

CLAIMS

What is claimed is:

1. A hair implantation assembly, comprising:
a plurality of hair strands;
a plurality of hair anchors, each hair anchor retaining a single hair strand and having at least one resilient member associated therewith;
a plurality of lumens, each lumen containing a single hair anchor in a manner that compresses an associated at least one resilient member toward an insertion axis of each lumen, and
a plurality of pushers, each pusher associated with one of the plurality of lumens, and configured to simultaneously expel the plurality of hair anchors into target tissue, wherein the plurality of lumens and the plurality of pushers are configured to cooperate to cause the plurality of resilient members to simultaneously move away from the insertion axis of each lumen when expelled into the target tissue.
2. The hair implantation assembly of claim 1, wherein the plurality of hair strands include at least 25 hair strands, the plurality of lumens include at least 25 lumens, the plurality of hair anchors includes a plurality of self-expanding hair anchors, and the plurality of pushers include at least 25 pushers.
3. The hair implantation assembly of claim 1, wherein the plurality of lumens are configured to cause the plurality of hair strands to be implanted into the target tissue at a substantially common angle.
4. The hair implantation assembly of claim 3, wherein the substantially common angle is a non-90 degree angle.
5. The hair implantation assembly of claim 1, further including a deployment mechanism for transferring a deployment force simultaneously to each of the plurality of pushers.

6. The hair implantation assembly of claim 1, further including a plunger configured to simultaneously convey an anchor expulsion force to each hair anchor within the plurality of lumens.

7. The hair implantation assembly of claim 6, further including an opening in a side of the plunger through which the plurality of hair strands pass.

8. The hair implantation assembly of claim 7, further including a hair holder configured to hold the plurality of hair strands passing through the opening.

9. The hair implantation assembly of claim 8, wherein the hair holder includes a slit configured apply friction on the hair strands to resist sliding of the plurality of hair strands.

10. The hair implantation assembly of claim 1, wherein the plurality of lumens are associated with a plurality of needles, and wherein each needle has a tip that is cut at an angle enabling skin penetration when an axial force is applied thereto.

11. The hair implantation assembly of claim 10, wherein the plurality of needles are arranged in a single-file row.

12. The hair implantation assembly of claim 11, wherein the plurality of pushers are configured to expel the plurality of hair anchors in a row, substantially along a line.

13. The hair implantation assembly of claim 12, wherein the line is substantially straight.

14. The hair implantation assembly of claim 10, wherein the needles are arranged such that a piercing edge on each needle is located at a substantially common rotational orientation with respect to a piercing edge of each other needle.

15. The hair implantation assembly of claim 10, wherein the plurality of needles are oriented at a substantially common non-90 degree angle to cause the plurality of hair strands to extend from a surface of the target tissue at the substantially common non-90 degree angle.

16. The hair implantation assembly of claim 16, further including a housing having a bottom through which the plurality of needles are configured to extend, and wherein the common non-90 degree angle is with respect to a bottom of the housing.

17. The hair implantation assembly of claim 16, further including a contact surface configured to engage with skin covering the target tissue, wherein the plurality of needles are oriented at the common non-90 degree angle with respect to the contact surface.

18. The hair implantation assembly of claim 1, wherein the hair strands are constructed of a synthetic material.

19. The hair implantation assembly of claim 1, wherein each of the plurality of hair strands is threaded through a corresponding hair anchor, lumen, and pusher.

20. A hair implantation assembly for inserting hair strands into target tissue at a non-90 degree angle with respect to a surface of the target tissue, the assembly comprising:

- a contact surface configured to engage with skin covering the target tissue;
- a plurality of hollow needles oriented at a substantially common non-90 degree angle with respect to the contact surface;

- a plurality of hollow needle tips cut at angles enabling skin penetration when axial forces are applied to each of the plurality of hollow needles;

- a plurality of hair anchors, each hair anchor contained within one of the plurality of hollow needles;

a plurality of hair strands, each hair strand being contained within one of the plurality of hair anchors; and

a plurality of pushers, each pusher associated with one of the plurality of hollow needles for expelling the plurality of hair anchors along the substantially common non-90 degree angle to cause the plurality of hair strands to extend from the skin at the substantially common non-90 degree angle.

21. A hair implantation assembly, comprising:

a plurality of hair strands;

a plurality of hollow needles, each hollow needle containing an anchor holding a single one of the plurality of hair strands;

a plunger configured to simultaneously convey an anchor expulsion force to each anchor within the plurality of hollow needles; and

an opening in a side of the plunger through which the plurality of hair strands pass.

22. A hair implantation assembly, comprising:

a plurality of hollow needles spaced from each other substantially in at least one line, each of the plurality of needles including a hollow needle tip cut at an angle enabling skin penetration when an axial force is applied thereto;

a plurality of hair anchors, each hair anchor contained within one of the plurality of hollow needles;

a plurality of hair strands, each hair strand being contained within one of the plurality of hair anchors; and

a plurality of pushers, each pusher associated with one of the plurality of hollow needles for expelling the plurality of hair anchors in at least one row, substantially along the at least one line.

23. The hair implantation assembly of claim 22, wherein the at least one line is only one line and the at least one row is only one row.

24. A hair implantation assembly, comprising:

a plurality of hollow needles arranged in an array;

a plurality of hollow needle tips on the plurality of needles, the tips being cut so as to form a piercing edge on each needle at location at a circumferential position on each hollow needle;

a support having openings through with the needles are configured to pass, wherein the needles are arranged to pass through the support such that the piercing edge on each needle is located at a substantially common rotational orientation with respect to the piercing edge of each other hollow needle;

a plurality of hair anchors, each hair anchor contained within one of the plurality of hollow needles;

a plurality of hair strands, each hair strand being contained within one of the plurality of hair anchors; and

a plurality of pushers, each pusher associated with one of the plurality of hollow needles for expelling the plurality of hair anchors from the hollow needles.

CLAIMS

1. A hair anchor prepared by a process whereby a plurality of hair anchors are formed from a single elongated metal tube, the process comprising:

forming at least two slits in an elongated direction of the elongated metal tube, each slit spanning prospective end portions of at least two hair anchors; and

severing the elongated metal tube at an intermediate location along the at least two slits such that a first portion of each of the at least two slits is contained in one of the at least two hair anchors and a second portion of each of the at least two slits remains attached to the elongated metal tube for inclusion in a subsequent hair anchor to be later severed from the elongated metal tube.
2. The hair anchor of claim 1, wherein forming the at least two slits includes laser cutting the at least two slits into the elongated metal tube.
3. The hair anchor of claim 1, wherein the process further includes inserting a hair strand into the elongated metal tube prior to severing the elongated metal tube.
4. The hair anchor of claim 1, wherein the at least two slits cooperate to define at least two resilient members.

5. The hair anchor of claim 4, further including a tubular body portion undissected by the at least two slits, and wherein the at least two resilient members are integral with and extend from the tubular body portion.

6. The hair anchor of claim 5, wherein the process further includes forming a slot at the intermediate location along each slit, the slot being configured to facilitate severing of the metal tube at the intermediate location.

7. The hair anchor of claim 6, wherein the process includes forming at least one burr upon severance at the intermediate location.

8. The hair anchor of claim 5, wherein the process further includes forming a notch in the elongated metal tube between two adjacent tubular body portions, and wherein the notch is configured to facilitate severing of the elongated metal tube at a location of the notch.

9. The hair anchor of claim 8, wherein the process includes forming a burr at a location of severance of the notch.

10. The hair anchor of claim 5, wherein prior to severing at the intermediate location, the at least two resilient members extend between two tubular body portions of two prospective hair anchors.

11. The hair anchor of claim 4, wherein the process further includes deforming the at least two resilient members to cause the at least two resilient members to diverge from a longitudinal axis of the elongated metal tube prior to severing the elongated metal tube at the intermediate location.

12. The hair anchor of claim 1, wherein forming at least two slits includes cutting a first slit in a wall of the elongated metal tube, the first slit extending generally in a direction of a longitudinal axis of the elongated metal tube, and cutting a second slit in the tube wall, the second slit generally opposing the first slit.

13. A process of forming a plurality of hair anchors from a single elongated metal tube, the process comprising:

forming at least two slits in an elongated direction of the elongated metal tube, each slit spanning prospective end portions of at least two hair anchors; and

severing the elongated metal tube at an intermediate location along the at least two slits such that a first portion of each of the at least two slits is contained in one of the at least two hair anchors and a second portion of each of the at least two slits remains attached to the elongated metal tube for inclusion in a subsequent hair anchor to be later severed from the elongated metal tube.

14. The process of claim 13, further including laser cutting the at least two slits into the elongated metal tube.

15. The process of claim 13, further including inserting a hair strand into the elongated metal tube prior to severing the elongated metal tube.

16. The process of claim 13, wherein the at least two slits cooperate to define at least two resilient members the hair anchor.

17. The process of claim 16, further including a tubular body portion undissected by the at least two slits, and wherein the at least two resilient members are integral with and extend from the tubular body portion.

18. The process of claim 17, further including forming a slot across the intermediate location along each slit, the slot being configured to facilitate severing of the metal tube at the intermediate location.

19. The process of claim 18 further including forming at least one burr upon severance at the intermediate location.

20. The process of claim 17, further including forming a notch between two adjacent tubular body portions in the elongated metal tube, and wherein the notch is configured to facilitate severing of the elongated metal tube at a location of the notch.

21. The process of claim 20, further including forming at least one burr at a location of severance of the notch.

22. The process of claim 17, wherein prior to severing at the intermediate location, the at least two resilient members extend between two tubular body portions of two prospective hair anchors.

23. The process of claim 16, further including deforming the at least two resilient members to cause the at least two resilient members to diverge from a longitudinal axis of the elongated metal tube prior to severing the elongated metal tube at the intermediate location.

24. The process of claim 13, wherein forming at least two slits includes cutting a first slit in a wall of the elongated metal tube, the first slit extending generally in a direction of a longitudinal axis of the elongated metal tube, and cutting a second slit in the tube, the second slit generally opposing the first slit.