

Oct. 25, 1949.

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2,486,203

BRUSH WITH RETRACTABLE BRISTLES

Filed June 9, 1945

2 Sheets-Sheet 1

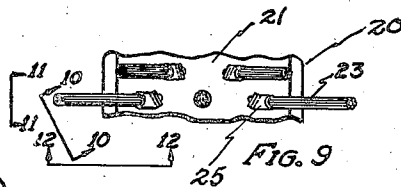
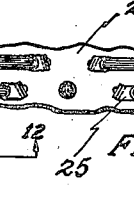
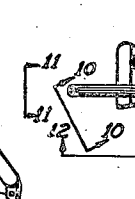
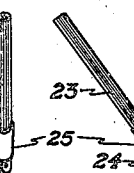
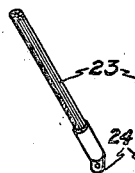
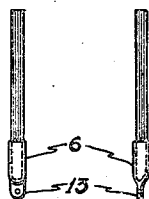
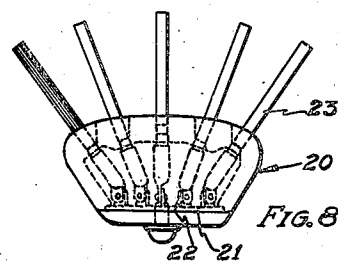
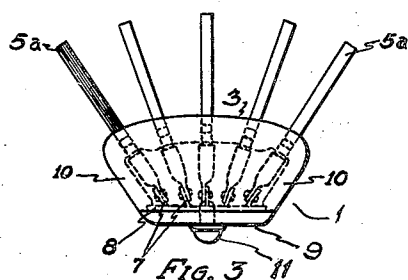
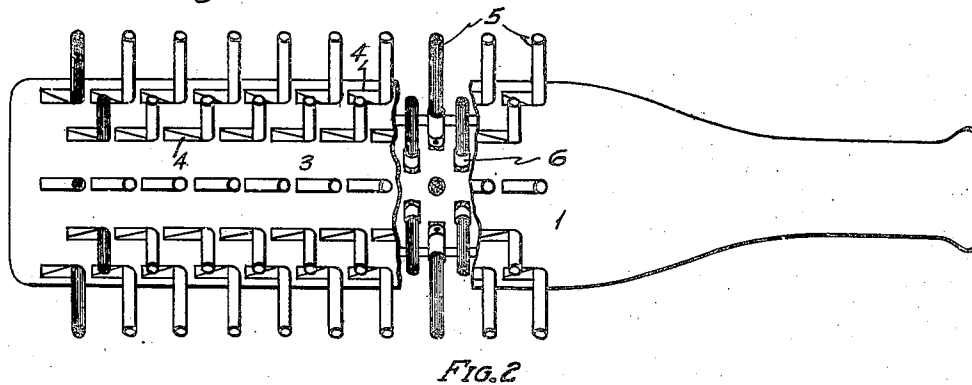
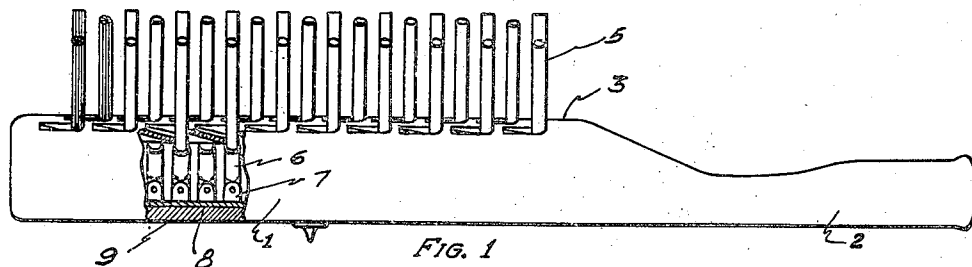


FIG. 6 FIG. 7 FIG. 10 FIG. 11 FIG. 12

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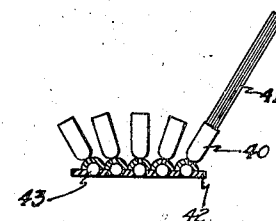
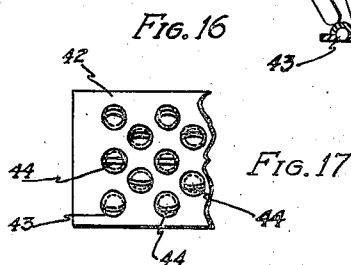
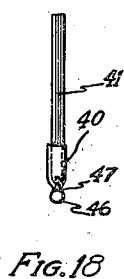
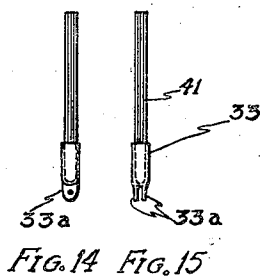
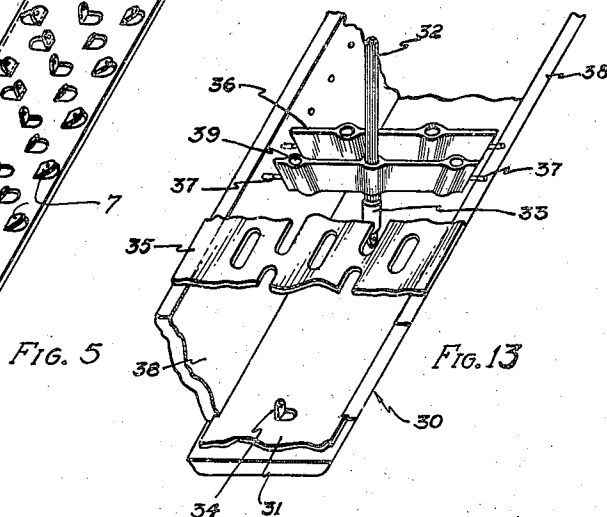
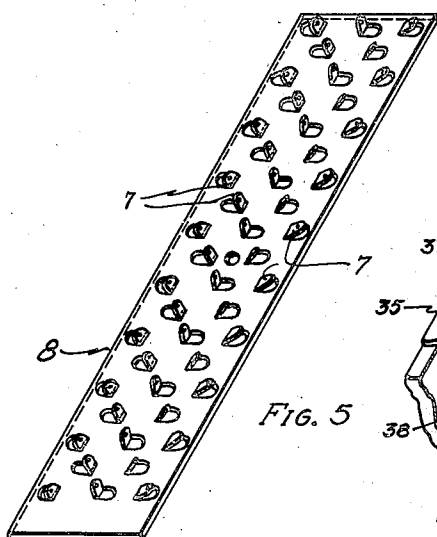
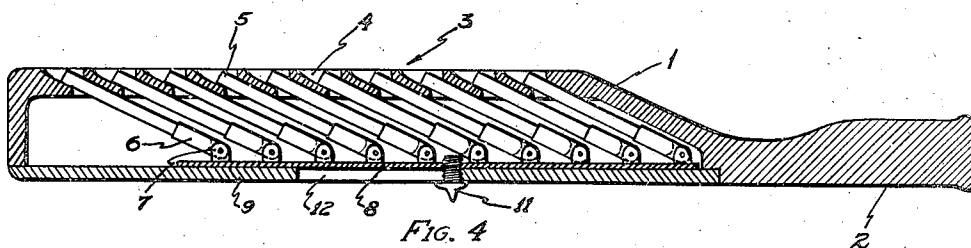
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BRUSH WITH RETRACTABLE BRISTLES

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BRUSH WITH RETRACTABLE BRISTLES

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6 Claims. (Cl. 15—203)

1

The invention relates to brushes in which the bristles may be projected and retracted, and is particularly adapted for a hair brush to be carried in a pocket, purse or bag although the invention is not limited to such brushes.

One object of the invention is to closely surround each tuft of bristles with a portion of the brush body so that the bristles may be firmly supported transversely of their length during a brushing operation.

Another object is to provide for the divergence of the bristle tufts when they are projected from the body, thus increasing the effective overall surface of the ends of the projected tufts over the surface of the body from which they are projected.

Another object is to provide for such divergence or spreading of the bristle tufts in one plane while effecting the projection and retraction by movement of the inner or anchored ends of the tufts in another plane.

Another object is to effectively anchor and guide the bristle tufts to the brush body and associated parts.

In the accompanying drawings illustrating the invention—

Figure 1 is a side elevation, sectioned in part, of a brush showing the tufts of bristles projected.

Figure 2 is a top view of the brush with a part broken away to more clearly illustrate the construction.

Figure 3 is an end view of the brush looking towards the left hand end in the Figures 1 and 2.

Figure 4 is a longitudinal vertical section through the brush showing the bristles retracted.

Figure 5 is an isometric view of the tuft mounting member movable along the inner face of the back of the brush.

Figures 6 and 7 are elevations of a single bristle tuft and its socket, the two views being at right angles to each other.

Figure 8 is an end view corresponding to Figure 3 but showing another form of the invention.

Figure 9 is a top view of a segment of the structure shown in Figure 8.

Figures 10, 11 and 12 are elevational views of a bristle tuft and its socket as shown in Figures 8 and 9 and are taken upon the corresponding view-indicating lines of Figure 9.

Figure 13 is a fragmentary isometric view illustrating another form of the invention.

Figures 14 and 15 are details of the bristle tuft and socket shown in Figure 13, the views being taken at right angles to each other.

Figure 16 is a vertical transverse section

2

through the connections between the bristle sockets and the member to which they are attached in another modification.

Figure 17 is a top view of the member to which the bristle sockets are attached.

Figure 18 is a detail of the tuft socket shown in Figures 16 and 17.

The brush includes a hollow, elongated body portion 1 provided with a handle 2 which may be an integral part of the body or may be detachably secured thereto. The front wall 3 of the brush body has a plurality of apertures 4, there being a separate aperture for each bristle tuft 5. The axes of the apertures are inclined to the surface of wall 3 and preferably each aperture is elongated longitudinally of the body so that the tuft as a whole may be inclined longitudinally of wall 3, without bending, as shown in Figure 4, or may be perpendicular to, or radial of, wall 3, without bending, as shown in Figures 1 and 3.

The bristles of each tuft 5 are seated in a socket 6 which is pivoted to an individual lug 7 struck up from a mounting plate member 8 which is slidable longitudinally of the body back wall 9. The sides of plate 8 may be received in grooves provided therefor in the body side walls 10. A pin 11, secured to plate 8, may project through a slot in back wall 9. The slot extends lengthwise of a wall and this arrangement provides for manual sliding of plate 8 longitudinally of the brush body.

Preferably each aperture 4 is adapted to receive a single bristle tuft and so surrounds the tuft that it affords support for the bristles longitudinally and transversely of the brush whether the bristles are retracted, as shown in Figure 4, or are projected, as shown in Figures 1-3.

Adjacent apertures 4 and adjacent mounting lugs 7 are spaced apart the same distance longitudinally of the brush (Figure 4) but are spaced apart different distances transversely of the brush (Figure 3), the distance between adjacent apertures transversely of the brush being greater than the distance between corresponding lugs 7. Hence, when plate 8 is moved to the left from the position shown in Figure 4 and tufts 5 are projected from wall 3, tufts adjacent to each other transversely of the brush will diverge outwardly, as best shown in Figure 3. This provides the outer ends of the brush (bristles) with a larger overall area than the brush body and, since the outer ends of tufts 5a at the sides of the brush are positioned outwardly from the brush body

3

side walls 10, the brush may be rolled during the stroke accommodating the variation in the angle between the user's arm and the strand of hair, thus making the action of the brush more convenient than if the tufts are straight and parallel.

In the arrangement shown in Figures 1-7, all of the tuft sockets or bases 6 are the same and each has a flat ear 13 disposed in the same longitudinal plane as the axis of the brush. The mounting plate lugs 7 are inclined at various angles to the plate to provide the desired mounting of the diverging tufts and ears 13 and lugs 7 are pivotally connected and bear flatly on each other and the tuft swings in the inclined plane of the lug as the tufts are projected and retracted.

Figures 8-12 illustrate another form of the invention in which the brush body 20 is substantially the same as that previously described and the tuft mounting plate 21 is similarly mounted in the body but its lugs 22 are all perpendicular to the plate and the desired position of the tufts 23 is effected by inclining the ears 24 on the sockets 25 according to the angles which it is desired the tufts are to assume. Those tufts which are disposed perpendicularly along the median line of the brush have sockets similar to those illustrated in Figures 6 and 7 but the tufts which are disposed diagonally have the ears on their sockets inclined to the longitudinal axis of the tuft, as indicated in Figures 10, 11 and 12, the degree of inclination varying according to the desired inclination of the projected tufts.

Figures 13-15 illustrate another form of the invention in which the brush body 30, the sliding plate 31, and the tuft structure 32 and the connection of the same to the base by sockets 33, having ears pivoted to lugs 34 on plate 31, are substantially the same as shown in Figures 1-7, but intermediate plate 31 and front wall 35 there is provided a series of guide plate devices 36 each extending from side to side of the brush and provided with pintles 37 by which the plate is pivoted in the brush side walls 38. Each plate 36 has a plurality of cylindrical passageways 39 through which the tuft extends.

When the tufts are projected and retracted, plates 36 swing on their pintles 37 to accommodate the angular movement of the tufts. Irrespective of the position of the tufts, they are closely surrounded by passageways 39 and are more firmly positioned.

These figures illustrate a variation in the tuft socket structure in that each socket is provided with a pair of ears 33a which receives the corresponding mounting plate lug 34 between them, thus placing the pivot pin in double shear and providing a more stable connection between the tuft and the mounting plate.

Figures 16-18 illustrate another arrangement of the connection between the socket 40 of each tuft 41 and a mounting plate 42 which corresponds generally to the mounting plates previously described. The mounting plate has a series of spherical cups 43 each slotted as indicated at 44, the slots being disposed at different angles to the plate. Each tuft socket 40 has a ball-like ear 46 adapted to be received in a cup 43. The inclination of the tuft is determined by the angular disposition of the slot 44 which receives the neck 47 by which ball 46 is connected to socket 40.

It will be understood that any of the tuft socket and backing plate connections may be used in either form of the projecting and retracting structures and, if desired, more than one type of

4

connection may be used in the same brush for different tuft sockets.

All forms of the invention have the common feature of adapting a series of tufts for radial projection from the brush body as the mounting plate is slid transversely of the length of the tufts, and the feature of providing an individual aperture for the tuft which tends to hold the tuft more firmly in its position and to remove lint or other material adhering to the tuft as it is retracted.

The details of the structure may be varied other than as described and illustrated without departing from the spirit of the invention, and the exclusive use of those modifications coming within the scope of the claims is contemplated.

What is claimed is:

1. In a brush of the class described, an elongated hollow body having a wall, a member slidable longitudinally of said body and spaced from said wall, a plurality of tufts of bristles having connections to said member, said wall being provided with a corresponding plurality of apertures receiving said tufts, adjacent apertures being spaced apart transversely of the body a greater distance than adjacent connections between the corresponding tufts and said member, whereby the tufts disposed transversely of the body relative to each other diverge outwardly as they are projected from the body by the movement of said member to bring the connections beneath the corresponding apertures.

2. In a brush of the class described, a hollow, relatively long and shallow body having opposed walls, a plate slidable along an inside face of one of said walls and having upstanding lugs spaced apart transversely of the body and inclined to each other transversely of the direction of the sliding movement of the plate, the opposite wall of the body having apertures, and tufts of bristles each having an individual base pivoted to a respective one of said lugs to swing in the general plane of the lug and at an angle to the adjacent tufts and the tufts being movable longitudinally of their length through the apertures as the plate is slid lengthwise of the body.

3. In a brush of the class described, a hollow, relatively long and shallow body, a plate slidable along an inside face of one elongated wall of the body and having upstanding lugs, the opposite wall of the body having apertures, adjacent apertures being spaced apart transversely of the body a greater distance than adjacent lugs, and tufts of bristles each having an individual base with an ear pivoted to a respective one of said lugs, and each tuft being received in an individual one of said apertures and being movable longitudinally of its length through its respective aperture as the plate is slid lengthwise of the body whereby the tufts disposed transversely of the body relative to each other diverge outwardly as they are projected from the body.

4. In a brush of the class described, a body, a member slidably mounted in the body, a plurality of bristle tufts having pivotal connections to said member, and a device extending transversely of the tufts and having pivotal connections to the body and embracing portions of the tufts spaced from said member, said tufts being movable lengthwise relative to said device as said member is slid in said body.

5. In a brush of the class described, a hollow relatively long and shallow body having elongated front and back walls, said front wall having transversely spaced apertures, a member mov-

5

able lengthwise of the body in a direction substantially parallel to said front wall, and tufts of bristles secured to said member and received in said apertures and spaced apart transversely of the body a less distance than associated apertures and projected through said apertures at different angles to each other, but in a common general direction away from said back wall, as said member is moved in one direction, and retracted through said apertures as the member is moved in the opposite direction.

6. In a brush of the class described, a body, a member movable relative to said body, a plurality of bristle tufts having pivotal connections to said member, and a device extending transversely of said body and tufts and mounted for pivotal movement relative to said body, said device having apertures spaced apart transversely of said body and opening longitudinally of said tufts and receiving portions of said tufts spaced from said member, said tufts being movable lengthwise relative to said device and said device pivoting

6

relative to said body to accommodate the inclination of said tufts as said member is moved relative to said body.

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