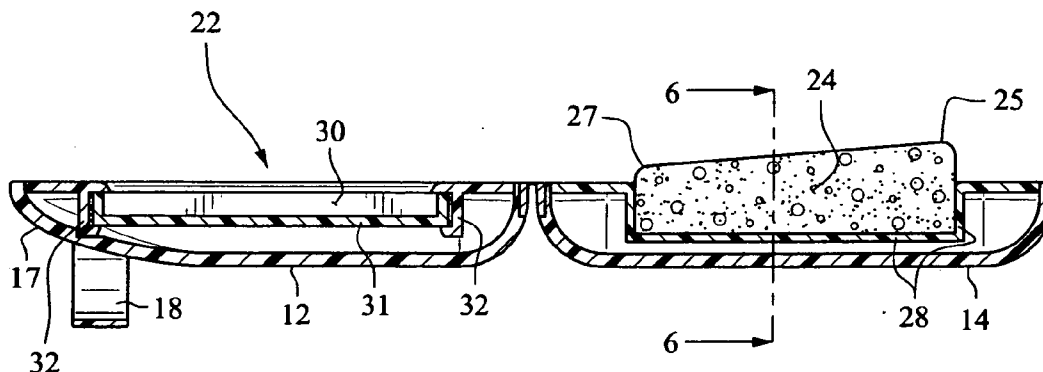




US 20140332026A1

(19) **United States**(12) **Patent Application Publication****Peters et al.**(10) **Pub. No.: US 2014/0332026 A1**(43) **Pub. Date: Nov. 13, 2014**(54) **HAIR HIGHLIGHTING APPLICATOR**(71) Applicants: **Shelley Peters**, Alton (CA); **Ken Paquet**, North York (CA); **Zhao Hua (Danny Zhao) Zhi**, Guang Xi (CN)(72) Inventors: **Shelley Peters**, Alton (CA); **Ken Paquet**, North York (CA); **Zhao Hua (Danny Zhao) Zhi**, Guang Xi (CN)(73) Assignees: **Orchard International Inc.**, a corporation of Ontario, Canada, Mississauga (CA); **Ming Company Limited**, a corporation of Ontario, Canada, Toronto (CA)(21) Appl. No.: **13/986,510**(22) Filed: **May 9, 2013****Publication Classification**(51) **Int. Cl.**
A45D 19/00 (2006.01)(52) **U.S. Cl.**CPC **A45D 19/0008** (2013.01); **A45D 2019/0091** (2013.01)USPC **132/221**(57) **ABSTRACT**

A hair treatment material applicator comprises a lid, a base, a hinge connecting the lid and base to allow pivotal movement of the lid and base with respect to each other from an open position to a closed position; and a bail pivotally mounted to the lid for pivotal movement from a use position above the lid to a latch position below the base holding the lid and base in the closed position. A compressible material, such as dense foam, is positioned in one of the lid and base; and a hair treatment material (such as highlighter, dye, bleach, protein treatment, etc.) is positioned in the other of the lid and base. The foam and material are positioned to allow strands of human hair to pass between them for uniform application of material to the strands. The hinge is an over-molded rubber hinge biasing the lid and base open.



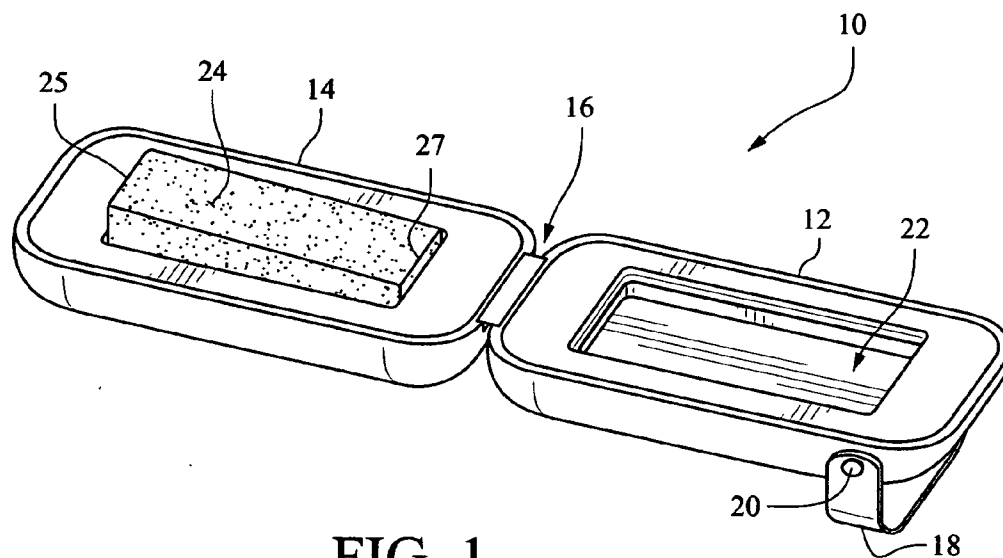


FIG. 1

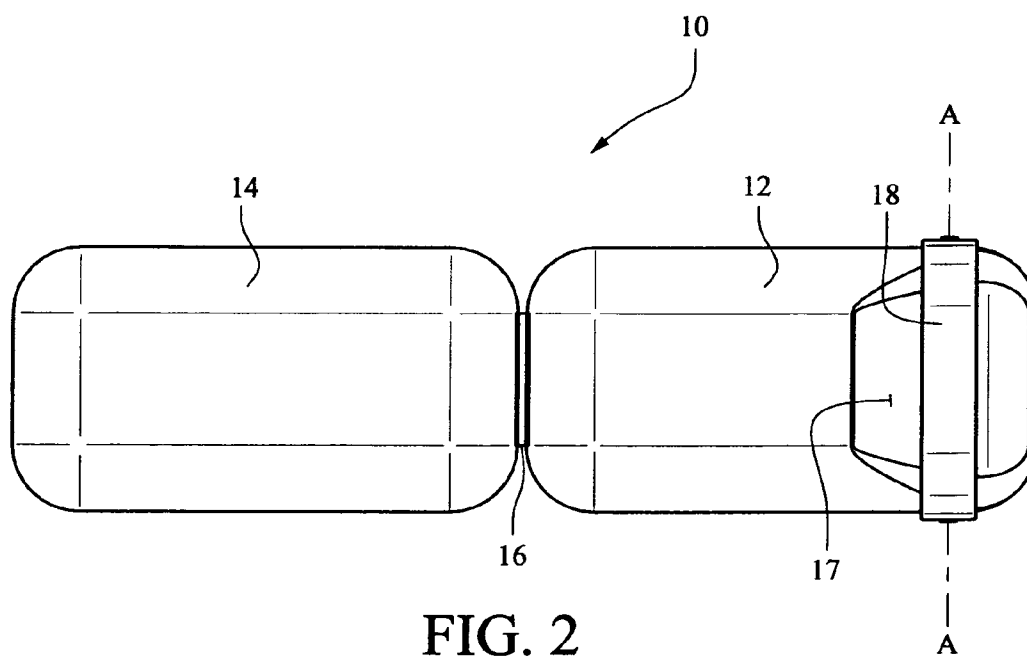


FIG. 2

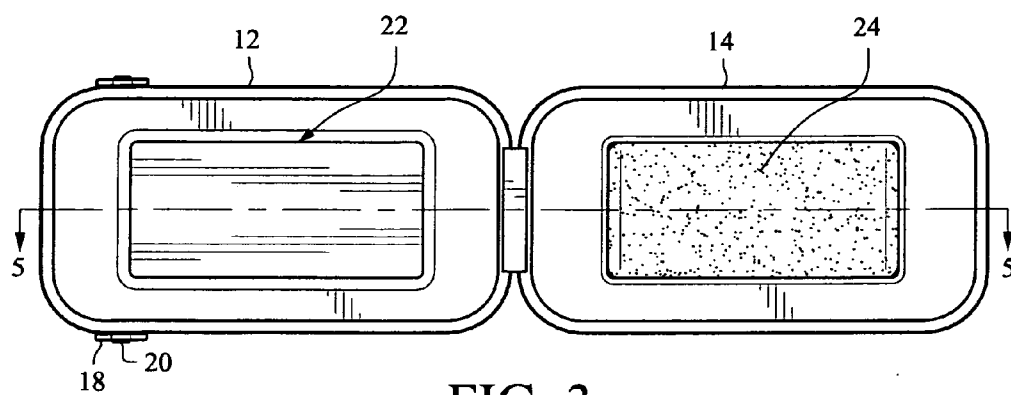


FIG. 3

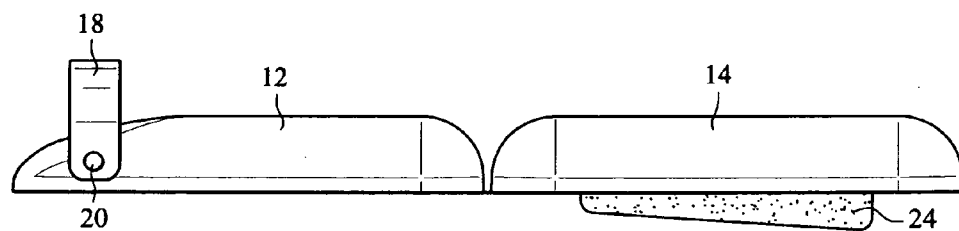


FIG. 4

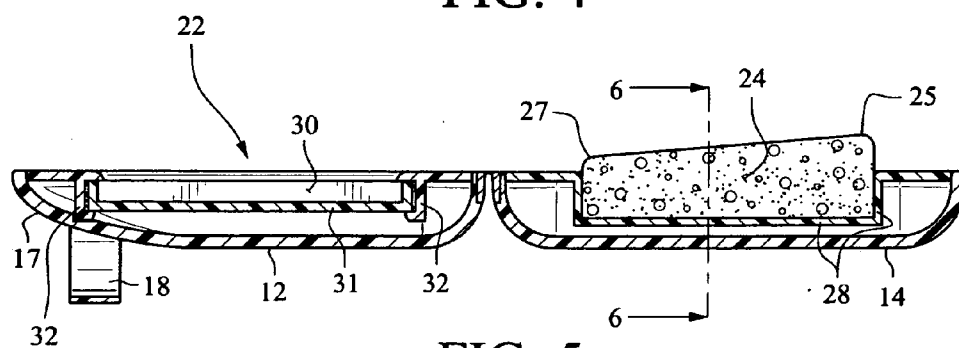


FIG. 5

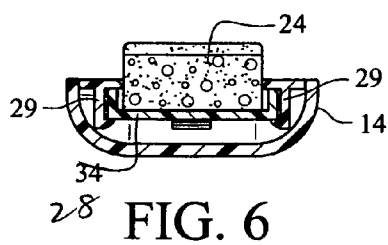


FIG. 6

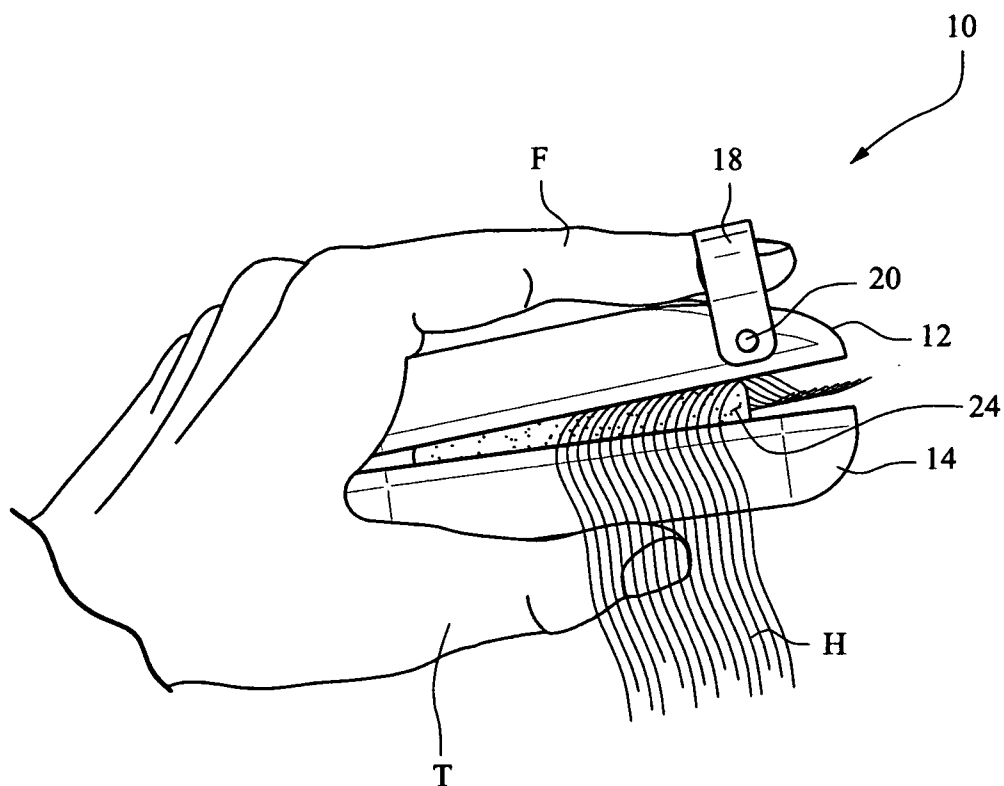


FIG. 7

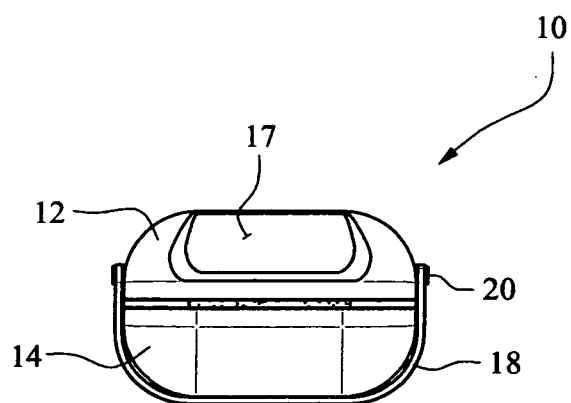


FIG. 8

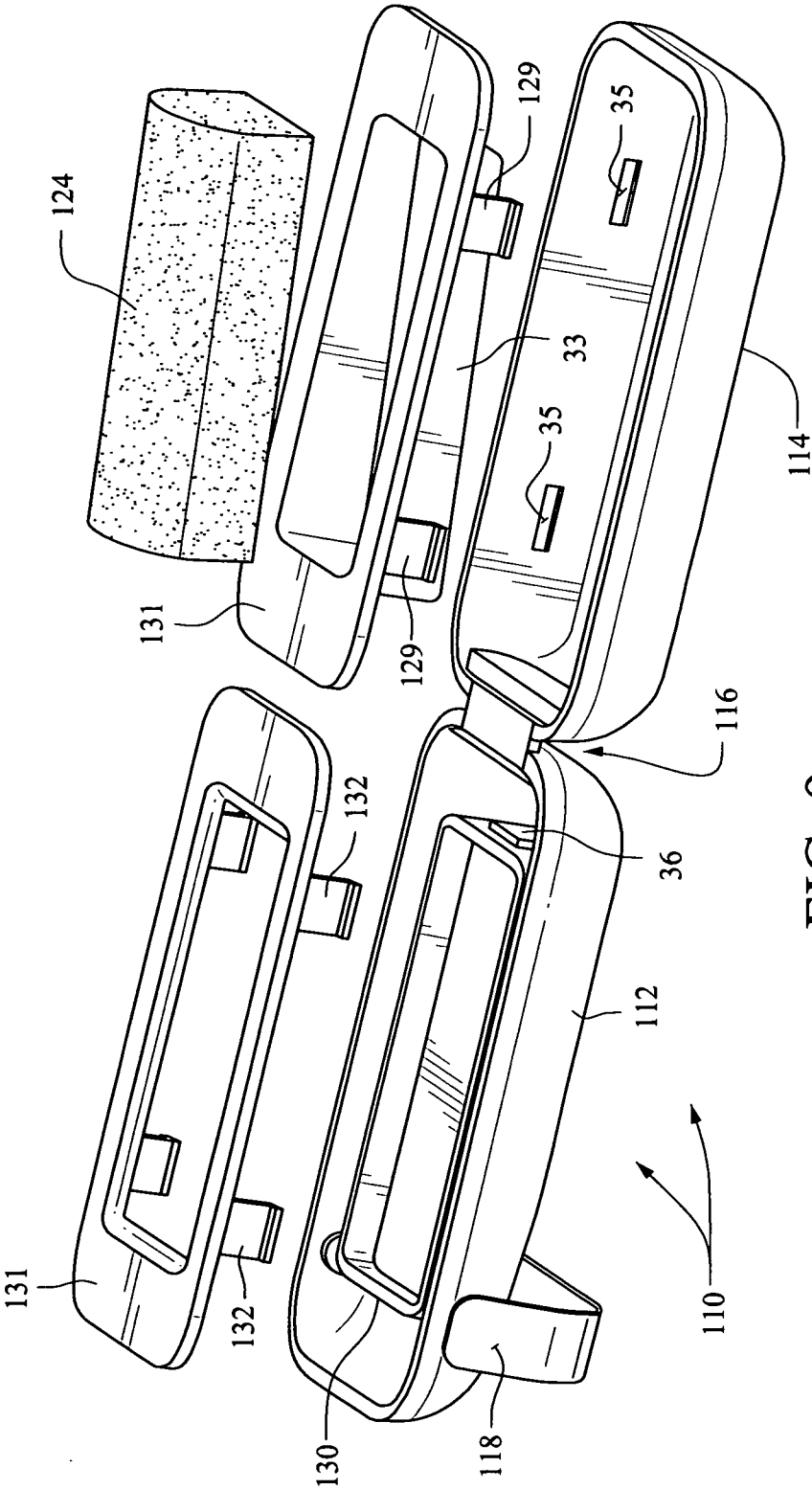


FIG. 9

HAIR HIGHLIGHTING APPLICATOR

BACKGROUND AND SUMMARY OF THE INVENTION

[0001] Many people wish to treat the hair on their head to provide an aesthetically pleasing appearance, or to enhance the health of their hair. While this can be done professionally in a hair salon many women and men desire to treat their hair themselves. Many different hair treatment applicators for professional or non-professional use have been developed over the years, such as shown in U.S. Pat. Nos. 4,830,030, 5,325,878, 6,250,312, and 7,156,885, and in published U.S. Patent Applications 2008/0083418, 2008/0083419, 2008/0087293, and 2008/0087294, and commercial products marketed under the trade names “Color Bug” and “Instant Highlights.”

[0002] The hair treatment applicator according to the invention functions in a manner similar to those in the above-identified prior art applicators but has a different construction that lends itself to a number of advantages. The applicator according to the invention is simple, is easy to use and to positively control both by professionals and by individuals treating their own hair, is versatile, applies hair treatment uniformly, and is relatively inexpensive to make.

[0003] According to one aspect of the present invention there is provided a hair treatment material applicator comprising: a lid; a base; a hinge operatively connecting the lid and base to allow pivotal movement of the lid and base with respect to each other from an open position to a closed position; a bail pivotally mounted to the lid for pivotal movement from a use position above the lid to a latch position below the base to hold the lid and base in the closed position; and a hair treatment material mounted in at least one of the lid and base. In the use position the bail is spaced from a top surface of the lid a distance sufficient to allow a user to position the tip of her or his index finger between the bail and lid to facilitate positive control of the applicator, and a slope to the top front end of the lid facilitates that even more.

[0004] Preferably the lid and base are plastic and the hinge comprises an over-molded rubber hinge biasing the lid and base toward the open position. That is the hinge acts like a spring and the biasing action thereof makes the applicator easier to hold in use since both the lid and base are pressed toward different parts of the user's hand (e.g. index finger and thumb).

[0005] The applicator also desirably further comprises a compressible material such as dense foam positioned in one of the lid and base, and the hair treatment material positioned in the other of the lid and base. The foam and material are operatively positioned so as to allow strands of human hair to pass between them and for material to be substantially uniformly applied to the strands. The foam is preferably presents a substantially sloped shape, tapering from a highest position most remote from the hinge to a lowest position closest to the hinge, and desirably the foam is also arched as well as presenting a sloped shape. The sloped shape may be provided by the shape of the foam itself, or by the shape of a recess in a tray in which the foam is mounted in the base or lid.

[0006] The material is preferably recessed within the lid or base. While almost any hair treatment material can be used preferably the material is selected from the group consisting essentially of solid, semi-solid, gel, and high viscosity liquid impregnated pad, materials; in turn selected from the group

consisting essentially of hair dye, highlighter, bleach, protein treatments, detangler, conditioner, oil adder or remover, or grease removing materials.

[0007] Normally the foam is mounted in the base and the hair treatment material is mounted in the lid. The foam is mounted in a tray preferably held by flexible latching hooks to the base, and the hair treatment material is mounted in part by structures including flexible latching hooks engaging the lid.

[0008] According to another aspect of the invention, a hair treatment material applicator is provided comprising: a lid; a base; a hinge operatively connecting the lid and base to allow pivotal movement of the lid and base with respect to each other from an open position to a closed position; a dense foam positioned in one of the lid and base; and a hair treatment material positioned in the other of the lid and base. The foam and material are operatively positioned so as to allow strands of human hair to pass between them and for material to be substantially uniformly applied to the strands. The details of the components may be as described above.

[0009] According to yet another aspect of the invention, there is provided a hair treatment material applicator comprising: a plastic lid; a plastic base; a hinge operatively connecting the lid and base to allow pivotal movement of the lid and base with respect to each other from an open position to a closed position, the hinge comprising an over-molded rubber hinge biasing the lid and base toward the open position; a compressible material positioned in one of the lid and base; and a hair treatment material positioned in the other of the lid and base for cooperation with the compressible material during use to treat hair. Again the details of the components may be as described above.

[0010] It is the primary object of the present invention to provide a simple, easy to use and to positively control both by professionals and by individuals treating their own hair, versatile, and/or relatively inexpensive hair treatment applicator for substantially uniformly applying treatment material to human hair. This and other objects of the invention will become clear from the detailed description of the drawings and from the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a top perspective view of an exemplary applicator according to the present invention when in a fully open position;

[0012] FIG. 2 is a bottom plan view of the applicator of FIG. 1 when in a fully open position;

[0013] FIG. 3 is a top plan view of the applicator of FIG. 1 when in a fully open position;

[0014] FIG. 4 is a side view of the applicator of FIG. 1 when in a fully open position;

[0015] FIG. 5 is a cross-sectional view of the applicator of FIGS. 1-4 taken along lines 5-5 of FIG. 3;

[0016] FIG. 6 is a cross-sectional view of the applicator of FIGS. 1-5 taken along lines 6-6 of FIG. 5;

[0017] FIG. 7 is a side view of the applicator of FIGS. 1-6 when in a use position for highlighting or otherwise treating human hair;

[0018] FIG. 8 is a front view of the applicator of FIGS. 1-7 when in a latched closed position; and

[0019] FIG. 9 is a top perspective exploded view of a modified form of an applicator according to the invention.

DETAILS DESCRIPTION OF THE DRAWINGS

[0020] An applicator according to the present invention is shown generally by reference numeral **10** in the drawings. It has two main body components, a lid **12** and a base **14**, connected together by a hinge **16**. The lid **12** and base **14** can be made of any suitable relatively inert material but are preferably molded of plastic, such as ABS, and preferably have a generally quadrate configuration in plan, as illustrated in the drawings, although as shown the edges are preferably rounded. The hinge **16** may have any conventional construction but, as illustrated, preferably comprises a rubber living hinge over-molded (using conventional techniques) onto the lid **12** and base **14**. The rubber hinge inherently provides a spring bias biasing the applicator to the fully open position illustrated in FIGS. 1-6.

[0021] Pivotaly connected to the lid **12** near the sloped end **17** thereof opposite the hinge **16** is a bail **18**. The spacing **19** (see FIG. 5 in particular) between the top of the bail **18** and the top of the lid **12** is sufficient for a user to insert the tip of her or his index finger **F** under the bail **18** during use, as seen in FIG. 7. This allows the user to comfortably and precisely control use of the applicator **10**. The slope of the end **17** assists in allowing comfortable positioning of one's index finger **F**. The distance **19** is also approximately the thickness of the base **14** so that the bail **18** can be pivoted about the axis A-A (FIG. 2) defined by the pivot pins **20** connecting it to the lid **12** so as to latch the applicator **10** in the closed position against the bias of the hinge **16**, as illustrated in FIG. 8. Preferably the distance **19** is between about 0.25-0.75 inches.

[0022] Since the bail **18** is outside the applicator **10**, the lid **12** and base **14** are free and clear of any restriction so that during use strands of human hair **H** (see FIG. 7) do not get caught on any edges. The bail may be held by conventional detents (not shown) in the latched position of FIG. 8, if desired.

[0023] The functional hair-treating components of the applicator **10** are the hair treatment material component **22** provided in lid **12** and preferably slightly recessed therein, as clear from both FIGS. 4 and 5, and the compressible material (e. g. foam or sponge) component **24** in the base **14** and extending upwardly therefrom, as clear from FIGS. 4-7. While it is preferred that the component **22** be mounted in lid **12** and the foam **24** in base **14**, if desired component **22** could be mounted in the base **14** and foam **24** in lid **12**.

[0024] The component **24** is a compressible material, and preferably comprises a dense foam or sponge. Desirably the foam is ethylene-vinyl acetates (EVA) foam, such as shown in U.S. Patent Publication 2006/0089241, and has a density of between about 40-100 kg/m³ (e. g. about 60 kg/m³), or equivalent other closed cell foams of comparable density. The foam **24** is preferably arched (or barrel-shaped, see FIG. 6) and presents a sloped-shape, extending above the inner face of base **14** as most clearly seen in FIGS. 1, 5 and 6. The portion of the foam **24** extending above the base **14** preferably tapers gradually so that the arched center is the highest at the end **25** most remote from hinge **16** and the lowest at the end **27** closest to hinge **16**, as most clearly seen in FIGS. 4 and 5.

[0025] The gradual taper of the foam **24** allows for less stress on the over-molded rubber hinge **16** and less pinching of hair strands **H** (see FIG. 7) adjacent the hinge **16** when the applicator unit **10** is in use. The arched and sloped shape of the foam/sponge **24**, as well as a smooth surface on the top thereof, also allows it to be in substantially uniform operative contact with the hair treatment component **22** providing a

more even pressure on the hair strands **H** when moving relative to the applicator **10** and thus depositing a substantially uniform amount of treatment material on the hair strands **H**. Also the smooth top surface of foam **24** substantially precludes absorption of hair oils thereby.

[0026] The foam/sponge **24** is glued, taped, or otherwise provided in a plastic (e.g. ABS) insert tray **28** (see FIGS. 5 & 6) which then snaps and locks into the base **14** using any suitable mechanism, such as the flexible latch hooks **29** seen in FIG. 6. The tray **28** may be designed to be either readily removable (so that the entire tray and sponge can be replaced when worn out), or permanently mounted in the base **14**, depending upon the materials and construction of the tray **28** and the flexibility of the latch hooks **29**. Alternatively, the sponge **24** may be removed with a substantial enough force to break the adhesive attraction of the glue or tape, etc. holding it into tray **28**, and a new sponge **24** may be fastened in its place.

[0027] The treatment material component **22** comprises a treatment material **30** positioned in a tray **31** (see FIG. 5), such as glued therein. The plastic (e.g. ABS) tray **31** may be releasably (so that the tray and material may be replaced when consumed, or when a different type of treatment is desired) or permanently held within lid **12** by the flexible latch hooks **32**, as seen in FIG. 5, or any other suitable mechanism.

[0028] The material **30** may be any solid, semi-solid, gel, or pad impregnated with high viscosity liquid, material capable of treating hair. Exemplary materials include highlighter, dye, bleach, detangler, protein treatments, oil adder or remover, conditioner, grease remover, etc. The details of the material **30** are not part of the invention; rather any conventional (such as shown in U.S. Pat. No. 4,830,030, the disclosure of which is hereby incorporated by reference herein) or hereinafter developed suitable material **30** may be used, as long as it is in a form that will not leak out of the applicator **10** and that is capable of being substantially uniformly transferred to hair strands **H** (see FIG. 7) when the foam **24** and material **30** move over the strands **H**. One particular material **30** that is especially useful is a commercially available custom hair highlighting product sold by Orchard International, Inc. of Ontario, Canada and known as a "hair chalk." The "hair chalk" hair highlighting formulation comprises an anhydrous powder which may include talc, mica, colorants, and TiO₂, and also including silicone, esters, oils, and/or amino acids to act as binders so that the powder is in solid form in the applicator **10** and will bond with human hair to which it is applied.

[0029] As seen most clearly in FIG. 5, as earlier indicated the top surface of the material **30** is preferably recessed in the lid **12**. One reason for this is to allow for the edges of the insert tray **31** to have a radius on the plastic perimeter thereof, creating an area for hair strands **H** to go through the unit **10** without getting caught on any edges whatsoever. The strands **H** glide only through the material **30** and do not engage any other part of the applicator **10** except for the foam **24**.

[0030] FIG. 9 illustrates a slightly revised version of the applicator **110** of the invention shown in FIGS. 1-8. In the FIG. 9 embodiment components comparable to those in FIGS. 1-8 are shown by the same reference numerals, only preceded by the number "1."

[0031] In the FIG. 9 embodiment the foam/sponge **124** presents a generally sloped and arched shape to the material **30** just as in the FIGS. 1-8 embodiment only this shape is determined by the shape of the tray **128** mounting the foam

124, not by the shape of the foam itself. That is the foam **124** has a straight bottom and is not itself wedge-shaped but rather the bottom **33** of the tray **128** is sloped so as to be deeper closest to the over-molded hinge **116** and shallower at the point of tray **128** most remote from hinge **116**. Thus the FIG. 9 embodiment presents the same look of the sponge **124** as for the sponge **24** in FIG. 4 and the only difference is whether the sponge **24/124** sloped shape is achieved by the shape of the foam itself or the shape of the tray **128** in which it sits.

[0032] In the FIG. 9 embodiment the tray **128** is held within the hollow base **114** by the flexible latching hooks **129** connected to the tray **128** itself, and mating with recesses **35** in the interior of the tray **128**. The tray **131** which locks the material **130** in the recessed position within lid **112** may be releasably or permanently held in place by the flexible latching projections **132** which cooperate with recesses (not visible in FIG. 9) in the lid **112** comparable to the recesses **35**.

[0033] The material **130** may be provided within a pan **36** which in turn is inserted into a separate plastic (e. g. ABS) make-up tray **37**. The tray **37** may be releasably latched, sonically welded, or otherwise attached to the “bottom” of lid **112** as seen in FIG. 9. This allows easy installation of the material **130** into the applicator **110**. Also the provision of the pan **36** and tray **37** allow the “top” of the pan **36** (as seen in FIG. 9) to contact the underside of the locking tray **131**. This in turn allows higher pressure of the foam **124** on the material **130** during use.

[0034] In an exemplary use of the applicator unit **10**, **110** to highlight hair, where the material **30**, **130** is a hair highlighting material (such as the “hair chalk” described above), which will be described only with respect to the FIGS. 1-8 embodiment although the use is the same for the FIG. 9 embodiment, the user moves the bail **18** from the latched position in FIG. 8 to the use position in FIG. 7 by pivoting the bail **18** about the axis A-A defined by pivot pins **20**. The lid **12** and base **14** are allowed to separate slightly more than is illustrated in FIG. 7, under the bias of the spring hinge **16**, to allow for a plurality of strands of hair H to pass between the foam **24** and material **30**. Then with her or his index finger F and thumb T in the approximate positions illustrated in FIG. 7, and the lid **12** and base **14** biased into contact with the user’s finger F and thumb T by the hinge **16**, the user slides the unit **10** over the hair strands H starting near the roots and finishing once the ends of the hair strands H pass out of the unit **10**. The user applies sufficient pressure pushing the lid **12** and base **14** toward each other so as to insure application of the highlighter material **30** while still allowing the hair strands H to pass smoothly through the applicator unit **10**. The combined arched and slope shape presented by the foam **24** facilitates uniform treatment of the hair strands H.

[0035] While the terms “above,” “top,” “bottom,” and the like are used herein for convenience, it is to be understood that the applicator of the invention is not restricted to the orientation of the component parts with respect to earth.

[0036] While the invention has been herein shown and described in what is presently conceived to be the most practical and preferred embodiment thereof many modifications may be made thereof within the scope of the invention, which scope is to be restricted only by the prior art. For example the invention includes all specific intermediate ranges within a broad range; e. g. “about 40-100 kg/m³” means 39-61, 59-75, 80-101, and all other narrower ranges within the broad range. The invention is to be accorded the broadest interpretation of the appended claims so as to encompass all equivalents.

What is claimed is:

1. A hair treatment material applicator comprising:

a lid;

a base;

a hinge operatively connecting said lid and base to allow pivotal movement of said lid and base with respect to each other from an open position to a closed position;

a bail pivotally mounted to said lid for pivotal movement from a use position above said lid to a latch position below said base holding said lid and base in said closed position; and

a hair treatment material mounted within at least one of said lid and base.

2. An applicator as recited in claim 1 wherein in said use position said bail is spaced from a top surface of said lid a distance sufficient to allow a user to position the tip of her or his index finger between said bail and lid to facilitate control of the applicator.

3. An applicator as recited in claim 1 wherein said lid and base are plastic and wherein said hinge comprises an over-molded rubber hinge biasing said lid and base toward said open position.

4. An applicator as recited in claim 1 further comprising a dense foam positioned in one of said lid and base, and said hair treatment material positioned in the other of said lid and base, said foam and material operatively positioned so as to allow strands of human hair to pass therebetween and for material to be substantially uniformly applied to the strands.

5. An applicator as recited in claim 4 wherein said foam presents a sloped shape, gradually tapering from a highest position most remote from said hinge to a lowest position closest to said hinge.

6. An applicator as recited in claim 5 wherein said foam is also arched as well as presenting a sloped shape, and comprises EVA foam with a density of about 40-100 kg/m³ or the equivalent.

7. An applicator as recited in claim 5 wherein said material is recessed within said lid or base.

8. An applicator as recited in claim 7 wherein said material is selected from the group consisting essentially of solid, semi-solid, gel, and high viscosity liquid impregnated pad materials; in turn selected from the group consisting essentially of, hair dye, highlighter, bleach, protein treatments, detangler, conditioner, oil adder or remover, or grease removing materials.

9. An applicator as recited in claim 4 wherein said foam is mounted in said base and said hair treatment material is mounted in said lid.

10. An applicator as recited in claim 9 wherein said foam is mounted in a tray held by flexible latching hooks to said base, and said hair treatment material is mounted in a tray held by flexible latching hooks to said lid.

11. An applicator as recited in claim 4 wherein said lid and base are plastic and wherein said hinge comprises an over-molded rubber hinge biasing said lid and base toward said open position.

12. An applicator as recited in claim 11 wherein in said use position said bail is spaced from a top surface of said lid a distance sufficient to allow a user to position the tip of her or his index finger between said bail and lid.

13. A hair treatment material applicator comprising:

a lid;

a base;

a hinge operatively connecting said lid and base to allow pivotal movement of said lid and base with respect to each other from an open position to a closed position; a dense foam positioned in one of said lid and base; and a hair treatment material positioned in the other of said lid and base; said foam and material operatively positioned so as to allow strands of human hair to pass therebetween and for material to be substantially uniformly applied to the strands.

14. An applicator as recited in claim **13** wherein said foam is substantially arched and presents a sloped shape gradually tapering from a highest position most remote from said hinge to a lowest position closest to said hinge; and wherein said material is recessed within said lid or base.

15. An applicator as recited in claim **13** wherein said material is selected from the group consisting essentially of solid, semi-solid, gel, and high viscosity liquid impregnated pad materials; in turn selected from the group consisting essentially of, hair dye, highlighter, bleach, protein treatments, detangler, conditioner, oil adder or remover, or grease removing materials.

16. An applicator as recited in claim **14** wherein said foam is mounted in said base and said hair treatment material is mounted in said lid.

17. An applicator as recited in claim **13** wherein said lid and base are plastic and wherein said hinge comprises an over-molded rubber hinge biasing said lid and base toward said open position.

18. A hair treatment material applicator comprising:

a plastic lid;

a plastic base;

a hinge operatively connecting said lid and base to allow pivotal movement of said lid and base with respect to each other from an open position to a closed position, said hinge comprising an over-molded rubber hinge biasing said lid and base toward said open position;

a compressible material positioned in one of said lid and base; and

a hair treatment material positioned in the other of said lid and base for cooperation with said compressible material during use to treat hair.

19. An applicator as recited in claim **18** further comprising a bail pivotally mounted to said lid for pivotal movement from a use position above said lid to a latch position below said base holding said lid and base in said closed position.

20. An applicator as recited in claim **18** wherein said material is recessed and is selected from the group consisting essentially of solid, semi-solid, gel, and high viscosity liquid impregnated pad materials; in turn selected from the group consisting essentially of, hair dye, highlighter, bleach, protein treatments, detangler, conditioner, oil adder or remover, or grease removing materials.

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