Dec. 18, 1956 M. E. TAYLOR 2,774,096

COLLAPSIBLE BRUSHES

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Fig. 2.

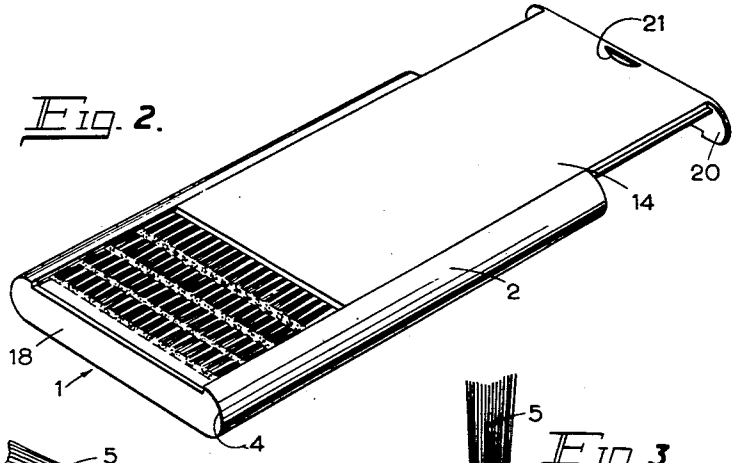


Fig. 3.

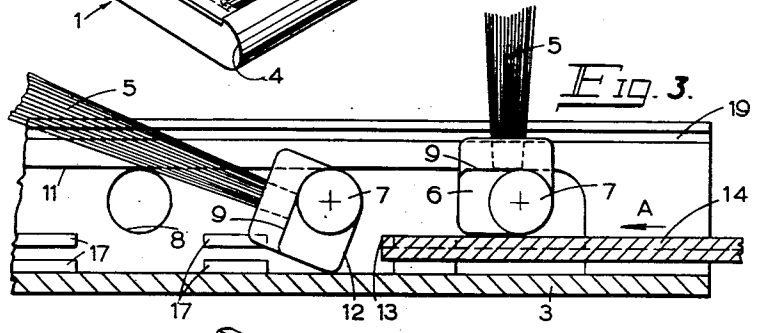
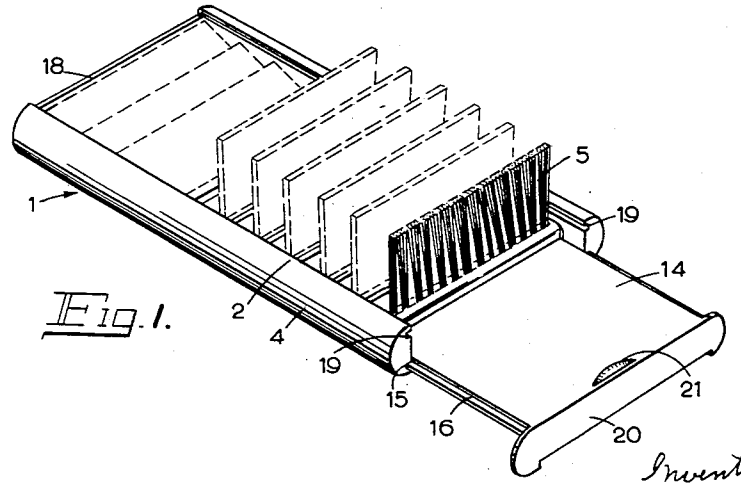


Fig. 1.



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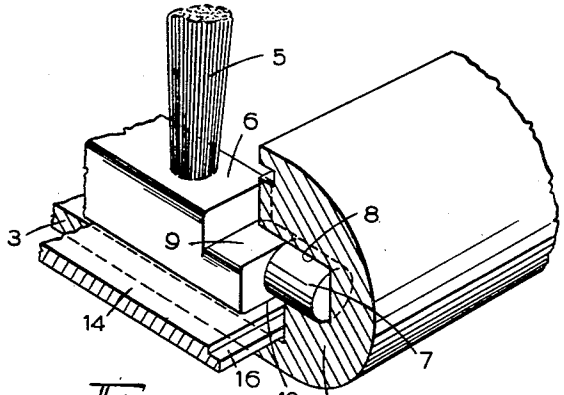


Fig. 6.

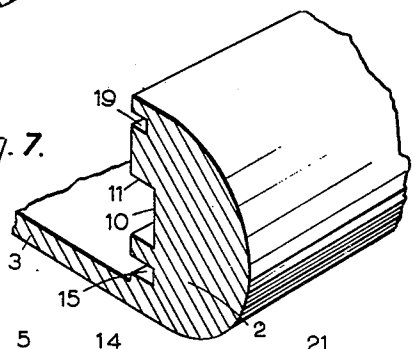


Fig. 7.

Fig. 4.

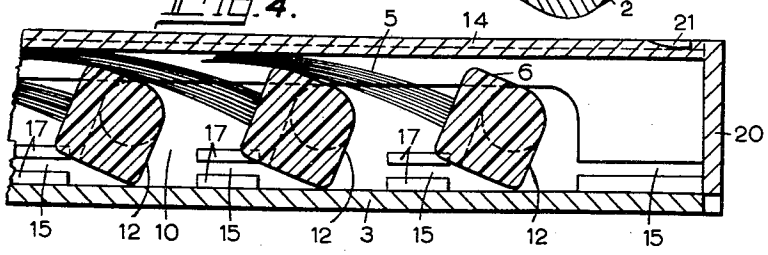
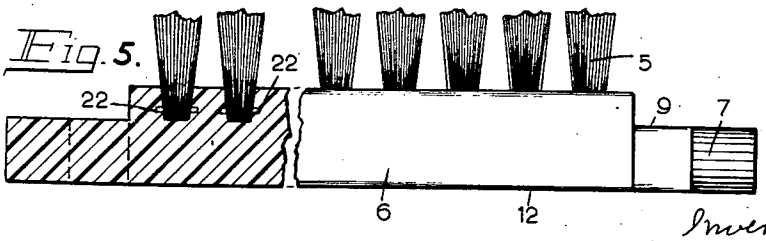


Fig. 5.



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COLLAPSIBLE BRUSHES

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3 Claims. (Cl. 15—203)

This invention relates to brushes, such as hair brushes, clothes brushes or the like of the collapsible kind which are convenient for carrying on the person or in a handbag.

The invention relates especially to such brushes of the kind in which the bristles are mounted in angularly movable mounts capable of movement between a position of use in which the bristles extend substantially perpendicular to the brush back and a recumbent position in which the bristles lie substantially flat upon the brush back.

Brushes of the kind described have been proposed in which rack-and-pinion, lever linkage, or lever cam systems have been used for moving the bristle mounts between, and/or holding them in, their alternative positions. Such systems are disadvantageous in that they entail mechanisms which may be considered as complicated for such purposes and suffer from wear in use, resulting in imperfect operation of the brush. Further, parts of the mechanisms, such as operating levers or pinions project from the brush back in the recumbent position of the bristles in an unsightly or inconvenient manner.

It is an object of the present invention to provide cam parts on the bristle mounts, a slideway in the brush back below the mounts a slider for insertion in the slideway with a part in engagement with the cam parts so as to cause them to rotate the bristle mounts from the recumbent position to the position of use in which the cam parts bear upon the slider and so hold the bristle mounts in the said position of use.

It is a further object of the invention to provide surfaces on the bristle mounts eccentric to the axes of their trunnions, a slideway between the bristle mounts and the web of the brush back and a slider for insertion in the slideway where it comes into engagement with the eccentric surfaces of the bristle mounts which in co-operation with the slider rotate the mounts to raise the bristles and securely anchor the bristle mounts in the position of use.

Further objects of the invention will appear from the following description and the statement of claim hereinafter appearing.

An embodiment of the invention is illustrated by way of example in the accompanying drawings in which:

Figure 1 is a perspective view of a brush in accordance with the invention with the slider partly inserted for erecting the bristles.

Figure 2 is a perspective view showing the slide partly inserted in its alternative position as a cover for the bristle face of the brush.

Figure 3 is a part-longitudinal section showing the slider partly inserted for bristle raising.

Figure 4 is a part-longitudinal section showing the slider inserted as a cover.

Figure 5 is a part-sectional elevation of a bristle mount.

Figures 6 and 7 are scrap perspective views showing details of construction.

In the illustrated embodiment the brush back 1 is of shallow channel shape, with flanges 2 and a web or base 3. The outer surfaces of the flanges 2 are rounded as

indicated at 4 to present a smooth surface and pleasing appearance.

The bristles 5 of the brush are mounted in rows on bristle mounts 6 which have trunnions 7 at their ends rotatably received in bearings 8 in the flanges 2. The mounts 6 are thus rotatable between a position of use in which the bristles 5 are erect with respect to the brush back as shown in Figure 1 and at the right hand side of Figure 3, and an out of use recumbent position in which the bristles 5 lie within the channel brush back as shown in Figure 2 and at the left hand side of Figure 1. The mounts are prevented from rotating beyond the position of use by lands 9 adjacent to their trunnions 7 which are accommodated in recesses 10 in the flanges 2 and which in the position of use engage the wall 11 of the recess 10 to prevent further rotation of the mounts.

For erecting the bristles and holding the mounts in the erected position of use, cam faces 12 are formed on the undersides of the mounts, and in the recumbent position are presented for engagement by the end 13 of a slider 14 which is adapted for insertion between the mounts 6 and the web or base 3 of the brush back as shown in Figures 1 and 3. Reference to Figure 3 will show that as the slider 14 is inserted in the direction of the arrow A its end 13 will engage successively with the cam face 12 of each of the bristle mounts 6, causing them to rotate into the position of use. In this position, the flat cam faces 12 engage the surface of the slider 14 and this engagement, together with the above-mentioned engagement between the lands 9 and wall 11 of the recess 10, holds the mounts securely in the position of use.

For receiving the slider and guiding its movement on insertion, the flanges 2 are provided with grooves 15 at the end at which the slider is inserted, and below the level of the trunnion bearings 8 forming a slideway for receiving and guiding the rabbetted edges 16 of the slider, and the slideway is continued in the intervals between the bristle mounts by guide blocks 17 projecting from the base of the recess 10. The end of the brush back opposite that at which the slider is inserted is closed by an end wall 18 to give a neat appearance.

In the illustrated embodiment the slider 14 has an alternative function as a cover for the brush in the recumbent position. For this purpose the flanges 2 are provided with further longitudinal grooves 19 extending throughout their length above the level of the bearings 8 so that when the rabbetted edges 16 of the slider are engaged in these grooves its upper surface is flush with the top of the walls, so neatly closing the brush back in the manner of a case. An end wall 20 is secured to the slider for closing the otherwise open end of the brush back in this position. Figure 2 shows the slider partly inserted as a cover, and Figure 4 shows the closed brush back in section. It will be understood that as the slider is inserted as a cover, if the bristles 5 are erect in the position of use, the end 13 of the slider will engage them, rotating the mounts 6 into the recumbent position as it passes.

In a modified construction the grooves 15 and the rabbetted edges 16 are adapted so that the slider 14 may be inverted, with respect to its alternative position as a cover, when it is inserted below the trunnion bearings. The end wall 20 will then close the end of the brush back in both positions of the slider, giving a neater appearance in the position of use of the brush.

For convenience in manipulating the slider it is provided with a thumbnail slot 21 in the known manner of sliding covers.

The brush illustrated is conveniently manufactured from plastic. The bristle mounts 6, as shown in Figure 5 are single mouldings, with the bristles 5 moulded in position as inserts and anchored in the known manner by a metal

anchor strip **22** around which the hairpin-like bristles are passed.

The slider **14** too is a single moulding.

The brush back **1**, for assembly purposes, must be formed from two mouldings, one including the web or base **3** and one flange **2**, and the other being a single flange **2**. The mouldings are secured together, after assembly of the bristle mounts within the back, by adhesive or other known means. A suitable plastic for the mouldings is Polystyrene.

To assist the ease of operation of the brush the end **13** of the slider **14** may, if desired, be rounded or bevelled for smoothly riding past the cam faces **12**.

The improved brush presents a neat appearance when closed by the slider, and can quickly and readily be brought into the position of use by simply removing the cover or slider **14** from the upper grooves **19** and re-inserting it in the lower grooves **15**. After use, the brush is equally readily collapsed by removing the slider from the grooves **15** and inserting it as a cover in the upper grooves **19**. The closed brush may be readily accommodated in a coat pocket or handbag or other restricted space.

I claim:

1. A collapsible brush comprising a shallow channel-like brush back having parallel flanges substantially perpendicular to a base part, bearings in the flanges, elongated bristle mounts having trunnions at their ends which are rotatably received in the bearings, bristles mounted on the bristle mounts and movable on rotation of the trunnions in their bearings between a position of use in which they extend substantially perpendicular to the base part and a recumbent position in which they lie substantially flat upon the base part, surfaces on the bristle mounts eccentric to the axes of their trunnions, a slideway between the bristle mounts and base part of the brush back and a slider for insertion in the slideway where it comes into engagement with said eccentric surfaces of the bristle mounts which in cooperation with the slider rotate the mounts to raise the bristles and securely anchor the bristle mounts in the position of use, guide means in the flanges of the brush back above the bristle mounts whereby the slider when removed from the slideway may alternatively

be inserted in said guide means to turn back the bristle mounts and form a cover for the brush back with the bristles in the recumbent position.

2. A collapsible brush according to claim 1 wherein the edges of the slider are rabbeted and longitudinal parallel grooves in the inner faces of the flanges above and below the bearings form the slideway for slidably receiving the rabbeted edges of the slider when it is inserted below the bearings in the position of use and the guide means for receiving the rabbeted edges of the slider when it is inserted in its alternative position above the bearings as a cover.

3. A collapsible brush comprising a shallow channel-like brush back having parallel flanges substantially perpendicular to a base part, a longitudinal recess in the inner face of each flange and transverse bearings in the flanges, leading from the bases of the recesses, elongated bristle mounts having trunnions at their ends which are rotatably received in the bearings, bristles mounted on the bristle mounts and movable on rotation of the trunnions in their bearings between a position of use in which they extend substantially perpendicular to the base part and a recumbent position in which they lie substantially flat upon the base part, flat lands on the bristle mounts adjacent their trunnions engaging walls of the recesses in the position, of use to prevent rotation of the trunnions, beyond that position surfaces on the bristle mounts eccentric to the axes of their trunnions a slideway between the bristle mounts and the web of the brush back and a slider for insertion in the slideway where it comes into engagement with said eccentric surfaces of the bristle mounts which in co-operation with the slider rotate the mounts to erect the bristles and anchor the bristle mounts in the position of use.

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