LIQUID DISPENSING COMB

Applicants: KATHERINE BLAUSER, Columbus, OH (US); CATHY STAHL, Powell, OH (US)

Inventors: KATHERINE BLAUSER, Columbus, OH (US); CATHY STAHL, Powell, OH (US)

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ABSTRACT
A fluid dispensing comb with a reservoir, distribution channel, and comb body with teeth formed with fluid dispensing apertures. The deformable reservoir holds the fluid to be dispensed, and it is in fluid communication with the distribution channel and the comb body, enabling the fluid to be dispensed from the apertures.
LIQUID DISPENSING COMB
CROSS-REFERENCE TO RELATED APPLICATIONS


FIELD OF ART

[0002] Exemplary embodiments generally relate to a comb. More specifically, exemplary embodiments relate to a liquid dispensing comb that is able to store and continuously apply a liquid while being disposed through hair.

BACKGROUND OF INVENTION

[0003] Combs and brushes used for grooming and styling of hair are known in the art. Additionally, fluid-dispensing devices used during the grooming and styling processes are also known in the art, particularly in medical, cosmetic and pet industries. However, there is still a need for a liquid dispensing comb that is able to store and apply a liquid while the comb travels through the hair of an individual.

[0004] In one setting, adults often have to wet and wash a child’s hair to detangle the unruly knots that may form, particularly in the case with a child that has longer hair. Furthermore, hair may knot or tangle during a night’s sleep, wherein it is a difficult task for an individual to detangle the hair. As such, many different techniques have been employed to try and help detangle hair without causing a significant amount of pain that accompanies the detangling process. Also, it may be necessary to wet and condition hair to combat static problems or other hair conditions. Some known processes to detangle hair are to run a comb under a faucet or use a spray bottle with water to dampen the hair before an attempt to detangle.

[0005] Devices are known relating to liquid dispensing hairbrushes involving a mechanism to spray liquid out of the bristles themselves. These hairbrushes utilize a disposable liquid cartridge and a vibrator that allows the user to spray a liquid and massage the scalp while brushing the hair. Another hairbrush includes absorbent feeds rods mounted into bores inside the hairbrush bristles. The feed rods connect to roller-ball nozzles located at the end of the bristles in which liquid discharges over the user’s scalp only during contact of the roller-balls with the scalp. However, these devices relate to hairbrushes and not to combs.

[0006] Devices are also known relating to a combination brush and hairspray systems for the purpose of allowing a user to simultaneously brush and apply hairspray to the hair with only one hand. The devices typically incorporate a pump having an electric motor connected to it, which requires the use of batteries. However, these devices require many internal components that require maintenance and constant repair.

[0007] Devices related to fluid dispensing combs, rather than brushes, are also known. Some known devices relate to a fluid dispensing comb that uses an absorbent pad-type reservoir for storing and dispensing hair products. Other devices are adapted to be used to groom animal hair or fur. With many of the known fluid dispensing combs, the combs are designed to include detachable or disposable parts, are difficult and costly to manufacture, and complicated to use.

[0008] While the aforementioned devices may be useful for the purposes in which they were intended, these devices have some drawbacks. For a number of reasons, including ease of use and cost-effectiveness, it is becoming increasingly important to provide a liquid dispensing comb that remedies the shortcomings of the known art. Additionally, there is an unmet need of providing a comb that facilitates the application of a liquid, such as a conditioner, to an individual’s hair. Furthermore, there is an unmet need of providing a comb that reduces the amount of time and pain an individual has to endure to detangle their hair, particularly in the case of children.

[0009] It is therefore an unmet advantage of the prior art to provide a liquid dispensing comb that reliably stores and dispenses liquid to facilitate the application of liquid, such as conditioner, to detangle hair.

[0010] SUMMARY OF THE DISCLOSED EMBODIMENTS

[0011] This and other unmet advantages are provided by the device and method described and shown in more detail below.

[0012] Disclosed embodiments describe a comb for facilitating the combing of hair. In an embodiment the comb comprises a comb body, a reservoir for storing a fluid, said reservoir being in flow communication with a plurality of teeth adapted to dispense the fluid when the reservoir is compressed. Operationally, the fluid is dispensed when the reservoir is compressed optimally while the hair is being brushed in order to effectively deliver the fluid (most likely a conditioner or detangler) where such fluids are most needed.

[0013] Further embodiments describe a device for dispensing fluid while combing hair, including an elongate comb body, comprising: a backbone running the length of the comb body, the backbone comprising a top side and a bottom side, a distribution channel extending the length of the top side of the backbone; a reservoir comprised of a compressible material, in fluid communication with the distribution channel, the reservoir positioned on a top side of the comb operable to be compressed directly by a user; a plurality of teeth positioned along the backbone extending from the bottom side of the backbone in a parallel relation to one another, opposite the reservoir; and at least one aperture in fluid communication with the reservoir adapted to dispense a fluid.

[0014] Further embodiments describe a comb including an aperture formed through an end of the reservoir and a removable body engaged in the aperture, dispensing holes formed through a surface on at least one of teeth wherein the teeth are substantially hollow and define a void in fluid communication with the distribution channel, wherein the reservoir and the comb body form a substantially fluid-tight seal when functionally joined.

[0015] Further embodiments describe a comb wherein the dispensing holes are positioned along the interior sides of teeth, such that fluid is dispensed between teeth and/or further including apertures along the bottom surface of the backbone.

DESCRIPTION OF THE DRAWINGS

[0016] A better understanding of the disclosed embodiments will be obtained from a reading of the following detailed description and the accompanying drawings wherein identical reference characters refer to identical parts and in which:

[0017] FIG. 1 depicts an embodiment of the comb, in a front view with reference numerals;
FIG. 2 is an exploded view of the FIG. 1 embodiment, which would use the corresponding reference numerals;

FIG. 3 is a top view of the FIG. 1 embodiment, primarily showing the reservoir and removable cap, and too a view within the dashed line area of the fluid connection elements for the comb;

FIG. 4 is a front view of the reservoir in the FIG. 2 embodiment of the comb, showing the screw cap and the fluid connection elements; and

FIG. 5 is a side view of the FIG. 1 embodiment, which would use the corresponding reference numerals;

FIG. 6 is an elevation view of an embodiment of the comb;

FIG. 6a is an expanded view of a portion of the comb;

FIG. 7 is a top plan view of the FIG. 1 embodiment;

FIG. 8 is a front elevated view of an embodiment of the comb;

FIG. 9 is a back elevated view of an embodiment of the comb, with the screw cap engaged; and

FIG. 10 is an enlarged side elevation view of an embodiment of the teeth of the comb.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

FIG. 1 shows an elevation view of an embodiment of a comb 10 for storing and dispensing liquid. The remaining FIGS. in combination with FIG. 1, show features of preferred embodiments of the invention described herein. The comb is comprised of a reservoir 20 that is adapted to store a liquid, such as hair conditioner, the reservoir is functionally attached to the comb body 30. The reservoir is a compressible chamber adapted to release stored liquid into the comb body when compressed. In exemplary embodiments, the reservoir 20 may run substantially the length of the comb body 30. However, in other embodiments, the reservoir 20 may only run a portion of the length of the comb body 30, or the reservoir 20 may protrude from either end if more liquid is desired to be stored within the comb for use. In one particular embodiment, the reservoir 20 is generally cuboid in shape, with the bottom in fluid connection with the other parts of the comb. Although the reservoir 20 may have any number of dimensions, in one particular embodiment, the reservoir 20 is approximately 6 inches long, 1 and 3/4 inches wide and 1 1/2 inches tall.

Exemplary embodiments of the reservoir may be generally attached along the length the backbone 35. The backbone of the comb body extends laterally along a length of the comb body and includes a common distribution channel 36 running along its length where the reservoir meets the backbone. As aforementioned, the reservoir 20 may be in fluid connection with at least a portion of the backbone 35. In some embodiments, the backbone 30 may be in fluid connection along substantially the entire length and/or width of the reservoir 20.

In one preferred embodiment depicted in FIG. 3 and elsewhere, the distribution channel receives the reservoir, which has at least one nozzle means that is mateable with at least one receptacle means on the distribution channel. The fluid in the reservoir flows out of the nozzle, through the receptacle, and then to the comb body and into the teeth on the comb body. The reservoir preferably is made of material suited to squeezing the contents through the opening in the nozzle and that in the receptacle. In this preferred embodiment, the distribution channel is made of resilient, deformable, or compressible material. So fabricated, the user can squeeze the distribution channel, thereby imparting pressure to the outside of the reservoir, which pushes the contents of the reservoir in and through the nozzle and receptable means, and into the teeth of the comb.

Many materials will be known as useful for the reservoir 20. As molding, and especially injection molding, is an effective manner of forming devices such as this, thermoplastic materials that are suitable for injection molding may be preferred. Other aspects of the design decision as to material will be influenced by further considerations, such as the desired amount of impact resistance (acrylonitrile-butadiene-styrene copolymers providing exemplary impact resistance), the desired flexibility of the reservoir (polypropylene providing an exemplary flexibility) or the desired amount of transparency/opacity of the material (wide amount of materials useful). As such, in some exemplary embodiments, the reservoir 20 may be fabricated from materials that are substantially clear so that an individual may be able to see the amount of liquid stored in the comb. However, in other embodiments, the reservoir may be fabricated from materials that are substantially opaque for liquids that may break down or deteriorate when exposed to sunlight or UV rays.

In exemplary embodiments, a removable body 40 may be removably mounted to an orifice or aperture 50 to permit the insertion of liquids, such as conditioner, within the reservoir 20. In one particular embodiment, the removable body is a screw cap that rotatably engages with threading in the aperture of the reservoir. In another example, a cap may be provided with an interference fit of the aperture 50 to facilitate the insertion and following storage of the liquid within the reservoir 20 during use of the comb 10. Other conventional means for securing the removable body may be used to allow access of fluid insertion within the reservoir. Exemplary embodiments of the removable body and corresponding aperture may be positioned at different sites on the reservoir. One example has the aperture located on the distal end of the reservoir and backbone. Additionally, in some exemplary embodiments more than one aperture and corresponding removable body may be used.

As aforementioned, exemplary embodiments of the comb 10 include a backbone 30. In exemplary embodiments, the backbone 30 is attached with the reservoir 20 by a press fit or other means of attachment. However, in other exemplary embodiments, the backbone may be integral with the reservoir. The comb body further includes a plurality of substantially parallel lines or teeth 60 that extend from the comb body opposite the reservoir. Exemplary embodiments of the comb body include one or more apertures 32 through which the liquid stored in the in reservoir may dispense. In one, the liquid is dispensed from the reservoir through the fluid communication into the distribution channel, then into the comb then through the teeth. In exemplary embodiments, the apertures may be located on the bottom face of the backbone 30 between sets of teeth that extend from the backbone 30.

FIG. 6a shows a view of a section of the teeth. In an embodiment the teeth may further include dispensing holes 64. Exemplary embodiments of the dispensing holes 64 may be positioned on the internal sides of the external teeth and on both sides of the remaining teeth. Optionally, the apertures are oriented to deliver fluid between the teeth and in a direction perpendicular to the axis defined by the length of the teeth. However, in other embodiments, the dispensing holes may be
positioned upwardly to inhibit the flow of the liquid during the non-use of the comb. In other exemplary embodiments, the dispensing holes may be positioned to face downwardly to promote the flow of liquid during use of the comb. The dispensing holes may be substantially round in cross-sectional area, but may also be other shapes or geometries, if desired.

[0035] The size of the dispensing holes may be substantially similar or may vary, depending upon the amount of liquid desired to be dispensed at various locations on the comb.

[0036] FIG. 7 shows a top view of an embodiment of the comb. In this embodiment, the removable body 40 is fitted in an aperture 40 formed through the reservoir 20.

[0037] FIGS. 8 and 9 together show opposite sides of the comb 10 as seen from the side. FIG. 8 shows an embodiment of the removable body 40 fitted into an aperture (not shown). In an embodiment the reservoir 20 and the comb body 30 come together to form a substantially fluid-tight seal along a length of the comb. In an embodiment, the reservoir and backbone 35 come together to define a substantially rectangular cross-section. Further, the teeth 60 have a substantially pyramidal cross-section. FIG. 5 shows a side view of the FIG. 1 and FIG. 2 embodiment of the inventions.

[0038] As can be seen in the FIGS., embodiments of the comb 10 include teeth 60 which substantially define hollowed voids 62 that are in fluid communication with the distribution channel of the backbone. The hollowed cores are in fluid communication with the distribution channel of the backbone. In operation, when the reservoir is compressed, the fluid within the reservoir is forced into the common distribution channel and along the backbone. Once in the channel, the fluid will distribute among the plurality of hollow cores. The fluid may also exit the comb via the apertures 32. FIGS. 2, 8-9 show that embodiments of the one or more teeth 60 may be substantially pyramidal in geometry. The pyramidal geometry may allow extra capacity of the liquid to be supplied to an individual's hair. Additionally, the pyramidal geometry may facilitate the application of the liquid by forcing a hair to contact a larger surface area of the teeth from which the liquid is dispensing during use of the comb 10. Although exemplary embodiments are pyramidal, other embodiments of the teeth 60 may be substantially round, conical or other geometries and shapes.

[0039] Many materials will be known as useful for the comb body 30 and teeth 60. As molding, and especially injection molding, is an effective manner of forming devices such as this, thermoplastic materials that are suitable for injection molding may be preferred. Other aspects of the design decision as to material will be influenced by further considerations, such as the desired amount of impact resistance (acrylonitrile-butadiene-styrene copolymers providing exemplary impact resistance), the desired flexibility of the backbone and teeth (polypropylene providing an exemplary flexibility) or the desired amount of transparency/opacity of the material (wide amount of materials useful). As such, in some exemplary embodiments, the backbone and teeth may be fabricated from materials that are substantially clear so that an individual may be able to see the amount of residual liquid stored in the comb. However, in other embodiments, the backbone and teeth may be fabricated from materials that are substantially opaque for liquids that may break down or deteriorate when exposed to sunlight or UV rays.

[0040] During use of the comb, a user may introduce a liquid within the reservoir by disengaging the screw cap. Once liquid is in the reservoir, an opening at the bottom surface of the backbone allows the contents within to empty. In one example, the liquid is dispensed by squeezing the reservoir laterally in the direction of the teeth when the comb is held upright and when the teeth are held downward further aided by gravity. Additionally, a user may facilitate the dispensing of the liquid by squeezing at least a portion of the reservoir to induce the dispersion of liquid from the holes of the teeth and/or the apertures of the backbone. In one example, an individual may fill the comb 10 with a form of conditioner, wherein the individual may use the comb in a shower setting. The individual may use the comb in a normal technique and only dispense conditioner whenever the individual encounters a knot or other tangle in the hair. The conditioner may aid the detangling of the hair.

[0041] Having shown and described a preferred embodiment of the invention, those skilled in the art will realize that many variations and modifications may be made to affect the described invention and still be within the scope of the claimed invention. Thus, many of the elements indicated above may be altered or replaced by different elements which will provide the same result and fall within the spirit of the claimed invention. It is the intention, therefore, to limit the invention only as indicated by the scope of the claims.

1. A comb for dispensing fluid into hair, comprising: an elongate comb body having a backbone with a plurality of parallel tines along one side of said elongate comb body, and having a receiving space in the opposite side; a distribution channel substantially the length of said backbone, having at least one connector to communicate fluid therethrough, and having a nesting space in one side; a deformable reservoir in fluid communication with said distribution channel, said reservoir dimensioned to nest with said nesting space in said distribution channel; more than one of said plurality of tines having at least one aperture sized to dispense a fluid transferred from said distribution channel from said reservoir.

2. The comb of claim 1 wherein said elongate comb body is dimensioned to receive and be in fluid communication with said distribution channel, and said distribution channel is dimensioned to receive said reservoir in said nesting space in a mateable, detachable arrangement.

3. The comb of claim 1 wherein said reservoir has an orifice formed therein for a removable body to be removably engaged in said orifice.

4. The comb of claim 1 wherein said aperture in said plurality of tines is formed through opposite sides of said tines.

5. The device of claim 3 wherein said tines are substantially hollow forming a void therein in fluid communication with said distribution channel.

6. The device of claim 2 wherein said reservoir is removably attached within said nesting space.

7. The device of claim 1 wherein said reservoir, said distribution channel and said elongate comb body form a substantially fluid-tight seal therebetween.

8. The device of claim 1 wherein said aperture in said plurality of tines is positioned along the interior sides of said tines.

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