April 22, 1952 C. H. MacFARLAND 2,594,189

VACUUM CLEANER NOZZLE BRUSH ATTACHMENT

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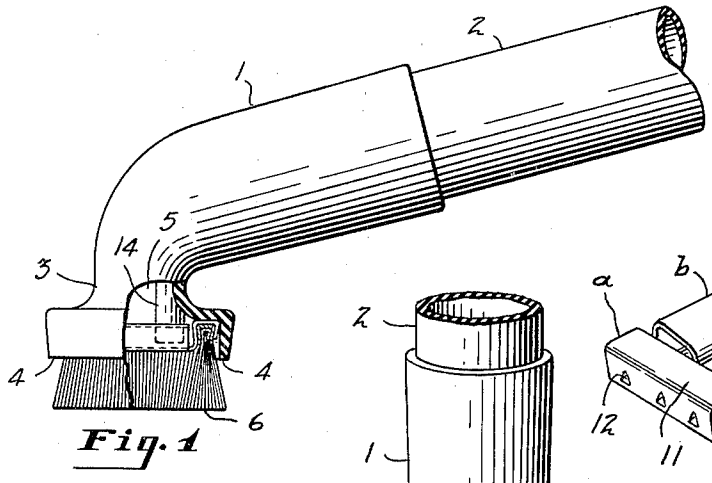


Fig. 1

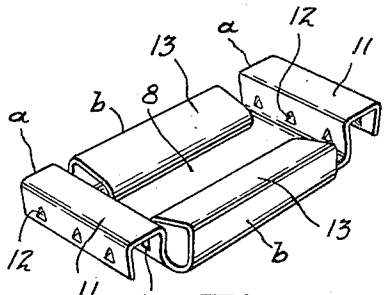


Fig. 2

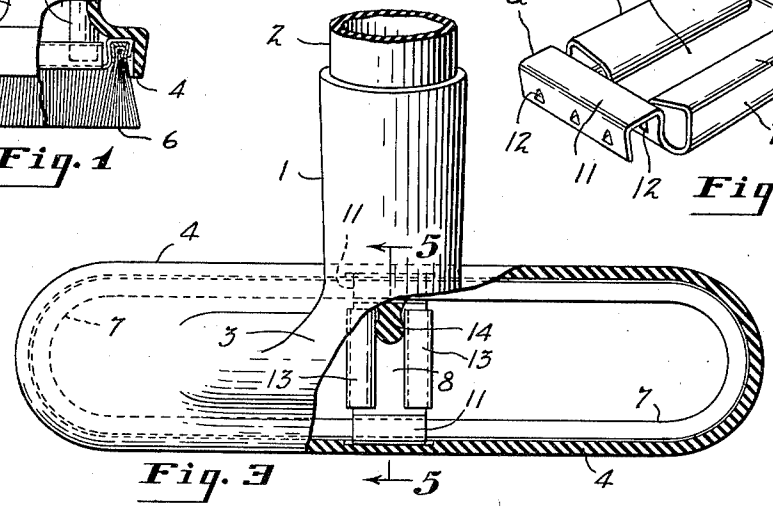


Fig. 3

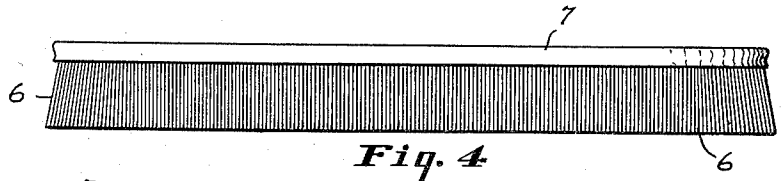


Fig. 4

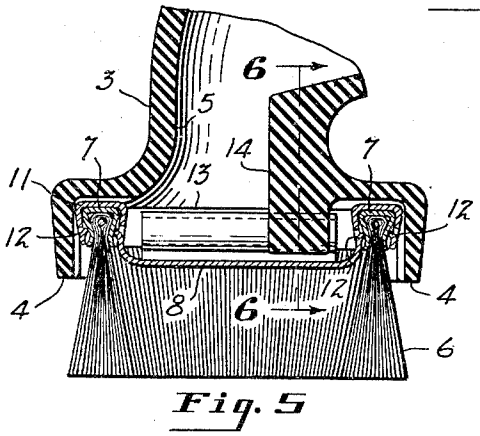


Fig. 5

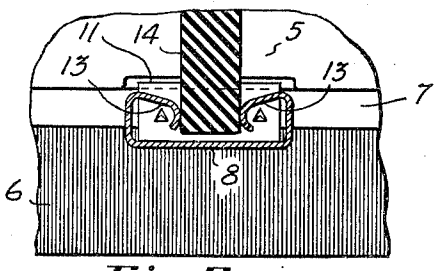


Fig. 6

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VACUUM CLEANER NOZZLE BRUSH ATTACHMENT

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4 Claims. (Cl. 15—400)

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This invention relates to a brush attachment for vacuum cleaning tools and particularly to a brush attachment and fastening device to detachably mount a brush member on a vacuum nozzle.

It is an object of the present invention to provide a brush attachment and connecting device to readily convert a tool useful for cleaning by vacuum to a tool which cleans by a combination of brushing and vacuum.

Another object is to provide a connecting device useful to permit rapid and easy assembly or disassembly of a brush device and a vacuum tool.

Other objects and advantages will become apparent from the following detailed description accompanied by the drawings in which:

Figure 1 is an elevational view, with parts broken away, of a vacuum tool having a brush attachment mounted therein made in accordance with the present invention;

Fig. 2 is an enlarged perspective view of a connecting device to permit ready attachment and removal of the brush member;

Fig. 3 is a top plan view, with parts broken away, of the vacuum cleaning tool shown in Fig. 1;

Fig. 4 is an elevational view of the brush attachment;

Fig. 5 is an enlarged fragmentary sectional view taken substantially on lines 5—5 of Fig. 3 to illustrate how the connecting device attaches to the brush member; and

Fig. 6 is an enlarged fragmentary sectional view taken substantially on line 6—6 of Fig. 5 to illustrate how the connecting device attaches to the vacuum cleaning tool.

In the form of invention shown in the drawings, a generally conventional form of vacuum tool employing a flattened elliptical nozzle member is shown, and a flattened elliptical brush member is shown as being detachably mounted within the nozzle opening. However, it is to be understood that the present invention may be applied to vacuum nozzles and cleaning tools of any desired shape.

Looking at Fig. 1, the vacuum tool or nozzle comprises a tubular member 1 which may be attached in any desired manner to a hose or pipe 2 leading to the fan or other vacuum producing mechanism (not shown). Tools of this general nature are generally connected to the vacuum producing mechanism by a hose in order to make the tool readily portable so that it may be carried around to clean articles of furniture, wall

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surfaces and the like. The tubular member 1 is integral with a nozzle portion 3 having a surface contacting rim 4 that defines the opening of the nozzle and a passage 5 therethrough, through which dirt or other foreign material may be carried as a result of the vacuum in the hose 2.

The brush attachment is shown in Fig. 4 and may comprise a plurality of bristles 6 held by a clamping member 7, which in the present instance is channel shaped with the legs of the channel pinched in to securely hold the bristles. The member 7 is an annular member which conforms to the flattened elliptical shape at the interior of the nozzle opening defined by the rim 4 so that it may be disposed within the nozzle opening, and in this position the bristles 6 project downwardly past the rim 4 adjacent thereto.

A preferred form of the connecting device embodying the present invention is shown in Fig. 2. It has been found especially desirable to form this member from a piece of flat sheet material, although it obviously may be formed in many other ways. When formed from sheet material, it may comprise a central portion 8 and two pairs of oppositely extending wing portions *a*, *a* and *b*, *b*. The wing portions *a*, *a* may be formed into channel shaped spring clip portions 11 adapted to embrace and grippingly engage the channel shaped member 7 which holds the bristles of the brush attachment. As may best be seen in Fig. 5, the clip portions 11 generally conform to the channel shape of the member 7 and may be detachably connected thereto by positioning the portions 11 above the member 7 at opposite points of the annular member 7, and then pushing the clip portions 11 onto the member 7 so that it enters the channel of the member 11 and is grippingly engaged thereby. The portions 11 will frictionally retain the member 7, and to increase this frictional engagement barbs 12 may be struck from the surfaces of the channel clip portions 11, as may best be seen in Figs. 2 and 5.

The other pair of wing portions *b*, *b* extending from the central portion 8 of the spring clip member, are bent upwardly and inwardly in an opposite direction from the channel clip portions 11 to form spring clip elements 13. As may be seen in Fig. 6, these spring clip elements 13 face each other and are adapted to grippingly engage a member pushed between them to slightly spread them. For example, the nozzle may be provided with a post or boss 14 which extends downwardly into the nozzle opening so that when the spring clip member with the

brush attachment connected thereto is pushed upwardly into the nozzle the post 14 will be received between the spring clip elements 13 which grippingly engage the post 14 and frictionally retain it therebetween. While the drawings illustrate the projection on the nozzle member as a post 14, it is to be understood that this projection might have the form of two posts extending from opposite walls of the nozzle, or might constitute a vane connecting the opposite walls of the nozzle. It is merely necessary to provide a projection of the proper size to be frictionally retained by spring clip elements 13.

It will be seen that by the present invention a brush attachment is provided which may be readily inserted within the nozzle opening of a vacuum cleaner tool to convert it from a tool which cleans by vacuum to a tool which utilizes both a brushing action and a vacuum action, which is especially useful in cleaning articles having an uneven surface to which dust particles may cling, such as fabrics with nap, upholstery or the like.

At the same time the brush attachment is readily removable if it is desired to use the nozzle alone. To remove the brush attachment, the spring clip element may be gripped between two fingers and pulled, to slide the clip elements 13 from the projecting post 14.

In the event that the bristles 6 become worn, they may be readily removed and replaced by sliding the annular member 7 from the spring clip portions 11 and inserting a new brush attachment into the spring clip device.

The foregoing detailed description and drawings presented for illustration and explanation are not to be interpreted as limiting the scope of the present invention as defined in the appended claims.

What I claim is:

1. A vacuum nozzle which comprises a body having an opening therethrough and formed to provide a nozzle rim and a recess that surround the opening, said rim forming the outer wall of said recess, said body having a projection inwardly of said recess, a brush attachment for said nozzle comprising an annular member and brush elements carried by said member, said annular member being positioned in said recess and said brush elements extending downwardly past said nozzle rim, and a member for detachably connecting said attachment to the nozzle, said member having a central portion and spaced spring clip portions at opposite ends of said central portion formed to yieldingly embrace opposed portions of said annular member and a second pair of spring clip portions extending from the central portion of said member and intermediate said first pair and disposed in opposed relationship to embrace and yieldingly grip said projection.

2. A vacuum nozzle which comprises a body having an opening therethrough and formed to provide a nozzle rim and a recess that surround the opening, said rim forming the outer wall of said recess, said body having a projection inwardly of said recess, a brush attachment for said nozzle comprising an annular member and brush elements carried by said member, said annular member being positioned in said recess and said brush elements extending downwardly past said nozzle rim, and a member for detachably connecting said attachment to the nozzle, said member having a central portion, a pair of opposed wings extending from opposite ends of said central portion and formed to provide spring clip portions to yieldingly engage said annular member and a second pair of wings extending upwardly and inwardly over said central portion to provide a pair of spaced leaf spring elements which yieldingly grip said projection.

3. A vacuum nozzle which comprises a body having an opening therethrough and formed to provide a nozzle rim and a recess that surround the opening, said rim forming the outer wall of said recess, said body having a projection within said rim, a brush attachment for said nozzle comprising an annular member and brush elements carried by said member, said annular member being positioned in said recess and said brush elements extending downwardly past said nozzle rim, and a member for detachably connecting said attachment to the nozzle, said member having end portions formed to provide a pair of spaced downwardly opening channel shaped clips to embrace and yieldingly grip said annular member and a pair of spring clip portions extending upwardly from said member and disposed in spaced opposed relationship to receive and yieldingly grip said projection.

4. A vacuum nozzle which comprises a body having an opening therethrough and formed to provide a nozzle rim and a recess that surround the opening, said rim forming the outer wall of said recess, said body having a projection within said rim a brush attachment for said nozzle comprising an annular member and brush elements carried by said member, said annular member being positioned in said recess and said brush elements extending downwardly past said nozzle rim, and a sheet metal member for detachable connection with said annular member and said nozzle which comprises a central portion and spring clip portions extending from opposite ends of said central portion to embrace and grippingly engage said annular member at opposed points and intermediate opposed spring clip elements extending upwardly, inwardly and downwardly over said central portion to receive therebetween and yieldingly grip said projection.

CHARLES H. MacFARLAND.

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