A	DE 18 81 227 U (MAUZ & PFEIFFER) 24 October 1963 * claims 1-6; figures 1,3 * -----	1-3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A47L
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 1 July 1997	Examiner Kanal, P
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 01/82 (PM/C01)