Dec. 30, 1958 A. I. WARVA 2,866,221

BRUSH FOR REMOVING DUST AND DANDRUFF FROM THE HAIR

Filed Feb. 7, 1956 2 Sheets-Sheet 1

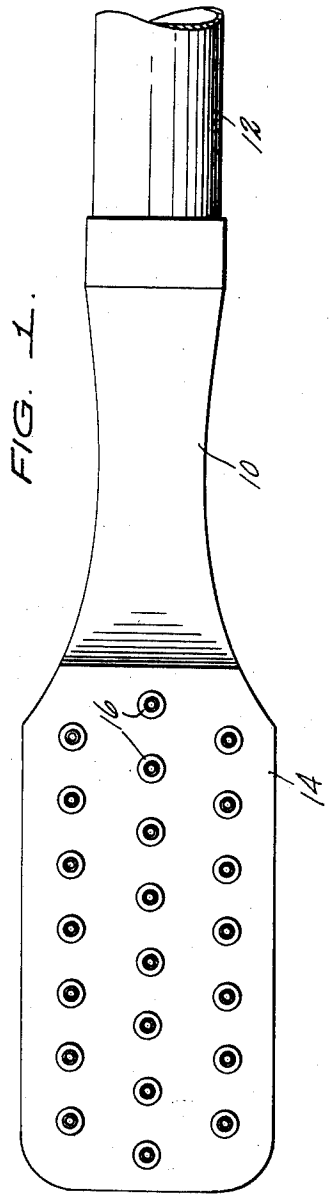

FIG. 1.

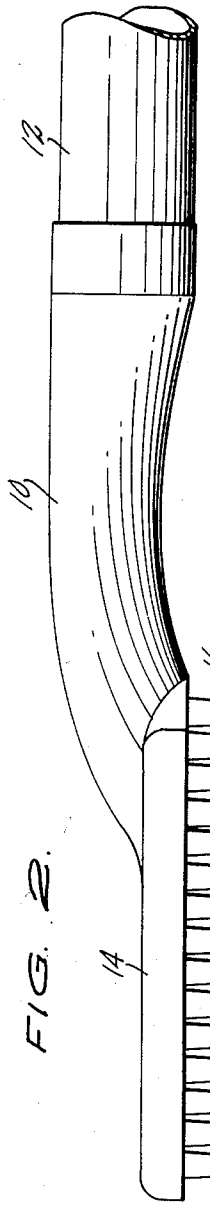

FIG. 2.

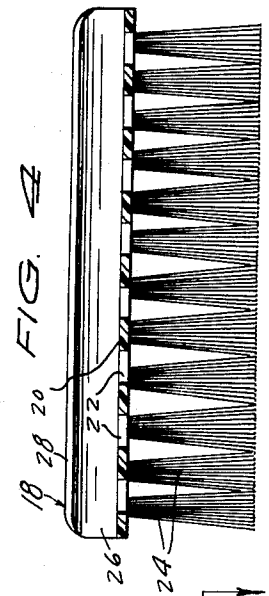

FIG. 4

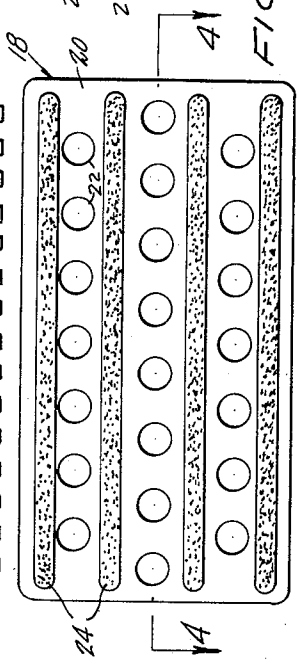

FIG. 3.

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Dec. 30, 1958 A. I. WARVA 2,866,221

BRUSH FOR REMOVING DUST AND DANDRUFF FROM THE HAIR

Filed Feb. 7, 1956 2 Sheets-Sheet 2

FIG. 5.

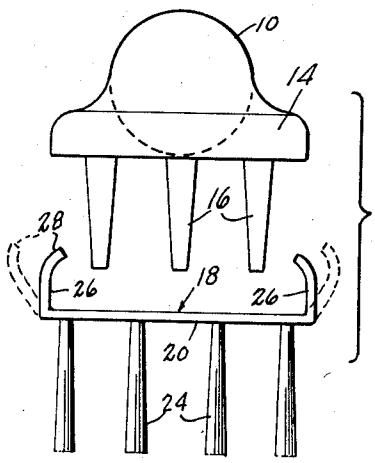
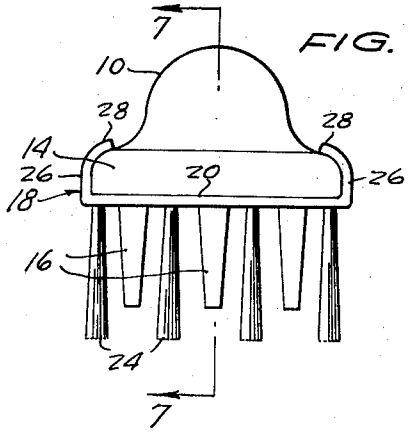


FIG. 6.



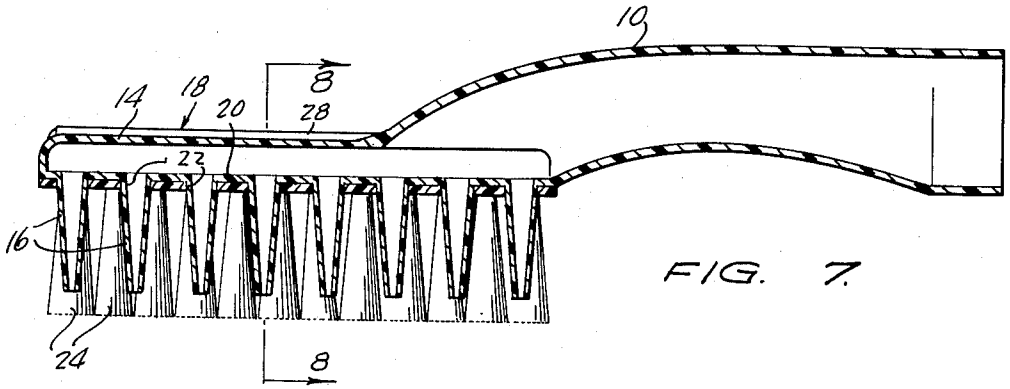
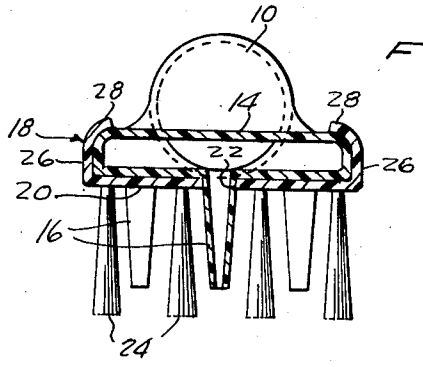


FIG. 7.

FIG. 8.



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BRUSH FOR REMOVING DUST AND DANDRUFF FROM THE HAIR

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Application February 7, 1956, Serial No. 564,061

1 Claim. (Cl. 15—397)

This invention relates to a brush device attachable to the suction hose of a vacuum cleaner, and usable for loosening and removing dust, dandruff, and other foreign particles from the hair.

Summarized briefly, the invention includes a tubular handle attachable to a vacuum cleaner fitting, for creating a suction within the handle responsive to operation of the vacuum cleaner; a head of hollow formation rigidly connected in communication with the handle; a plurality of tubular nipples of flexible construction fixedly connected to the head in communication with the interior thereof, through which nipples particles may be removed; and a removable attachment for the head in the form of a channel element frictionally engageable with the head, having a plurality of openings adapted to receive the nipples, and formed with rows of bristle tufts alternating with the rows of nipples of the head, for the purpose of cooperating with the nipples in dislodging dandruff and other foreign particles from the hair, whether animal or human.

Among important objects of the invention are the following:

To form a device of the type stated which can be manufactured at low cost; to permit selective use either of the nipple-equipped head alone or, alternatively, the head with the tufted brush element attached;

To provide a particular relationship of nipples to bristle tufts, in which the bristle tufts will be slightly longer than the nipples for the purpose of spacing the nipples slightly away from the scalp to provide an improved suction following dislodgment of the particles by the bristle tufts;

To facilitate attachment or removal of the tufted brush element; and

To provide a device of the character described that will be capable of being easily cleaned, so as to be readily maintained in a sanitary condition.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings in which like reference characters designate like parts throughout the several views and wherein:

Figure 1 is a bottom plan view of a device formed according to the present invention;

Figure 2 is a side elevational view;

Figure 3 is a bottom plan view of the detachable brush element;

Figure 4 is a sectional view taken longitudinally through the brush element on line 4—4 of Figure 3;

Figure 5 is an exploded end elevational view of the head and brush element, the dotted lines showing the position of the side walls of the brush element prior to attachment of the same to the head;

Figure 6 is an end elevational view of the head and brush element in their connected relationship;

Figure 7 is a longitudinal sectional view through the connected head and brush element on line 7—7 of Figure 6; and

Figure 8 is a transverse sectional view on line 8—8 of Figure 7.

The device constituting the present invention includes a main member shown in Figures 1 and 2, formed of plastic, rubber, or any other suitable material, and including an elongated, tubular handle **10** the outer end of which is enlarged in diameter and is cylindrically formed to receive a tubular connecting fitting **12** of a vacuum cleaner, not shown, whereby the handle **10** can be connected in communication with the suction conduit of the vacuum cleaner, to create a suction within the handle responsive to operation of the vacuum cleaner. The handle **10** is of rigid formation, preferably, although it could be slightly flexible if desired. In any event, the handle **10**, at its outer end, is integral or otherwise made rigid with an elongated, wide, approximately rectangular, flat, hollow base **14** of a head including also a plurality of longitudinal rows of nipples **16**.

As shown in Figure 1, the nipples or each row are offset longitudinally of the base **14** relative to the nipples of the next adjacent row, so as to provide a staggered array of the nipples, with the nipples of each row being spaced apart a distance less than the distance between adjacent rows.

Each nipple is formed as an elongated, tubular member tapering in a direction away from the base **14**, and formed open at its opposite ends, so that the smaller ends of the nipples may be disposed deeply in the hair for the purpose of causing dirt, dust, dandruff, and other foreign particles to be sucked into the nipples and drawn through the head and handle into the vacuum cleaner suction conduit.

Preferably, the nipples are flexible, so that they will not press too hard against the scalp and thus cause discomfort to the user, and so that, further, they will bend slightly as they are moved across the scalp, with the smaller, outer ends of the nipples being bent rearwardly in respect to the direction in which the device is moved, thus to dispose the inlet openings of the several openings approximately in inclined planes oblique to the line of movement of the device. This arrangement, as will be appreciated, turns the outer ends of the nipples slightly out of full contact with the scalp, so as to provide a small space between the inlet openings of the nipples and the scalp surface, to insure that there will be proper suction in all the nipples and to insure, further, that the nipples will be properly located at their inlet ends for causing a suction in the hair in the area adjacent the scalp, where the major part of the foreign material to be removed is located.

The device as illustrated in Figures 1 and 2 can be used alone if desired. However, in accordance with the present invention, there is provided a quickly detachable brush element, connectable to the head in such a manner as to cooperate with the nipples in removing foreign material from the scalp. This attachment is shown per se in Figures 3 and 4, and has been generally designated **18**. The attachment constitutes a brush element, formed with a flat base plate **20** which in outer configuration and area substantially corresponds to those of the base **14** of the head. Formed in the base plate **20** are openings **22**, the diameter of which is slightly greater than the outer diameter of the nipples **16** at the larger, inner ends of the nipples. The openings **22** are arranged to register with the several nipples, when the brush element is properly disposed for attachment to the head.

Integrally formed upon the opposite longitudinal edges of the base plate **20** are upstanding, relatively low clamping walls **26**, said walls being formed as longitudinal flanges upon the sides of the base plate **20** and being integral at their upper ends with upwardly convergent clamp-

ing lips 28, said clamping lips being of curved formation, so as to complement a corresponding curvature of the edge portions of the base 14 along opposite sides of the base, as shown in Figure 6.

Embedded or otherwise fixedly secured to and depending from the base plate 20 are rows of bristle tufts 24, each tuft being progressively increased in cross sectional area in the direction of its outer end, so as to be tapered oppositely to the taper of the nipples. This is shown to particular advantage in Figure 8, in which it is seen that the rows of bristle tufts, alternating with the rows of nipples in the attached position of the base plate 20, due to being tapered oppositely relative to the nipples, are spaced from the inner to the outer ends of the nipples a uniform distance from the adjacent surfaces of the nipples.

This arrangement assures that while the bristle tufts will be spaced closely from the nipples so as to permit the nipples to act efficiently upon the particles dislodged by said tufts, said bristle tufts will not be interfered with, when they flex during movement of the device over the scalp, by the nipples, and will be fully flexible from the inner to the outer ends of the tufts.

The tufts, as shown in Figure 3, are arranged in longitudinal rows, spaced substantially uniform distances apart transversely of the base plate 20, with the rows of tufts alternating with the rows of openings 22.

In use of the device, and assuming that the brush element is to be attached to the suction head, the side walls 26, being of springable material, are flexed outwardly away from one another to the dotted line positions shown in Figure 5, and the brush element is slipped over the base 14, being moved in an upward direction from its Figure 5 position until it is fully engaged with the base in the manner shown in Figure 6. The walls 26 are now released, and will spring back to their normal positions, causing the lips 28 to engage over the sides of the base 14, thus to securely clamp the brush element upon the suction head.

The nipples 16 will now project through the openings 22, as shown in Figure 7, and the device is ready for use. Due to the nipples 16 projecting through the openings 22 which are of a diameter slightly larger than the nipples, the plate 20 and nipples 16 engage just as soon as the nipples are displaced from truly concentric positions, which is desirable, since this tends to maintain the nipples slightly more resistant to flexure, thus to maintain them in proper position while the brustle tufts are still fully flexible. The bristle tufts will flex laterally in respect to the nipples, so as to cause the outer ends of the tufts, which depend below the outer ends of the nipples as shown in Figures 7 and 8, to move under the outer, inlet ends of the nipples, for the purpose of disposing particles dislodged by the bristle tufts in position to be sucked into the nipples.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claim.

What is claimed is:

A device for removing foreign material from the hair comprising: a hollow suction head including means to connect the same in communication with a vacuum cleaner for creating suction within the head in response to operation of the cleaner, said head having a flat bottom surface; a plurality of elongated, tubular, open-ended nipples fixedly, permanently connected with and projecting downwardly from said bottom surface in communication with the interior of the head, said nipples being progressively decreased in diameter in a direction from their bases to their lower, free ends; and a brush element formed wholly separately from and detachably connected with the head, said element including a base plate abutting said surface so as to be limited thereby against movement longitudinally of the nipples in one direction, the base plate having spaced openings of a diameter slightly greater than the diameter of the nipples, said nipples projecting through and engaging in the openings to define at their bases abutments engaging the base plate against movement transversely of the nipples, said nipples projecting downwardly a substantial distance below the base plate, resiliently spreadable clamping walls on the base plate formed with confronting lips engaging over the top surface of the head to hold the base plate against movement longitudinally of the nipples in the opposite direction, and bristles permanently, fixedly connected with the base plate in the spaces between the openings, the nipples and bristles coextending for the full length of the nipples and for the major part of the length of the bristles.

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