ABSTRACT OF THE DISCLOSURE

A combination comb and hair treatment device. The comb back has a hollow interior with a first track receiving a fluid distribution member for feeding fluid through passages spaced along said back. Adjacent comb teeth have individual openings forming a second track for receiving a razor, felt pad or the like for additional hair treatment.

BACKGROUND OF THE INVENTION

The development of apparatus for hair grooming, particularly the grooming and maintenance of women's hair, has been a source of many problems over the years. In the interest of beauty, women have subjected their hair to heat treatments, curling, dying, drying, cutting, clipping and other operations which have required large expenditures of time and money and have often been the source of significant personal discomfort. Men have also become more aware of hair styling than just grooming and, as a result, male exposure to the rigors of curling, dying and other hair treatments has increased over the past few years.

Two of the prime goals of those concerned with the development of hair styling and hair care apparatus have been ease of use and absence of personal discomfort to the user. These goals have become more significant with the advent and acceptance of do-it-yourself hair care which has revolutionized the concept of hair grooming and care for millions of men and women.

One of the more important steps forward in discomfortless hair styling was the development of the open tooth comb. Combs of this type have teeth which are substantially U-shaped and have the facility for quickly untangling knotted hair without pulling or tearing the strands and without discomfort to the user. Such combs are disclosed in U.S. Pats. 2,763,895 and 2,551,131 which were granted to Dante Iesersek. Although reasonably unsophisticated, the Iesersek structures proved that the open tooth or U-shaped configuration causes a 70 to 75 percent reduction in pulling and discomfort as compared with conventional combs. Further, it has been found that the use of open tooth combs greatly reduces the incidence of hair snarling and allows the easy separation of hair strands without irritation to the scalp or damage to the hair.

Many other problems have still faced those interested in hair care. Hair coloring, for example, whether done by a professional in the salon or by an amateur at home has been a messy, uncomfortable, and often dangerous task. Safe application of the dye generally requires that the user wear protective gloves. Further, with known dispensing apparatus, there is a danger of over-application with resultant running and likelihood that the coloring fluid will get into the user's eyes causing severe injury.

Hair care, whether by professionals or amateurs, has also required a plurality of tools. Combs, razors, applicators, cleaners, dryers and other implements are always in use and by reason of their very number, are exceedingly inconvenient.

SUMMARY OF THE INVENTION

It is an object of the present invention, therefore, to provide a hair care device which is capable of a plurality of hair care functions.

Another object of the present invention is to provide a new and improved comb.

Yet another object of this invention is to provide a novel comb for processing hair during the combing thereof.

A still further object of the present invention is to provide a comb for treating a scalp while combing the hair growing thereon.

An additional object of the present invention is to provide a hair care apparatus which is capable of a plurality of functions in caring for and grooming hair.

A further object of the present invention is to provide a novel hair care apparatus which facilitates the application of hair coloring, shampoos, scalp and hair treatment materials, and the like.

Still another object of the present invention is to provide a hair care apparatus which has structural elements which cooperate closely to facilitate economical manufacture.

These and other objects, which will be apparent to those skilled in the art, are achieved by the present invention wherein there is provided a multi-purpose apparatus for caring for hair. Specifically, the present invention comprises a novel open tooth comb which is combined with a bottle type handle and related structure to permit a user to clean, color, dry, medicate, comb, trim or otherwise care for his or her hair. The openings in the comb teeth define a track for receiving inserts which may be means for trimming such as a razor edge, means for cleaning such as a dry felt pad, means for coloring such as a dye containing pad or other devices related to caring for the hair of the user. The hair care apparatus comprises three fundamental elements which structure facilitates economical manufacture.

BRIEF DESCRIPTION OF THE DRAWINGS

The exact nature of this invention as well as other objects and advantages thereof will become more fully apparent from the following description of the annexed drawings illustrating a preferred embodiment thereof, and wherein:

FIG. 1 is a front elevational view, partly cut away of a hair care apparatus according to the present invention;

FIG. 2 is an exploded perspective view of the hair care apparatus according to FIG. 1 but having the insert removed;

FIG. 3 is a front elevational cross-sectional view through a portion of the hair care apparatus of the present invention;

FIG. 4 is a cross-sectional view through the plane 4-4 of FIG. 3;

FIG. 4A is a cross-sectional view similar to that of
FIG. 4, but showing only the comb portion without the fluid distribution spear inserted therein; FIGS. 5a, 5b and 5c are front views of some of the insert elements which may be used with the present invention; and FIG. 6 is a front elevational view of a modification of the present invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to FIG. 1, there can be seen a hair care apparatus according to the present invention comprising an open tooth comb designated generally by the reference numeral 12, a fluid distribution element designated generally by the reference numeral 14, and a handle designated generally by the reference numeral 16, the handle being also an apparatus for the storage and injection of hair care fluids.

Comb 12 is of the open tooth type comprising a back 20 and a plurality of teeth 22 depending substantially perpendicularly therefrom. As can be best seen in FIGS. 3 and 4, the outer surfaces of the back 20 and teeth 22 cooperate to define a generally triangular cross-section tapers away from the base ends 23 of the respective teeth. The back 20 and teeth 22 are substantially hollow to define a key-hole shaped opening 21 (shown in FIG. 4A) prior to the insertion of the distribution element 14 therein. The inner surface of back 20 is provided with two co-planar, inwardly, substantially radially extending ribs 25. Ribs 25 extend longitudinally through substantially the full length of back 20 and cooperate to define a first track 27 for receiving telescopically a fluid distribution spear 31 of a distribution element 14 therein. The portion of openings 21 in teeth 22 are substantially co-extensive and cooperate with spear 31, when the comb 12 and distribution element are assembled, to define a second track 24 for the reception of hair care inserts which will be discussed further hereinafter. In the embodiment shown, the teeth 22 are of various lengths as measured from the back 20 to their free ends 23 so that the ends 23 cooperate to define a generally concave line of scalp engagement.

Fluid distribution element 14 comprises a neck 30 and a fluid distribution spear 31 which is telescopically received within the hollow back 20 of comb 12 to define a chamber 26 which will be discussed further hereinafter. Neck 30 comprises an internally threaded tapered cylinder 32 having an open, large diameter end 33, and a reduced diameter comb connection portion 36 extending from a smaller diameter end 34. Comb connection portion 36 is a generally cylindrical member which is receivable in functional engagement within the cylindrical connection fitting 37 of comb 12. The inner end of connection portion 36 is provided with a cover 38 on which distribution spear 31 is mounted. An opening 39 is provided in the cover 38 to allow passage of fluid from the neck 30 to the spear 31 and chamber 26 for distribution to the respective teeth 22.

As can be best seen in FIGS. 2, 4, and 5, the distribution spear 31 comprises an elongated generally U-shaped element having a base 41 and upwardly extending sides 42, 43. The spear is mounted at one end on cover 38 and extends substantially axially of the opening in neck 30 so as to be insertably received within first track 27 and to extend for substantially the entire length of the comb back 20. A plurality of openings 46 are provided in the base 41 of the spear 31, spaced so that when the distribution element is in assembled position, i.e. the spear 31 is inserted in track 27 within back 20 and the connection portion 36 is frictionally, rigidly received within the cylindrical connection fitting 37, they are in alignment with the longitudinal axes of teeth 22. Thus, a fluid passing from neck 30 through cover opening 39 to chamber 26 is distributed through the openings 46 in spear 31 to the track openings 24 in teeth 22.

Vertical positioning of spear 31 within the comb back 20 is achieved by spacer 45 which extends upwardly from adjacent the end of spear 31 to cooperate with the inner surface of back 20. Thus, when the comb is assembled and the spear 31 is fully inserted in back 20, spacer 45 engages the inner surface of comb back 20 to securely position the U-shaped spear immediately adjacent the base ends of the teeth 22.

Handle 16 is a hollow, generally frusto-conical member made of suitable resilient material such as a polypropylene. The small diameter end 47 is provided with a threaded neck 18 which is received in cylinder 32 of distribution element 14. In this embodiment, handle 16 is bottle-like being open only at small diameter end 17 for communication between the handle interior and distribution element 14. When a user desires to use the hair care apparatus of the present invention to apply fluids through his or her hair, the fluid is placed in handle 16 for storage, and is thereafter selectively injected through distribution element 14 into the chamber 26 of comb 20 for circulation to the hair through teeth 22. Injection can be achieved by simply squeezing the resilient handle thus causing the hair care fluid to be ejected from the handle.

As was noted above, the tooth openings 41 collectively define a track for slidably receiving insert elements such as the trimmer 60 of FIG. 5a, the dyer 65 of FIG. 5b and the cleaner 70 of FIG. 5c. Thus, if a user desires to trim his or her hair, the trimmer 60, which comprises a base portion 61 of suitable material such as plastic encasing a strip of honed steel 62 so as to expose the sharpened edge 63, is inserted through the length of track 24 with the sharpened edge facing downwardly toward the free ends 23 of teeth 22. By drawing the comb, with the trimmer inserted, through the hair, the user can trim his or her hair as desired.

The insert shown in FIG. 5b is felt strip impregnated with a dye material. If a user desires to color or touch up his or her hair, this insert 65 is positioned in track 24 in the same general manner as was the trimmer 60, a suitable activating fluid is placed in the handle 16 and thereafter, the handle 16 is squeezed to inject the activating fluid into chamber 26 wherefrom it passes through the holes 46 in spear 31 to the impregnated felt 65. As the activating fluid contacts felt insert 65, the (deactivated) dye is activated and is deposited upon the user's hair as the hair care apparatus is drawn therethrough. Thus it can be seen that by regulating the amount of fluid provided to felt insert 65, the amount of dye activated at any one time can be controlled and therewith the rate of coloring or otherwise treating the user's hair. In this regard, it is to be recognized that the felt insert may be impregnated with materials other than dyes, such as medicaments, shampoos and the like. When such is the case, the activating fluid used therewith will be in accordance with the impregnating material.

The third form of insert shown, FIG. 5c is a plain felt pad insert 70 which contains no impregnation material or any other type of substance therein or thereon. This insert is useful when the user desires to dry-shampoo or remove excess oil from his or her hair. In effect, the dry felt pad insert 70 acts as a blotter and soaks up greases and other matter as the hair care apparatus is drawn through the user's hair.

It is not necessary to use any of the inserts shown in FIG. 5. On the contrary, when, for example, complete hair coloring is desired, the hair care coloring reagents are placed in bottle 16 and distributed through the hair at the same time that the hair is being sectioned. In this type of operation, the fluid is selectively squeezed from handle 16 into chamber 26 through the neck 30 of distributor element 14. Thereafter the fluid passes downwardly into the openings 21 of teeth 22 through the holes 46 in spear 31. The elongated configuration of the openings 21 in teeth 22 causes the fluid to be distributed evenly throughout the hair. Further, in that the openings
stop short of extending completely through the free ends 23 of teeth 22, an undesirable build up of fluids on the scalp is avoided and the fluid is deposited where it will do the best job.

The hair care apparatus of the present invention is also adaptable to use with externally provided fluids as well as those, heretofore described, which are stored in the handle 16. Thus there can be seen in FIG. 6, an embodiment of the present invention wherein fluids are provided, for distribution through the hair, from some source external to the hair care apparatus itself. The fluid may be warm dry air for drying the hair as it is combed, or it may be other fluids including those discussed above with respect to the embodiment of FIG. 1.

More specifically, the embodiment of hair care apparatus as shown in FIG. 6 comprises a comb section 112 and a fluid distribution element 114, each of which is identical to the corresponding elements 12, 14 as discussed supra, and a handle 116. In this embodiment, handle 116 includes a frusto-conical element being threaded at the small diameter end 117 for connection to distribution element 114 and has a passageaway extending generally longitudinally axially therefrom to end 117 to large diameter end 118. End 118 is provided with a suitable fitting 119 for connecting a tube 120 from a source of fluid, to the internally disposed passage. In operation, a suitable fluid such as warm dry air, hair coloring or hair medication is delivered to the passage in handle 116 through tube 120 and fitting 119 for distribution through the hair as described above. This capability is particularly desirable in the case of hair drying since the warm dry air is delivered evenly as the hair care apparatus is drawn through the hair. Thus, the hair is dried as quickly near the roots as it is on the ends, thereby avoiding the present problem of drying the ends more quickly than the rest of the hair.

The tri-partite structure of the present hair care apparatus allows quick, economical manufacture. Thus, each of the elements may be molded of such material as polypropylene using known methods.

The actual steps of manufacturing the hair care apparatus of this invention include molding each of the open tooth comb, fluid distribution element and handle separately, joining the comb and fluid distribution element by telescopic assembly and ultra-sonic welding at their neck, and thereafter suitably finishing the article surfaces such as by flame glazing. Obviously this method of manufacturing liquid dispensing combs is an improvement over the known methods which require that in addition to molding where the articles are made of plastic, one or more machining operations are necessary to provide fluid distribution holes, holes in the teeth, or whatever else is required by the basic design. The above-described method of manufacture has been found to allow the manufacture of hair care apparatus according to this invention more quickly, economically and accurately than any of the known manufacturing methods.

It is to be recognized, of course, that many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A hair care apparatus comprising:
   a comb having a hollow back closed at one end and open at the other, including a track within the hollow back said back further including a plurality of teeth extending therefrom, a substantial number of mutually adjacent teeth of said plurality being substantially U-shaped and containing an elongated opening through the faces thereof, said opening extending longitudinally from the intersection of said number of teeth and the hollow back substantially over the length of the teeth and terminating short of their free ends;
   a fluid distribution element including an elongated member received in the track within the hollow back and a neck portion having one end thereof in sealing engagement with the open end of the hollow back, the elongated member being in sealing engagement with a portion of the hollow back to define therewith a fluid chamber, said elongated member including an elongated channel having a plurality of axially spaced passages, each passage being in alignment with the openings of the teeth whereby the fluid chamber is in fluid flow communication with the openings of the teeth, the channel and the passages therein, said neck portion having a passage therethrough communicating with said chamber; and
   means connected to the other end of the neck portion to supply fluid to the fluid chamber through the passage in the neck, whereby fluid may be distributed to the teeth.

2. The hair care apparatus as defined in claim 1 wherein the means connected to the other end of the neck portion is a hollow handle formed of a resilient material.

3. The hair care apparatus as defined in claim 1 wherein the interior of the hollow back includes two co-planar substantially radially inwardly extending ribs through substantially the full length of the back defining said track, the inner edges of said ribs being spaced from each other defining a space therebetweende, said space being aligned with the elongated channel in the elongated member received therein.

4. The hair care apparatus as defined in claim 1, said opening having boundaries defining a second track and further comprising means for performing a hair care function removably inserted in said second track.

5. A hair care apparatus according to claim 4 wherein said means for accomplishing a hair care function is a razor.

6. A hair care apparatus according to claim 4 wherein said means for accomplishing a hair care function is a comb.

7. A hair care apparatus comprising:
   a comb having a hollow back closed at one end and open at the other, the interior of the hollow back including two co-planar substantially radially inwardly extending ribs through substantially the full length of the back defining a track, said back further including a plurality of teeth extending therefrom, a substantial number of mutually adjacent teeth of said plurality being substantially U-shaped and containing an elongated opening through the faces thereof, said opening extending longitudinally from the intersection of said number of teeth and the hollow back substantially over the length of the teeth and terminating short of their free ends;
   a fluid distribution element including an elongated member telescopically received in the track within the hollow back and a neck portion having one end thereof in sealing engagement with the open end of the hollow back, the elongated member being in sealing engagement with a portion of the hollow back to define a fluid chamber, said elongated member including an elongated U-shaped channel having a plurality of axially spaced passages, each passage being in alignment with the openings of the teeth whereby the fluid chamber is in fluid flow communication with the openings of the teeth, the channel and the passages therein, said neck portion having a passage therethrough communicating with said chamber; and
   a hollow handle connected to the other end of the neck portion to place the interior of the handle in fluid flow communication with the fluid chamber through the passage in the neck, whereby fluid may
be distributed from the hollow handle to the holes in the teeth.

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