

A hairbrush

The present disclosure relates to a hairbrush, and particularly, but not exclusively, relates to a hairbrush comprising a retractable handle.

5

Background

The cost of shipping has increased significantly in recent times and as a result it is desirable to reduce the size of products to reduce packing volume and thus shipping costs. The present disclosure therefore seeks to reduce the size of a hairbrush, at least during transit.

10

It is also desirable to have configurable products with parts that can be readily interchanged, for example, by the end consumer or during assembly. This can maximise the number of possible combinations whilst minimizing the number of parts required.

15

It is also desirable for a hairbrush to be rigid to facilitate ease of use. However, having a configurable hairbrush that can be reduced in size may compromise its rigidity. The present disclosure therefore seeks to address this issue.

20

Summary of the invention

According to an aspect of the present disclosure there is provided a hairbrush comprising a body and a handle,

25

wherein the body comprises a front portion and a back portion, the front portion comprising a plurality of bristles;

wherein the handle is slidably engaged with respect to the body such that the handle is movable between an extended position, in which the handle is graspable by a user, and a retracted position, in which the handle is substantially retracted into the body.

30

The body may comprise at least one guide (e.g. guide rail) that may cooperate with an end of the handle so as to guide the handle between the extended and retracted positions.

At least one of the guides may be resiliently flexible. The handle and the at least one resiliently flexible guide may interact to provide a snap fit as the handle moves into the extended position.

- 5 The at least one resiliently flexible guide or at least one further resiliently flexible guide may interact with the handle to provide a snap fit as the handle moves into the retracted position.

- 10 The resiliently flexible guide rails may be elongate cantilevers with a fixed proximal end and a free distal end. The free distal end may interact with the handle to provide the snap fit.

- 15 The body may comprise a first pair of guide rails. The first pair of guide rails may be provided either side of the end of the handle. At least one of the guide rails (e.g., both) of the first pair of guide rails may resiliently flex in a lateral direction with respect to the handle to provide the snap fit as handle moves into the extended position.

- 20 The body may comprise a second pair of guide rails provided either side of the end of the handle. At least one of the guide rails (e.g., both) of the second pair of guide rails may resiliently flex in a lateral direction with respect to the handle to provide a snap fit as the handle moves into the retracted position.

- 25 The second pair of guide rails may be longitudinally spaced apart from the first pair of guide rails (e.g., in a longitudinal direction of the handle). The free distal ends of the at least one resiliently flexible guide rail of the first pair of guide rails and the at least one resiliently flexible guide rail of the second pair of guide rails may be at opposite ends of the body.

- 30 The handle may comprise a ramp portion at the end of handle. The ramp portion may be arranged to interact with at least one resiliently flexible guide rail to cause the resiliently flexible guide rail to flex. The ramp portion may interact with both the first pair and second pair of guide rails as the handle moves between the extended position and the retracted position.

- 35 The or each of the resiliently flexible guide rails may comprise one of a protrusion or recess that is configured to cooperate with a corresponding recess or protrusion on the

handle. The protrusion and recess may be configured to engage one another when the handle is in the extended and/or retracted positions. The interaction of the protrusion and recess may contribute to the snap fit.

- 5 The body may comprise at least one rigid guide rail configured to guide the handle between the extended and retracted positions. The handle may comprise at least one slot. The slot and rigid guide rail may cooperate with one another.

- The body may comprise a pair of rigid guide rails and the handle may comprise a pair of
10 corresponding slots. One of the rigid guide rails and its corresponding slot may have a substantially rectangular cross-section and the other rigid guide rail and its corresponding slot may have a substantially triangular cross-section.

- The end of the handle may comprise a tapered portion. The body may comprise a
15 correspondingly tapered region that receives the tapered portion of the handle when the handle is in the extended position. The tapered portion of the handle and the tapered region of the body may provide an interference fit when the handle is in the extended position.

- 20 The body may comprise a bridge part that extends over the handle. The bridge part may hold the handle captive relative to the body. The bridge part may at least partially form the tapered region of the body. The bridge part may be adjacent to an opening in a wall of the body that the handle passes through.

- 25 At least one of the front portion and back portion may comprise at least one tab. The end of the handle may comprise a shoulder. The tab and shoulder may interact to prevent the handle from being removed from the body when the hairbrush is assembled.

- The body may define a cavity and the at least one guide rail may extend across at least
30 a portion of the cavity. The at least one guide rail may be supported at ends of the guide rail. The at least one guide rail may be coupled to a wall of the body at ends of the guide rail. The at least one guide rail may not otherwise contact walls of the body, e.g. such that it may be freely suspended in the cavity. The handle may retract into the cavity when in the retracted position.

The at least one guide rail may be resiliently flexible. The guide rail may be elongate, e.g. extending in a direction of travel of the handle. The at least one guide rail may flex in a lateral direction of the guide rail, e.g. perpendicular to a longitudinal axis of the guide rail.

5

The body may comprise a pair of guide rails. The guide rails may be provided either side of the end of the handle. At least one of the guide rails may resiliently flex in the lateral direction away from the end of the handle.

- 10 At least one of the guide rails may comprise a ramp portion. The ramp portion may be arranged such that, as the handle moves into the extended position, an interaction between the end of the handle and the ramp portion results in an interference fit between the end of the handle and the guide rail. The interaction between the end of the handle and the ramp portion may cause the at least one guide rail to resiliently flex, e.g. in the
- 15 lateral direction.

- One of the end of the handle and the at least one tab may comprise a recess and the other of the end of the handle and the at least one tab may comprise a protrusion. The recess and the protrusion may be configured to cooperate when the handle is in the
- 20 extended position. The cooperation between the recess and protrusion may provide a snap fit as the handle is moved into the fully extended position. The cooperation between the recess and protrusion may resist relative movement of the handle and body.

- Additionally or alternatively, one of the end of the handle and the at least one guide rail
- 25 may comprises a recess and the other of the end of the handle and the at least one guide rail may comprises a protrusion. The recess and the protrusion may be configured to cooperate when the handle is in the extended position.

- The end of the handle may comprise a projection. The projection may cooperate with the
- 30 guide rail. For example, a pair of projections may be provided so as to define a slot that receives at least a portion of the guide rail. A pair of projections may be provided on each side of the end of the handle. Each pair of projections may cooperate with a corresponding guide rail.

- 35 The projection may be sized to fit in a gap between the tab and the guide rail. The gap between the tab and the guide rail may have substantially the same thickness as the

projection. A tab may be provided for each projection. For example, the front portion may comprise a pair of tabs that face corresponding projections on either side of the end of the handle. The back portion may comprise a pair of tabs that face corresponding projections on either side of the end of the handle.

5

The protrusion may be provided on the projection and the recess may be provided on the tab. Each projection may comprise a protrusion. Each of the corresponding tabs may comprise a recess.

- 10 The body may comprise an elongate element that extends into an elongate slot of the handle. The elongate element and elongate slot may have cross-shaped cross-sections. The body may comprise a pair of guide rails and the elongate element may be disposed between the guide rails. The elongate element may extend across the cavity of the body. The elongate element may be coupled to a side wall of the body at only one end of the
- 15 elongate element. The other end of the elongate element may be received in the elongate slot of the handle.

- The handle and body may interact to provide a snap fit as the handle moves into the extended position. The snap-fit may be provided by virtue of the resilient guide rail and/or
- 20 the interaction between the cooperating protrusion and recess.

- The front portion and/or back portion may be separable from a chassis portion of the body. The front portion may be interchangeable with another front portion, e.g. of a different type. The back portion may be interchangeable with another back portion, e.g.
- 25 of a different type.

- The body may define a cavity and the body may comprise an outer wall extending around the cavity. The outer wall may comprise an opening for the handle to pass through. The body may comprise a pair of guide rails and the guide rails may connect to the outer wall
- 30 either side of the opening.

- The outer wall may have a region of reduced thickness, e.g. such that the outer wall may flex about the region of reduced thickness. The thickness of the outer wall in this region may be measured in the direction of movement of the handle (or the longitudinal direction
- 35 of handle). The region of reduced thickness may be adjacent to the opening. The region

of reduced thickness may be longitudinally spaced apart from the above-mentioned ramp portion (e.g. longitudinally spaced apart in longitudinal direction of handle).

5 The hairbrush may further comprise a removable cover portion. The cover portion may be configured to protect the bristles.

A hairbrush assembly may comprise the body (or portions thereof) and the handle. The hairbrush assembly may further comprise the cover portion.

10 These and other aspects will be apparent from and elucidated with reference to the embodiment(s) described hereinafter.

Brief description of the drawings

15 Exemplary embodiments will now be described, by way of example only, with reference to the following drawings, in which:

20 Figures 1a and 1b (collectively Figure 1) are perspective views of a hairbrush according to a first example of the present disclosure with Figure 1a showing a handle of the hairbrush in an extended position and Figure 1b showing the handle in a retracted position;

Figure 2 is a front view of a chassis portion of the hairbrush according to the first example of the present disclosure;

25 Figure 3 is a perspective view of a back cover portion according to the first example of the present disclosure;

Figure 4 is a perspective view of a front cover portion according to the first example of the present disclosure;

30 Figure 5 is a perspective view of a handle according to the first example of the present disclosure;

Figure 6 is a perspective view of the handle and chassis portion according to the first example of the present disclosure and shows the handle part way between the retracted and extended positions;

- 5 Figure 7 is a front sectional view of the handle and chassis portion according to the first example of the present disclosure and shows an interaction between rails of the chassis portion and the handle;

- 10 Figure 8 is a side sectional view of the hairbrush according to the first example of the present disclosure and shows the handle in the extended position;

Figure 9 is a perspective view of a hairbrush with the handle in the retracted position and a bristle cover protecting bristles of the hairbrush;

- 15 Figure 10 is a perspective view of a hairbrush according to a second example of the present disclosure showing a handle of the hairbrush in an extended position;

- 20 Figure 11 is a perspective view of a chassis portion of the hairbrush according to a second example of the present disclosure;

Figure 12 is a front view of the handle according to a second example of the present disclosure;

- 25 Figure 13 is a perspective view of the first end of the handle (e.g. a proximal end of the handle relative to the body) according to a second example of the present disclosure;

- 30 Figure 14 is a front view of the handle and chassis portion according to a second example of the present disclosure and shows an interaction between rails of the chassis portion and the handle;

Figure 15 is a perspective view of the handle and chassis portion according to a second example of the present disclosure and shows the handle part way between the retracted and extended positions.

- 35 **Detailed description of embodiments**

With reference to Figure 1, a hairbrush 10 according to a first example of the present disclosure comprises a body 20 and a handle 30. The handle 30 is slidably engaged with respect to the body 20 such that the handle 30 is movable between an extended position, shown in Figure 1a in which the handle 30 is graspable by a user, and a
5 retracted position, shown in Figure 1b in which the handle 30 is substantially retracted into the body 20.

With reference to Figures 2 to 4, the body 20 comprises a chassis portion 40 (shown in Figure 2), a back portion 50 (shown in Figure 3) and a front portion 60 (shown in Figure
10 4). The front portion 60 comprises a plurality of bristles 61, which are arranged on a surface of the front portion 60. The front portion 60 may comprise structural ribbing 63 on an inner surface of the front portion. The ribbing 63 may be absent where the handle 30 resides when in the retracted position.

15 The chassis portion 40, back portion 50 and front portion 60 may together define a cavity 70 that receives at least a substantial portion of the handle 30 when retracted. The chassis portion 40 may comprise an outer (e.g. perimeter) wall 41 extending around the cavity 70. The back portion 50 and front portion 60 may be coupled to the chassis portion 40, in particular the outer wall 41 of the chassis portion. For example, the back portion
20 50 may comprise resilient retaining hooks 52 that engage corresponding abutments 42 in the outer wall 41 of the chassis portion 40. Similarly, the front portion 60 may comprise resilient retaining hooks 62 that engage corresponding abutments 42 in the outer wall 41 of the chassis portion 40. The resilient retaining hooks 52, 62 may provide a snap-fit with the chassis portion 40.

25 As shown, the back portion 50 and front portion 60 are separate from the chassis portion 40. The front portion 60 and back portion 50 may be coupled to the chassis portion 40 during assembly of the hairbrush 10 and fixed thereto, e.g. by virtue of the resilient retaining hooks 52, 62. A range of different back portions 50 and/or front portions 60
30 may be provided and different ones of the back portions 50 and/or front portions 60 may be coupled to the chassis portion 40, e.g. during manufacture or even by the end user. However, it is also contemplated that the back portion 50 and/or front portion 60 may be integral with the chassis portion 40.

35 The body 20 may comprise at least one guide rail 80 that cooperates with a section or first end 30a of the handle 30 (e.g. a proximal end of the handle 30 relative to the body

20). The guide rail 80 is configured to guide the handle 30 as it slides between the extended and retracted positions. The guide rail(s) 80 may be straight such that the handle 30 may slide linearly. However, it is also contemplated that the guide rail(s) 80 may be curved such that the handle 30 may slide in an arc that may for example follow
5 a contour of the body 20.

As depicted in Figures 2, 6 and 7, the chassis portion 40 may comprise a pair of guide rails 80a, 80b. The guide rails 80a, 80b may be elongate, e.g. with a longitudinal axis extending in a direction of travel of the handle 30. The guide rails 80a, 80b may straddle
10 the handle 30, e.g. with one guide rail 80a, 80b either side of the handle 30. The guide rails 80a, 80b may be substantially parallel to each other. The guide rails 80a, 80b may extend across the cavity 70. Ends of the guide rails 80a, 80b may be coupled to the outer wall 41 of the chassis portion 40. The guide rails 80a, 80b may otherwise be freely suspended in the cavity 70.

15 As shown in Figures 6 and 7, the chassis portion outer wall 41 may comprise an opening 43 for the handle 30 to pass through. The guide rails 80a, 80b may connect to the outer wall 41 either side of the opening 43.

20 As best depicted in Figure 5, the first end 30a of the handle 30 may comprise a first pair of projections 34a, 34b on a first side of the handle 30 and a second pair of projections 34c, 34d on a second side of the handle 30. The first pair of projections 34a, 34b may define therebetween a first slot 35a that receives at least a portion of the guide rail 80a. The second pair of projections 34c, 34d may define therebetween a second slot 35b that
25 receives at least a portion of the guide rail 80b. The projections 34a-d (and thus slots 35a, 35b) extend in a longitudinal and lateral direction at the first end 30a of the handle. The slots 35a, 35b may cooperate with the corresponding guide rails 80a, 80b such that the handle 30 slides relative to the guide rails 80a, 80b.

30 Referring to Figures 5 and 6, the chassis portion 40 may further comprise an elongate element 90 that extends into an elongate slot 33 of the handle 30. The elongate element 90 may be disposed between the guide rails 80a, 80b and may be substantially parallel to the guide rails. As such, the elongate element 90 may extend across the cavity 70 of the body 20. The elongate element 90 may be coupled to the outer wall 41 at only one
35 end of the elongate element. The other end of the elongate element 90 may be received

in the elongate slot 33 of the handle 30. The elongate element 90 may assist in guiding the handle 30 as it moves between the extended and retracted positions.

5 The elongate element 90 and elongate slot 33 may have corresponding cross-sections that resist relative rotation of the chassis portion 40 and handle 30. For example, the elongate element 90 and elongate slot 33 may both have cross-shaped cross-sections.

10 As depicted in Figures 2 and 7, the guide rails 80a, 80b may each comprise a ramp portion 81a, 81b. The ramp portions 81a, 81b of respective guide rails 80a, 80b may face each other such that the ramp portions 81a, 81b result in a narrowing of a space between the guide rails 80a, 80b. The ramp portions 81a, 81b may be provided at an end of the guide rails 80a, 80b that is closest to the opening 43. The ramp portions 81a, 81b may be arranged such that, as the handle 30 moves into the extended position, an interaction between the handle first end 30a and the ramp portions 81a, 81b results in
15 an interference fit between the handle first end 30a and the guide rails 80a, 80b.

Furthermore, the guide rails 80a, 80b may be resiliently flexible in a lateral direction of the guide rails (e.g. perpendicular to the longitudinal axis of the guide rail and away from the guide rail). The interaction between the handle first end 30a and the ramp portions
20 81a, 81b may cause the guide rails 80a, 80b to resiliently flex in the lateral direction. The guide rails 80a, 80b may be sufficiently slender to permit such lateral flex. The guide rails 80a, 80b may be made from a plastics material that facilitates such flex. The chassis portion 40 may be made from the same plastics material (for example as the chassis portion and guide rails may be unitary). Other portions of the hairbrush 10 may be made
25 from the same plastics material.

As is best shown in Figure 2, the chassis portion outer wall 41 may have a region of reduced thickness 44, the thickness being reduced relative to other regions of the outer wall 41. (The thickness of the outer wall 41 is measured across the wall, e.g. towards
30 the cavity 70.) The region of reduced thickness 44 may allow the outer wall to flex about the region of reduced thickness 44. The region of reduced thickness 44 may be provided at the opening 43, for example with the thickness of the outer wall 41 being reduced either side of the opening 43. The region of reduced thickness 44 may be spaced apart from the ramp portions 81a, 81b (e.g. longitudinally spaced apart in the longitudinal
35 direction of the handle 30). This spacing may further assist the flex of the ramp portions 81a, 81b.

Referring now to Figures 3, 4 and 8, the back portion 50 comprises at least one tab 54 and the front portion 60 comprise at least one tab 64. In the example shown, the back portion 50 comprises a pair of tabs 54a, 54b and the front portion 60 comprise a pair of tabs 64a, 64b. The tabs 54, 64 extend into the cavity 70 and may face a corresponding one of the projections 34a-d at the first end 30a of the handle. Referring to Figure 5, the handle 30 may comprise a shoulder 36 at the first end 30a of the handle. Each of the projections 34a-d on the handle 30 may comprise a corresponding shoulder portion 36a-d. The tab 54, 64 and shoulder 36 may interact to prevent the handle 30 from being moved beyond the extended position. During assembly, the handle first end 30a may be inserted into the opening 43. However, once the back portion 50 and/or front portion 60 are coupled to the chassis portion 40, the handle 30 is prevented from being removed from the body 20 by the abutment of the shoulder 36 against the tabs 54, 64.

As is shown in Figure 8, the projections 34a-d may be sized to fit in a gap between the corresponding tab 54, 64 and the guide rails 80a, 80b. The gap between the tab 54, 64 and the guide rail 80a, 80b may have substantially the same thickness as the projection 34a-d, e.g. to provide an interference fit.

Referring still to Figure 8, each of the projections 34a-d may be provided with a protrusion 37a, 37b (protrusion 37d on projection 34d is depicted in Figures 5 and 6). Each of the tabs 54, 64 may comprise a recess 57, 67 corresponding to one of the protrusions 37a, 37b. In an alternative arrangement, the projections 34a-d may comprise the recesses and the tabs 54, 64 may comprise the protrusions. Either way, the recesses 57, 67 and protrusions 37a, 37b may correspond in shape such that each protrusion 37a, 37b fits into a corresponding one of the recesses 57, 67. The recesses 57, 67 and the protrusions 37a, 37b may be configured to cooperate when the handle is in the extended position. The cooperation between the recesses 57, 67 and protrusions 37a, 37b may provide a snap fit as the handle 30 is moved into the fully extended position. The cooperation between the recesses 57, 67 and protrusions 37a, 37b may resist relative movement of the handle 30 and body 20.

The protrusions 37a, 37b and recesses 57, 67 may face one another in a direction perpendicular to both the longitudinal direction of the guide rails 80a, 80b and the lateral direction (e.g. in a direction approximately parallel to the bristles 61). The protrusions 37a, 37b and recesses 57, 67 may also be spaced apart from a longitudinal axis of the

handle 30, e.g. by being provided on the projections 34a-d that extend laterally from the handle 30. As a result, a torsional force provided by the protrusions 37a, 37b and recesses 57, 67 is maximised, thereby further limiting relative rotational movement of the handle 30 and body 20. Side-to-side movement of a second (distal) end 30b of the handle 30 is also better prevented.

Additionally or alternatively, protrusions or recesses may be provided in the slots 35a, 35b and corresponding recesses or protrusions may be provided on the guide rails 80a, 80b. Likewise, such recesses and the protrusions may be configured to cooperate when the handle 30 is in the extended position.

The handle 30 and body 20 may interact to provide a snap fit as the handle 30 moves into the extended position. The snap-fit may be provided by virtue of the resilient guide rails 80a, 80b and/or the interaction between the cooperating protrusions 37a, 37b and recesses 57, 67. The locking nature of the snap-fit may help provide a more rigid handle 30 when the handle is in the extended position.

With reference to Figure 9, the hairbrush 10 may further comprise a removable cover portion 100. The cover portion 100 may be configured to protect the bristles 61. The removable cover portion 100 may selectively engage the body 20, e.g. by virtue of one or more gripping elements (not shown). The cover portion 100 may comprise a mirror on a surface thereof.

With reference to Figure 10, a hairbrush 200 according to a second example of the present disclosure will be described. The hairbrush 200 according to the second example is similar to the hairbrush 10 according to the first example and features described above with respect to the first example may apply equally to the second example of the hairbrush 200. The hairbrush 200 according to the second example has a different guide rail arrangement and the description below will focus on this aspect.

With reference to Figures 10 to 13, the hairbrush 200 comprises a body 220 that slidably receives handle 230 that moves between retracted and extended positions. As best shown in Figure 11, the body 220 comprises a chassis portion 240. In the second example, a back portion 250 may be integral with the chassis portion 240. A front portion 260 comprising bristles 261 may be coupled to the chassis portion 240.

The chassis portion 240 may comprise at least one pair of resiliently flexible guide rails 280a, 280b; 280c, 280d that cooperates with a section or first end 230a of the handle 230 (e.g. a proximal end of the handle 230 relative to the body 220). The resiliently flexible guide rails 280a-d are configured to guide the handle 230 as it slides between
5 the extended and retracted positions.

Referring still to Figure 11, the chassis portion 240 may comprise two pairs of resiliently flexible guide rails 280a, 280b; 280c, 280d. A first pair of guide rails 280a, 280b may straddle the handle 230 at a first location, e.g. with one guide rail 280a, 280b either side
10 of the handle 230. A second pair of guide rails 280c, 280d may straddle the handle 230 (when in the retracted position) at a second location, e.g. with one guide rail 280c, 280d either side of the handle 230. The first and second locations may be spaced apart in the longitudinal direction of the handle 230.

15 The guide rails 280a-d may be elongate, e.g. with a longitudinal axis extending in a direction of travel of the handle 230. The guide rails 280a, 280b may be substantially parallel to each other. Further, the guide rails 280c, 280d may be substantially parallel to each other. The first guide rail pair 280a, 280b may extend across a first end of a cavity 270 defined by the body 220. The second guide rail pair 280c, 280d may extend
20 across a second end of the cavity 270.

The resiliently flexible guide rails 280a-d may be elongate cantilevers each with a fixed proximal end 282a-d and a free distal end 284a-d. The fixed ends 282a-d may be fixed to the body 220. The free end 284a-d may flex relative to the fixed end 282a-d. The
25 free end 284a-d may flex in a lateral direction with respect to the handle 230. The guide rails 280a-d may be sufficiently slender to permit such lateral flex. The guide rails 280a-d may be made from a plastics material that facilitates such flex. The free ends 284a-b of the first pair of guide rails 280a-b may be provided at an opposite end of the body 220 to the free ends 284c-d of the second pair of guide rails 280c-d. The fixed ends 284a-b
30 of the first pair of guide rails 280a-b may be arranged adjacent to the fixed ends 284c-d of the second pair of guide rails 280c-d.

In the example shown, the free ends 284a-d of guide rails 280a-d comprise a protrusion 281a-d that is configured to interact with a corresponding recess 238a, 238b at the end
35 of the handle 230a. The interaction between the recesses 238a, 238b at the end of the handle 230a and the protrusions 281a-b of the first pair of guide rails 280a-b provides a

5 snap-fit interaction as the handle 230 moves into the extended position. The interaction between the recesses 238a, 238b at the end of the handle 230a and the protrusions 281c-d of the second pair of guide rails 280c-d provides a snap-fit interaction as the handle 230 moves into the retracted position. In an alternative arrangement, the free distal end of the resiliently flexible guide rails may comprise a recess; and the end of the handle 230a may comprise a corresponding protrusion. In other examples, further combinations of recesses and protrusions are possible.

10 As shown in Figure 11, the body 220 may comprise an opening 243 for the handle 230 to pass through. The opening 243 may be formed between a bridge part 245 and the chassis portion 240 and/or back portion 250. The bridge part 245 may extend over the handle 230 and may hold the handle 230 captive relative to the body 220. The bridge part 245 may be separable from the chassis portion 240, which may aid assembly or disassembly of the hairbrush 200. The bridge part 245 may comprise at least one
15 shoulder 245a, 245b that engages a corresponding slot 240a, 240b of the chassis which may be located at the periphery of the opening 243. This arrangement may help constrain the bridge part 245 and may limit any rotational movement, e.g. caused by the torsional forces the bridge part 245 experiences when the hairbrush 200 is being used.

20 With reference to Figures 11 and 13, the body 220 may comprise at least one rigid guide rail 290a, 290b configured to guide the handle 230 between the extended and retracted positions. The rigid guide rail 290a, 290b may be an elongate element that extends into a corresponding elongate slot 231a, 231b of the handle 230. The rigid guide rail 290a, 290b may be provided at the opening 243 and may extend in the longitudinal direction
25 of the handle 230.

A pair of rigid guide rails 290a, 290b and corresponding elongate slots 231a, 231b may be provided. A first rigid guide rail 290a may be provided on the bridge part 245. A second rigid guide rail 290b may be provided on the back portion 250. As shown in Figure
30 11, the rigid guide rails 290a, 290b may be positioned facing one another. The rigid guide rails 290a, 290b may extend into the cavity 270. As shown in Figure 13, the elongate slots 231a, 231b of the handle 230 may extend longitudinally along a spine of the handle 230, on either side of the handle 230.

35 The first rigid guide rail 290a and corresponding slot 231a may have a substantially rectangular cross-section. The second rigid guide rail 290b and corresponding slot 231b

may have a substantially triangular cross-section. In other examples (not shown), the rigid guide rails 290a, 290b may both have rectangular or triangular cross-sections or any other cross-sectional shape. On the one hand, the use of a substantially triangular cross-section may result in a smaller surface contact area between the rigid guide rail 290b and inner walls of the handle slot 232b than a substantially rectangular cross-section; resulting in a comparatively lower frictional force between the rigid guide rail and inner walls of the handle slot. On the other hand, the use of a substantially rectangular cross-section may improve the transfer of lateral force between the handle 230 and rigid guide rail 290a, which may improve the transfer of torsional forces between the handle 230 and body 220. This may be especially useful when attempting to disentangle particularly knotted hair for example. The use of both a substantially triangular cross-section and substantially rectangular cross-section, as shown in Figure 12, may be a design compromise that minimises sliding friction of the handle 230 whilst maximising the transfer of lateral force between the handle 230 and body 220.

As best depicted by Figure 12, the handle 230 may comprise a tapered portion 232 at the first end 230a. In Figure 12, the tapered portion 232 may comprise an increase in width from a thinner section of the handle to a wider section at the first end 230a of the handle. When the handle is in the extended position, as shown in Figure 14, the tapered portion 232 of the handle 230 may further provide an interference fit with a corresponding tapered region 222 of the body 220, for example around the opening 243. The bridge part 245 and the chassis portion 240 may together form the tapered region around the opening 243. The interference fit between the tapered portion 232 of the handle 230 and the corresponding tapered region 222 of the body 220 may help provide a rigid connection between the body 220 and handle 230 when in the extended position. The interference fit may also prevent a user from accidentally removing the handle 230 from the hairbrush cavity 270.

The tapered portion 232 (e.g. the widest end of the tapered portion) of the handle may interact with the at least one resiliently flexible guide rail 280a-d to cause the resiliently flexible guide rail to flex. For example, as the handle 230 is being moved to the extended position shown in Figure 14, the tapered portion 232 would come into contact (interact) with the resiliently flexible guide rails 280a, 280b, causing the portion of the flexible guide rails not fixed to the body 220 to flex in a lateral direction with respect to the handle. Likewise, as the handle 230 is being moved to the retracted position, the tapered portion would come into contact (interact) with the resiliently flexible guide rails 280c, 280d,

causing the portion of the flexible guide rails not fixed to the body 220 to flex in a lateral direction with respect to the handle.

With reference to Figures 11 and 12, the end 230a of the handle may comprise at least one leading chamfered face 239a, 239b that is configured to help guide the protrusion 281a-d at the free distal end of the resiliently flexible guide rails 280a-d into the corresponding recess 238a, 238b at the end of the handle as the handle 230 is being moved into its retracted and extended positions. As shown in Figure 12, the recesses 238a-b at the end of the handle may be formed adjacent to the leading chamfered face 239a-b. The guide rails 280a-d being configured to resiliently flex in a lateral direction (with respect to the handle 230) upon interaction with the chamfered faces 239a-b of the handle 230 is able to provide the spring action that enables the snap-fit as the protrusions 281a-d at the free distal end are guided to the corresponding recesses 238a-b on the end of the handle. Figure 14 shows the handle 230 in its extended position, where the protrusions 281a-b at the free distal end of the resiliently flexible guide rails 280a-b are in the snap-fit arrangement within the corresponding recesses 238a-b at the end of the handle.

The following numbered statements form part of the present disclosure:

20

A1. A hairbrush comprising a body and a handle,

wherein the body comprises a front portion and a back portion, the front portion comprising a plurality of bristles;

25 wherein the handle is slidably engaged with respect to the body such that the handle is movable between an extended position, in which the handle is graspable by a user, and a retracted position, in which the handle is substantially retracted into the body,

wherein the body comprises at least one guide rail that cooperates with an end of the handle so as to guide the handle between the extended and retracted positions,

30 wherein at least one of the front portion and back portion comprises at least one tab and the end of the handle comprises a shoulder, wherein the tab and shoulder interact to prevent the handle from being removed from the body when the hairbrush is assembled.

A2. The hairbrush of statement A1, wherein the body defines a cavity and the at least one guide rail extends across the cavity.

35

- A3. The hairbrush of statement A1 or A2, wherein at least one of the guide rails is resiliently flexible.
- 5 A4. The hairbrush of any of statements A1 to A3, wherein the body comprises a pair of guide rails.
- A5. The hairbrush of statement A4, wherein the guide rails are provided either side of the end of the handle and at least one of the guide rails resiliently flexes in a lateral direction away from the end of the handle.
- 10 A6. The hairbrush of any of statements A1 to A5, wherein at least one of the guide rails comprises a ramp portion, the ramp portion being arranged such that, as the handle moves into the extended position, an interaction between the end of the handle and the ramp portion results in an interference fit between the end of the handle and the guide rail.
- 15 A7. The hairbrush of statement A6, wherein the interaction between the end of the handle and the ramp portion causes the at least one guide rail to resiliently flex.
- 20 A8. The hairbrush of any of statements A1 to A7, wherein one of the end of the handle and the at least one tab comprises a recess and the other of the end of the handle and the at least one tab comprises a protrusion, the recess and the protrusion being configured to cooperate when the handle is in the extended position.
- 25 A9. The hairbrush of any of statements A1 to A8, wherein the end of the handle comprises a projection and the projection is sized to fit in a gap between the tab and the guide rail.
- A10. The hairbrush of any of statements A1 to A9, wherein the body comprises an elongate element that extends into an elongate slot of the handle.
- 30 A11. The hairbrush of statement A10, wherein the elongate element and elongate slot have cross-shaped cross-sections.
- 35 A12. The hairbrush of statement A10 or A11, wherein the body comprises a pair of guide rails and wherein the elongate element is disposed between the guide rails.

A13. The hairbrush of any of statements A1 to A12, wherein the handle and body interact to provide a snap fit as the handle moves into the extended position.

- 5 A14. The hairbrush of any of statements A1 to A13, wherein at least one of the front portion and back portion is interchangeable with a respective another front portion and another back portion.

- 10 A15. The hairbrush of any of statements A1 to A14, wherein the body defines a cavity and the body comprises an outer wall extending around the cavity.

A16. The hairbrush of statement A15, wherein the outer wall comprises an opening for the handle to pass through.

- 15 A17. The hairbrush of statement A16, wherein the body comprises a pair of guide rails and the guide rails connect to the outer wall either side of the opening.

- 20 A18. The hairbrush of any of statements A16 to A17, wherein the outer wall has a region of reduced thickness such that the outer wall is able to flex about the region of reduced thickness.

A19. The hairbrush of statement A18, wherein the region of reduced thickness is adjacent to the opening.

- 25 A20. The hairbrush of statement A18 or A19 when dependent on claim 6, wherein the region of reduced thickness is longitudinally spaced apart from the ramp portion.

- 30 A21. The hairbrush of any of statements A1 to A20, wherein the hairbrush further comprises a removable cover portion, the cover portion being configured to protect the bristles.

- 35 Variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the principles and techniques described herein, from a study of the drawings, the disclosure and the appended claims. In the claims, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. The mere fact that certain measures are recited in

mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

Claims

1. A hairbrush comprising a body and a handle,
wherein the body comprises a front portion and a back portion, the front portion
5 comprising a plurality of bristles;
wherein the handle is slidably engaged with respect to the body such that the
handle is movable between an extended position, in which the handle is graspable by a
user, and a retracted position, in which the handle is substantially retracted into the body,
wherein the body comprises at least one guide rail that cooperates with an end of
10 the handle so as to guide the handle between the extended and retracted positions,
wherein at least one of the guide rails is resiliently flexible, and
wherein the handle and the at least one resiliently flexible guide rail interact to
provide a snap fit as the handle moves into the extended position.
- 15 2. The hairbrush of claim 1, wherein the at least one resiliently flexible guide rail or at
least one further resiliently flexible guide rail interacts with the handle to provide a snap
fit as the handle moves into the retracted position.
3. The hairbrush of claim 1 or 2, wherein the resiliently flexible guide rails are elongate
20 cantilevers with a fixed proximal end and a free distal end, the free distal end interacting
with the handle to provide the snap fit.
4. The hairbrush of any of the preceding claims, wherein the body comprises a first
pair of guide rails.
- 25 5. The hairbrush of claim 4, wherein the first pair of guide rails are provided either
side of the end of the handle and at least one of the guide rails of the first pair of guide
rails resiliently flexes in a lateral direction with respect to the handle to provide the snap
fit as handle moves into the extended position.
- 30 6. The hairbrush of claim 4 or 5, wherein the body comprises a second pair of guide
rails provided either side of the end of the handle, wherein at least one of the guide rails
of the second pair of guide rails resiliently flexes in a lateral direction with respect to the
handle to provide a snap fit as the handle moves into the retracted position.

7. The hairbrush of claim 6, wherein the second pair of guide rails are longitudinally spaced apart from the first pair of guide rails.
8. The hairbrush of claim 6 or 7, when dependent on claim 3, wherein the free distal ends of the at least one resiliently flexible guide rail of the first pair of guide rails and the at least one resiliently flexible guide rail of the second pair of guide rails are at opposite ends of the body.
9. The hairbrush of any of the preceding claims, wherein the handle comprises a ramp portion at the end of handle, the ramp portion being arranged to interact with at least one resiliently flexible guide rail to cause the resiliently flexible guide rail to flex.
10. The hairbrush of any of the preceding claims, wherein the or each of the resiliently flexible guide rails comprises one of a protrusion or recess that is configured to cooperate with a corresponding recess or protrusion on the handle, the protrusion and recess being configured to engage one another when the handle is in the extended and/or retracted positions.
11. The hairbrush of any of the preceding claims, wherein the body comprises at least one rigid guide rail configured to guide the handle between the extended and retracted positions.
12. The hairbrush of claim 11, wherein the handle comprises at least one slot, wherein the slot and rigid guide rail cooperate with one another.
13. The hairbrush of claim 12, wherein the body comprises a pair of rigid guide rails and the handle comprises a pair of corresponding slots, and wherein one of the rigid guide rails and its corresponding slot have a substantially rectangular cross-section and the other rigid guide rail and its corresponding slot have a substantially triangular cross-section.
14. The hairbrush of any of the preceding claims, wherein the end of the handle comprises a tapered portion and the body comprises a correspondingly tapered region that receives the tapered portion of the handle when the handle is in the extended position.

15. The hairbrush of any of the preceding claims, wherein the body comprises a bridge part that extends over the handle, the bridge part holding the handle captive relative to the body.
- 5 16. The hairbrush of any of the preceding claims, wherein at least one of the front portion and back portion is interchangeable with a respective another front portion and another back portion.
- 10 17. The hairbrush of any of the preceding claims, wherein the body defines a cavity and the body comprises an outer wall extending around the cavity.
18. The hairbrush of claims 17, wherein the outer wall comprises an opening for the handle to pass through.
- 15 19. The hairbrush of claim 17 or 18, wherein at least one of the guide rails extends across at least a portion of the cavity.
- 20 20. The hairbrush of any of the preceding claims, wherein the hairbrush further comprises a removable cover portion, the cover portion being configured to protect the bristles.