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EMED, INC.

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

EMED, INC., a California corporation,

Plaintiff,

vs.

GENESIS BIOSYSTEMS, INC., a Delaware corporation; and DOES 1 through 10,

Defendants.

Case No. CV08-03193 JSL (AGRx)

COMPLAINT FOR
(1) PATENT INFRINGEMENT
(2) FEDERAL TRADEMARK INFRINGEMENT
(3) FEDERAL UNFAIR COMPETITION
(4) COMMON LAW TRADEMARK INFRINGEMENT
(5) COMMON LAW UNFAIR COMPETITION
(6) VIOLATION OF B&P CODE, §§ 17200 ET SEQ.

DEMAND FOR JURY TRIAL

Plaintiff EMED, INC. ("EMED") as its Complaint against Defendants GENESIS BIOSYSTEMS, INC. ("Genesis") and Does 1 through 10, inclusive, (collectively, "Defendants") alleges as follows:

JURISDICTION AND VENUE

1. This is an action for patent infringement arising under the Patent Laws of the United States, Title 35, United States Code, Trademark Infringement and Unfair Competition under the Lanham Act, 15 U.S.C. § 1051, et seq., and trademark infringement and unfair competition under the statutory and common law of the

State of California. This Court has jurisdiction over the subject matter of EMED's federal claims pursuant to 15 U.S.C. §1121, 28 U.S.C. §§ 1331 and 1338(a). This Court has jurisdiction over EMED's related claims based on state law pursuant to 28 U.S.C. §§ 1338(b) and 1367.

2. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391(b) and (c) and 28 U.S.C. § 1400(b). Defendants reside in this judicial district because, among other things, they are subject to personal jurisdiction in this judicial district, and a substantial part of the events, omissions and acts which are the subject of this action occurred within the Central District of California, and a substantial part of the property that is the subject of this action is located in the Central District of California.

THE PARTIES

3. EMED is a California corporation with its principal place of business at 31340 Vial Colinas, Suite 101, Westlake Village, California 91362.

4. On information and belief, defendant Genesis is a Delaware corporation with its principal place of business located at 1500 Eagle Court, Lewisville, Texas 75057. On information and belief, Genesis makes, uses, offers to sell, sells and/or imports into the United States dermabrasion machines.

5. The true names and capacities, whether individual, corporate, associate or otherwise, of defendants DOES 1 through 10, inclusive, are unknown to EMED, which therefore sues said defendants by such fictitious names. EMED will seek leave of this Court to amend this Complaint to include their proper names and capacities when they have been ascertained. EMED is informed and believes, and based thereon alleges, that each of the fictitiously named defendants participated in and are in some manner responsible for the acts described in this Complaint and the damage resulting therefrom.

6. EMED alleges on information and belief that, in performing the acts and omissions alleged herein, and at all times relevant hereto, each of the

Defendants was the agent and employee of each of the other Defendants and was at all times acting within the course and scope of such agency and employment with the knowledge and approval of each of the other Defendants.

GENERAL ALLEGATIONS

7. On February 24, 2004, the United States Patent and Trademark Office ("USPTO") issued United States Patent No. 6,695,853, entitled "Microdermabrasion System and Method of Use" ("the '853 patent"). By assignment, EMED is the owner of all rights, title and interest in and to the '853 patent, including all rights to recover for any and all past infringement thereof. A true and correct copy of the '853 patent is attached hereto as Exhibit "A". EMED has given notice to the public of its patent by marking its own products with the '853 patent in conformity with 35 U.S.C. § 287(a).

8. EMED is in the business of, among other things, manufacturing and selling instruments and equipment used for performing dermabrasion of the skin. In or around late 2003, EMED began using the trademark "Dermalinfusion" (the "Mark") in connection with certain products used for dermabrasion that, among other things, deliver topical solutions to the skin. On January 1, 2008, the USPTO issued to EMED United States Trademark Registration No. 3,363,091 for the Mark "Dermalinfusion" for "Instruments used for performing dermabrasion of the skin and which deliver topical solutions to the skin during a procedure, in Class 10 (U.S. CLS. 26, 39 and 44)."

9. EMED has invested heavily in the United States and throughout the World in promoting and advertising the Mark. EMED has been using the Mark continuously and extensively since first adopting such Mark. As a result of EMED's continuous and extensive use of the Mark and the significant advertising and promotion thereof, the public and those involved in the trade have come to identify the Mark with EMED, and the Mark serves to identify the source of EMED's goods and services, and distinguishes EMED's goods and services from

the goods and services of others. As a result, EMED has acquired common law trademark rights in the Mark. Additionally, the Mark is inherently distinctive, as confirmed by the USPTO's registration of the Mark.

10. Defendants recently started using and continue to use EMED's "Dermalinfusion" Mark in connection with certain dermabrasion products and systems sold by Defendants. These products directly compete with EMED's dermabrasion products. Defendants use of the exact mark is likely to cause confusion in the market place as to the source, origin, association, sponsorship or endorsement of Defendants' products. Defendants' conduct has caused and will cause actual and potential customers to erroneously believe that Defendants and their goods and services are somehow affiliated with, sponsored by, endorsed by or related to EMED.

11. Defendants' use of EMED's "Dermalinfusion" Mark is a deliberate attempt to trade on EMED's goodwill and the prestige and reputation of EMED and its products. These acts, which constitute trademark infringement and unfair competition, have caused significant damages, including lost sales and profits, and irreparable harm to EMED. Moreover, Defendants' conduct has caused and will cause significant harm to EMED's reputation and goodwill which EMED has established through years of effort and expense. On information and belief, Defendants' conduct will continue unless enjoined by the Court.

FIRST CLAIM FOR RELIEF

(Infringement of the '853 Patent)

12. EMED realleges each and every allegation set forth in paragraphs 1 through 11 above, and incorporates them herein.

13. By making, using, selling, offering for sale, and/or importing into the United States dermabrasion systems that contain each and every element of one or more claims of the '853 patent, Defendants have infringed and are infringing the '853 patent and will continue to do so, unless enjoined by this Court. Defendants

are liable for direct infringement and/or for contributory or inducing infringement under 35 U.S.C. § 271 (b) and (c).

14. Defendants' infringement of the '853 patent has been and will continue to be willful, wanton and deliberate with full knowledge and awareness of EMED's patent rights and without license from EMED. In light of the willful nature of Defendants' conduct, this is an "exceptional" case under the Patent Laws, which entitles EMED to its attorneys' fees in this action.

15. EMED has been damaged in an amount to be determined at trial, but which is no less than a reasonable royalty, and irreparably injured by Defendants' infringing activities. EMED will continue to be so damaged and irreparably injured unless such infringing activities are enjoined by this Court.

SECOND CLAIM FOR RELIEF

(Federal Trademark Infringement – 15 U.S.C. § 1114)

16. EMED realleges each and every allegation set forth in paragraphs 1 through 15 above, and incorporates them herein.

17. Defendants' unauthorized use of EMED's' Mark, as described above, constitutes trademark infringement under the Lanham Act. These acts have caused significant damages, including lost sales and profits in an amount to be determined, and irreparable harm to EMED. Moreover, Defendants' conduct has caused and will cause significant harm to EMED's reputation and goodwill which EMED has established through years of effort and expense.

18. Such conduct by Defendants has been willful with full knowledge of EMED's trademark rights. Defendants will continue such willful and intentional conduct unless enjoined by this Court. In light of the willful nature of Defendants' conduct, this is an "exceptional" case under the Lanham Act, which entitles EMED to its attorneys' fees in this action. EMED is informed and believes, and thereon alleges that unless restrained by this Court, Defendants will continue the acts herein complained of.

THIRD CLAIM FOR RELIEF

(Federal Unfair Competition – 15 U.S.C. § 1125)

19. EMED realleges each and every allegation set forth in paragraphs 1 through 18 above, and incorporates them herein.

20. Defendants' unauthorized use of EMED's Mark, as described above constitutes a violation of 15 U.S.C. § 1125 of the Lanham Act. These acts have caused significant damages, including lost sales and profits in an amount to be determined, and irreparable harm to EMED. Moreover, Defendants' conduct has caused and will cause significant harm to EMED's reputation and goodwill which EMED has established through years of effort and expense.

21. Defendants' aforesaid acts constitute deliberate and intentional violations of 15 U.S.C. § 1125, causing damages, as well as irreparable harm to EMED for which there is no adequate remedy at law. Given the willful nature of Defendants' conduct, this is an "exceptional" case under the Lanham Act, entitling EMED to its attorneys' fees incurred herein. EMED is informed and believes, and thereon alleges that unless restrained by this Court, Defendants will continue the acts herein complained of.

FOURTH CLAIM FOR RELIEF

(Common Law Trademark Infringement)

22. EMED realleges each and every allegation set forth in paragraphs 1 through 21 above, and incorporates them herein.

23. Defendants' aforementioned acts constitute trademark infringement in violation of the common law of the state of California, causing damages in an amount to be determined, as well as irreparable harm to EMED for which there is no adequate remedy at law.

24. EMED is informed and believes, and thereon alleges, that Defendants' conduct was done with a conscious disregard of the rights of EMED and with the intent to vex, injure, or annoy such as to constitute oppression, fraud, or malice

under California Civil Code section 3294 and/or the common law of California, entitling EMED to punitive damages in an amount appropriate to punish or set an example of Defendants. EMED is informed and believes, and thereon alleges that unless restrained by this Court, Defendants will continue the acts herein complained of.

FIFTH CLAIM FOR RELIEF

(Common Law Unfair Competition)

25. EMED realleges each and every allegation set forth in paragraphs 1 through 24 above, and incorporates them herein.

26. The foregoing acts and conduct of Defendants constitute unfair trade practices and unfair competition under California common law.

27. Defendants' acts have caused damage to EMED, including incidental and general damages, lost profits, and out-of-pocket expenses in an amount to be determined, and irreparable harm to EMED. Moreover, Defendants' conduct has caused and will cause significant harm to EMED's reputation and goodwill which EMED has established through years of effort and expense.

28. EMED is informed and believes, and thereon alleges, that Defendants' conduct was done with a conscious disregard of the rights of EMED and with the intent to vex, injure, or annoy such as to constitute oppression, fraud, or malice under California Civil Code section 3294 and/or the common law of California, entitling EMED to punitive damages in an amount appropriate to punish or set an example of Defendants.

29. As a proximate result of Defendants' conduct, EMED has suffered and will suffer immediate and irreparable injury not compensable by money damages, such that preliminary and permanent injunctions should issue against Defendants. EMED is informed and believes, and thereon alleges that unless restrained by this Court, Defendants will continue the acts herein complained of.

SIXTH CLAIM FOR RELIEF

(California Business And Professions Code §§ 17200 et seq.)

30. EMED realleges each and every allegation set forth in paragraphs 1 through 29 above, and incorporates them herein.

31. The foregoing acts and conduct of Defendants constitute unfair trade practices and unfair competition under California Business and Professions Code Section 17200 et seq. and have no valid or legitimate purpose except to benefit Defendants at the expense of EMED.

32. Defendants' acts have caused damage to EMED, including incidental and general damages, lost profits, and out-of-pocket expenses. Defendants should therefore be required to disgorge and restore to EMED all profits and other expenses as may be incurred by EMED. EMED further seeks an injunction to enjoin Defendants from continuing said unfair business practices.

PRAYER FOR RELIEF

WHEREFORE, EMED prays for judgment against Defendants as follows:

a. That Defendants, their officers, directors, agents, servants, employees, and all persons and entities in active concert or participation with them, or any of them, be preliminarily and permanently enjoined and restrained from infringing or otherwise using without EMED's authorization EMED's Mark, including by manufacturing or causing to be manufactured, by purchasing or causing to be purchased, by advertising or causing to be advertised, or by offering for sale or selling goods or services bearing EMED's Mark or any confusingly similar mark;

b. That Defendants be required to forthwith deliver up to EMED for destruction any and all merchandise, packaging, advertising or other materials in their possession, custody, or control that would otherwise violate the aforesaid injunction;

c. That Defendants be ordered pursuant to Section 34 of the Lanham Act, 15 U.S.C. § 1116(a), to file with the Court and serve upon EMED's counsel, within thirty (30) days of the entry of the injunction and orders prayed for herein, a written report under oath setting forth in detail the form and manner in which they have complied with said injunction and orders;

d. That Defendants account for all profits realized as a consequence of their unlawful acts of deliberate and intentional trademark infringement, unfair competition and other violations, as alleged herein, and that the amount of profits realized by Defendants by reason of their unlawful acts be trebled, as provided by law pursuant to Section 35 of the Lanham Act, 15 U.S.C. § 1117;

e. That EMED be awarded damages in the full amount EMED has sustained as a consequence of Defendants' acts, trebled where provided by law, pursuant to Section 35 of the Lanham Act, 15 U.S.C. § 1117;

f. That EMED have and recover from Defendants reasonable attorneys' fees, costs and disbursements in this action pursuant to Section 35 of the Lanham Act, 15 U.S.C. § 1117 and as otherwise authorized by law;

g. That the Court grant EMED restitution from Defendants by disgorgement of all profits earned through the unlawful conduct asserted herein;

h. That Defendants pay compensatory and punitive damages to EMED;

i. That any monetary award include pre- and post-judgment interest at the highest rate allowed by law; and

j. That Defendants, their officers, directors, agents, servants,

employees, and all persons and entities in active concert or participation with them, or any of them, be preliminarily and permanently enjoined and restrained from further infringement of the '853 patent;

k. A judgment by the Court that Defendants have infringed and are infringing the '853 patent;

l. An award of damages for infringement of the '853 patent, together with prejudgment interest and costs, said damages to be trebled by reason of the intentional and willful nature of Defendants' infringement, as provided by 35 U.S.C. § 284;

m. An award of EMED's reasonable attorneys' fees pursuant to 35 U.S.C. § 285 in that this is an exceptional case;

n. EMED's costs of suit herein; and

o. For such other and further relief as this Court deems just and proper.

Dated: May 14, 2008

RUTAN & TUCKER, LLP
RONALD P. OINES

By: _____
Ronald P. Oines
Attorneys for Plaintiff EMED, INC.

DEMAND FOR JURY TRIAL

EMED hereby demands a trial by jury.

Dated: May 14, 2008

RUTAN & TUCKER, LLP
RONALD P. OINES

By: _____
Ronald P. Oines
Attorneys for Plaintiff EMED, INC.

EXHIBIT A

US006695853B2

(12) **United States Patent**
Karasiuk

(10) **Patent No.: US 6,695,853 B2**
(45) **Date of Patent: Feb. 24, 2004**

(54) **MICRODERMABRASION SYSTEM AND METHOD OF USE**

(75) Inventor: **Kenneth B. Karasiuk**, Oak Park, CA (US)

(73) Assignee: **Emed, Inc.**, Westlake, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/989,992**

(22) Filed: **Nov. 21, 2001**

(65) **Prior Publication Data**

US 2003/0097139 A1 May 22, 2003

(51) **Int. Cl.**[7] **A61M 1/00**

(52) **U.S. Cl.** **606/131**

(58) **Field of Search** 606/131, 132; 604/313, 317, 319

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2,712,823	A		7/1955	Kurtin
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4,560,373	A		12/1985	Sugino et al.
4,572,187	A		2/1986	Schetrumpf
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5,699,810	A		12/1997	Pallikaris
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(List continued on next page.)

Primary Examiner—Kevin Shaver
Assistant Examiner—Michael B. Priddy
(74) *Attorney, Agent, or Firm*—Frank P. Becking; Bozicevic, Field & Francis LLP

(57) **ABSTRACT**

A microdermabrasion device, microdermabrasion system employing the device and method of performing microdermabrasion. A device for exfoliating skin cells from an external surface of skin includes a vacuum head base defining a chamber therein and having a substantially smooth treatment tip attached and extending from an end thereof or integral therewith. The tip has at least one central opening which is open to the chamber, and is adapted to contact the skin and traverse the skin in a substantially non-abrasive manner. A vacuum access opening is provided through a side wall of the vacuum head base and adapted to connect with a source of vacuum. An abrasive member is located within the chamber, and at least one opening adapted to allow the flow of one or more fluids through the chamber is provided, wherein upon application of vacuum through the vacuum access opening, the fluids are drawn though the chamber, applied to the skin and taken up through the vacuum access opening, and a portion of the skin, targeted by the tip opening, is drawn into the chamber and brought into contact with the abrasive member.

24 Claims, 5 Drawing Sheets

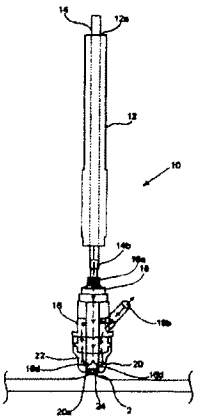

EXHIBIT A, PAGE 12

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FIG. 1

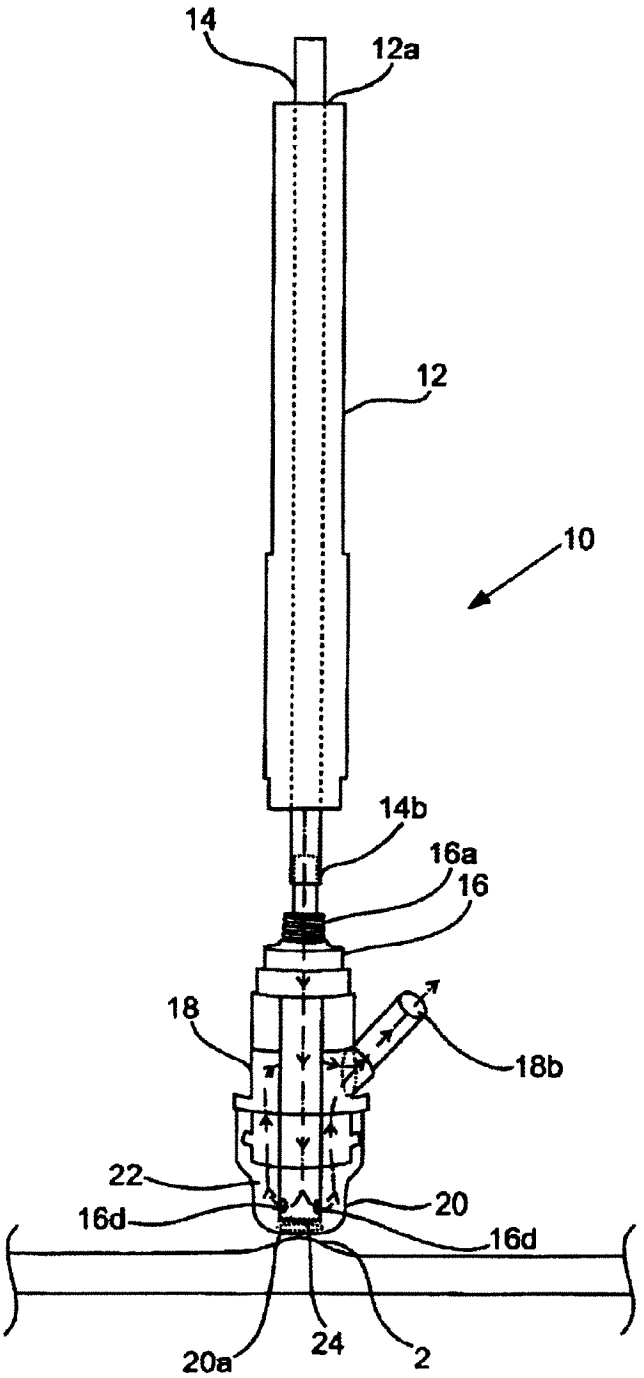
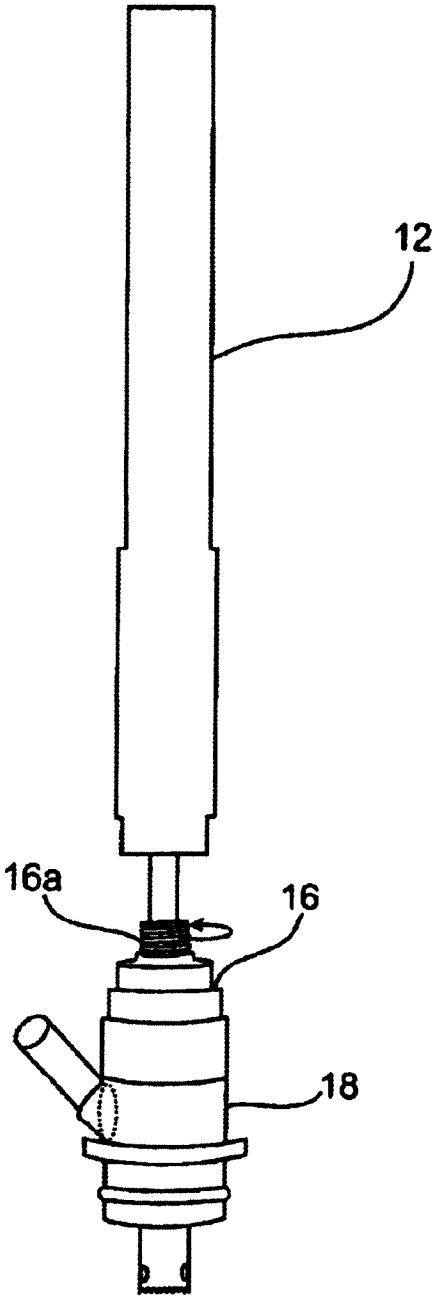


FIG. 2



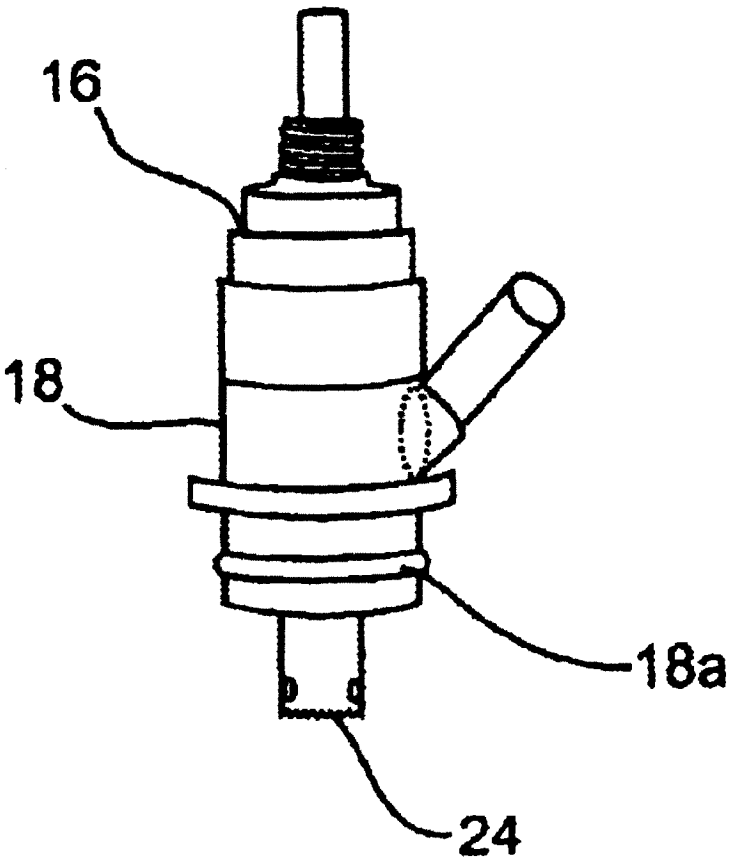


FIG. 3

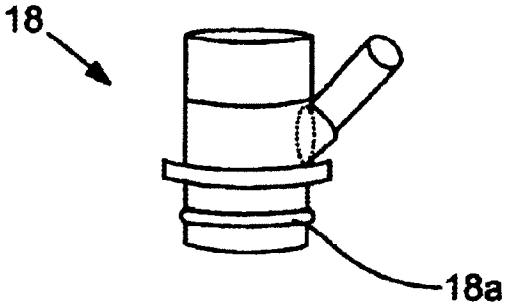


FIG. 4

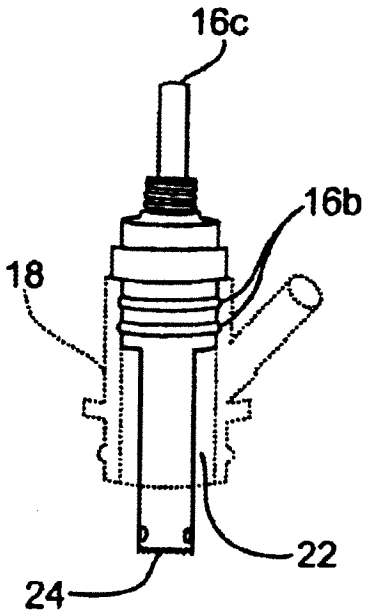


FIG. 5

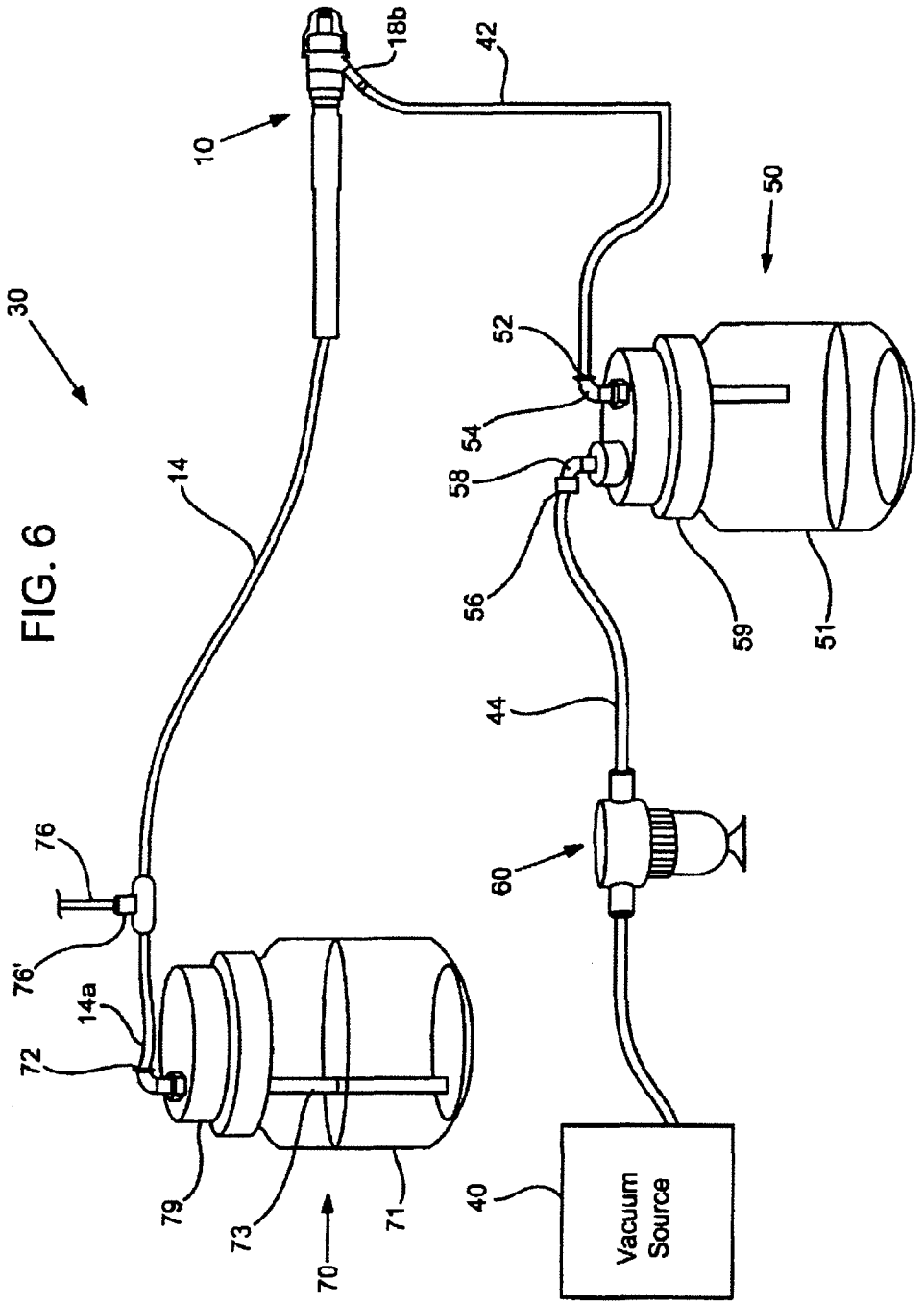


FIG. 6

EXHIBIT A, PAGE 18

MICRODERMABRASION SYSTEM AND METHOD OF USE

FIELD OF THE INVENTION

The present invention pertains to dermatology, more particularly to skin treatment and conditioning.

BACKGROUND OF THE INVENTION

Microdermabrasion is a process for removing dead cells from the outermost layer of the skin (the epidermis) to provide a younger and healthier looking appearance, remove wrinkles, clean out blocked pores, remove some types of undesirable skin conditions that can develop, and enhance skin tone. The process of microdermabrasion must be performed with a certain degree of accuracy, so that underlying live layers of skin tissue are not removed or damaged, but that enough dead cells are removed to give effective results.

Abrasive tipped devices or rotating brushes and cylinders coated with abrasive particles, such as diamond dust, have been used to remove skin layers. U.S. Pat. No. 2,712,823 discloses a brush for removing skin blemishes which includes rotating metallic bristles. This device is more properly referred to as a dermabrasion device as it is quite aggressive in the amounts and rates of tissues removed. While this type of device can be effective for removing gross scarring and keloids such as those associated with burn victims, it can also cause scarring and is difficult to accurately control with regard to amounts of tissue removed. As such it is incapable of effectively performing microabrasion as it is currently defined in the art. U.S. Pat. No. 2,867,214 similarly discloses a device that employs motor driven stainless steel wire brushes and cannot effectively perform microdermabrasion.

U.S. Pat. No. 4,241,499 discloses a hand held foot care instrument that includes a roughened dermabrasion undersurface to function as a nail file and skin smoother While this device may be effective for "spot treatment" of calluses, corns and the like on the foot, it would not be an effective tool for an overall microdermabrasion treatment of the face or other large area of skin that must be treatment with a consistent amount of abrasion over an entire surface.

U.S. Pat. No. 4,378,804 is directed to a skin abrasion device which uses flowing water to rotate an abrasive brush and create a vacuum to remove loosened skin particles. The rotating brush is usually used in conjunction with a liquid detergent or medicinal compound applied to the skin surface being scrubbed.

U.S. Pat. No. 4,572,187 discloses a dermabrasion tool that employs a rotary hub and a plurality of flexible strips each having a single abrasive surface. No means are disclosed for conditioning the skin or of removing the dead skin particles from the surface of the skin after they have been abraded.

U.S. Pat. No. 4,957,747 discloses the use of powdered aluminum oxide or a liquid topical composition containing suspended aluminum oxide which is applied to the skin to abrade it. U.S. Pat. No. 5,971,999 discloses a microdermabrasion system which employs a jet of a mixture of air and reducing crystals, such as aluminum oxide, that is applied to the skin to perform the microdermabrasion.

U.S. Pat. No. 5,012,797 discloses the use of chemicals or ultrasonically oscillating tips to perform abrasion.

U.S. Pat. No. 5,037,431 describes the use of a pressurized jet of a liquid, such as water or sterile saline, to fragment and remove diseased tissue without harming surrounding healthy tissue. This device operates in conjunction with vacuum aspiration to remove the liquid and fragmented tissue. A powdered abrasive material may be applied to abrade the skin and removal may be performed using vacuum.

U.S. Pat. No. 6,241,739 discloses a microdermabrasion device which provides a tubular treatment tool having a fixed abrasive tip on the end thereof. The abrasive tip has a central opening therethrough, through which a vacuum is applied. When the tip is scraped over the surface of the skin, loosened skin particles are vacuumed up through the central opening. However, a trailing side of the abrasive trip, which trails the central opening of the abrasive tip as the tip is moved over the surface of the skin, also microabrades the skin surface and leaves a trail of loosened skin particles which cannot be collected by the vacuum. Additionally, this is a dry system which does not treat the skin during microdermabrasion, which can leave streaking effects on the remaining skin.

SUMMARY OF THE INVENTION

The present invention is directed to a microdermabrasion device, microdermabrasion system employing the device and method of performing microdermabrasion.

A device for exfoliating skin cells from an external surface of skin includes a vacuum head base defining a chamber therein and having a substantially smooth treatment tip attached and extending from an end thereof or integral therewith. The tip has at least one central opening which is open to the chamber, and is adapted to contact the skin and traverse the skin in a substantially non-abrasive manner. A vacuum access opening is provided through a side wall of the vacuum head base and adapted to connect with a source of vacuum. An abrasive member is located within said chamber, and at least one opening adapted to allow the flow of one or more fluids through the chamber is provided, wherein upon application of vacuum through the vacuum access opening, the fluids are drawn though the chamber, applied to the skin and taken up through the vacuum access opening, and a portion of the skin, targeted by the tip opening, is drawn into the chamber and brought into contact with the abrasive member.

A system for performing microabrasion is provided which includes an applicator tool having a substantially non-abrasive tip with at least one opening therethrough, the tip being adapted to contact the skin of a patient; an abrasive member located internally of the applicator tool, and means for applying vacuum through the at least one opening, wherein upon application of vacuum a portion of the skin is drawn into contact with the abrasive member.

Means for delivering fluid through the applicator tool and the at least one tip opening are provided, for application of the fluid to the skin.

A system for performing microabrasion according to the present invention includes an applicator tool having a longitudinal axis and a substantially non-abrasive tip with at least one opening therethrough. A conduit extends into the applicator tool and an abrasive member is mounted on an end of the conduit and located internally of the applicator tool. A vacuum access opening is provided through a side wall of the tool, for connection with a source of vacuum to apply vacuum to a tip opening.

The abrasive member seals off the end of the conduit which is located internally of the applicator tool, and at least one opening is provided through a wall of the conduit.

A fluid reservoir adapted to hold treatment liquids may be connected to the conduit, wherein, upon application of

vacuum through the vacuum access opening, the treatment liquids are drawn through the conduit and delivered to the at least one opening in the tip.

A collection reservoir is connected to the vacuum access opening via a vacuum line for collection of the fluids and microabraded skin cells and is in turn connected to a vacuum source. A filter may be connected inline between the collection reservoir and the vacuum source.

A method of performing microabrasion is provided which includes: applying a non-abrasive treatment tip to a skin surface; providing negative pressure through an opening in the treatment tip to establish a relative vacuum; drawing a portion of the skin surface through the opening an into contact with an abrasive member; and moving the non-abrasive treatment tip over the skin surface and microabrading the portion of the skin in contact with the abrasive member.

Microabraded skin particles are collected through a vacuum conduit through which the negative pressure is provided.

Fluid may be applied to the skin though the opening in the treatment tip.

The vacuum provided by the negative pressure surrounds a perimeter of the abrasive member so that microabraded skin particles are collected downstream of the abrasive member and from all locations surrounding the abrasive member.

These and other objects, advantages, and features of the invention will become apparent to those persons skilled in the art upon reading the details of the XXX as more fully described below.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete understanding of the devices, system and methods according to the present invention may be obtained by referring to the following detailed description together with the accompanying drawings briefly described hereinafter.

FIG. **1** is a partially exploded view of a microabrasion device according to the present invention.

FIG. **2** is a partially exploded view of a microabrasion device with a tip of the device removed.

FIG. **3** is a view of an assembly including a vacuum head base and functional block with abrasive member according to the present invention.

FIG. **4** is a view of a vacuum head base according to the present invention.

FIG. **5** is a view of a functional block with abrasive member according to the present invention.

FIG. **6** is a schematic of a microdermabrasion system according to the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Before the present device, system and methods are described, it is to be understood that this invention is not limited to particular structures described, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting, since the scope of the present invention will be limited only by the appended claims.

Where a range of values is provided, it is understood that each intervening value, to the tenth of the unit of the lower limit unless the context clearly dictates otherwise, between the upper and lower limits of that range is also specifically disclosed. Each smaller range between any stated value or intervening value in a stated range and any other stated or intervening value in that stated range is encompassed within the invention. The upper and lower limits of these smaller ranges may independently be included or excluded in the range, and each range where either, neither or both limits are included in the smaller ranges is also encompassed within the invention, subject to any specifically excluded limit in the stated range. Where the stated range includes one or both of the limits, ranges excluding either or both of those included limits are also included in the invention.

Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. Although any methods and materials similar or equivalent to those described herein can be used in the practice or testing of the present invention, the preferred methods and materials are now described. All publications mentioned herein are incorporated herein by reference to disclose and describe the methods and/or materials in connection with which the publications are cited.

It must be noted that as used herein and in the appended claims, the singular forms "a", "and", and "the" include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to "a vacuum tube" includes a plurality of such vacuum tubes and reference to "the vacuum tube" includes reference to one or more vacuum tubes, to include a plurality of tubes interconnected in series, and equivalents thereof known to those skilled in the art, and so forth. More particularly, it is also understood that if an element is described as being connected to a vacuum source, that this description also includes the element being connected to an intermediate element, such as a tube or a filter, which is in turn connected to the vacuum source.

The publications discussed herein are provided solely for their disclosure prior to the filing date of the present application. Nothing herein is to be construed as an admission that the present invention is not entitled to antedate such publication by virtue of prior invention. Further, the dates of publication provided may be different from the actual publication dates which may need to be independently confirmed.

The present invention provides the ability to perform microdermabrasion with or without flowing abrasive particles to be applied to the skin, with the ability to pretreat or condition the skin prior to microabrading it. The present invention further provides more efficient and complete removal of microabraded particles with the enveloping arrangement of the vacuum and, optionally, fluid flow that surrounds an abrasive member provided.

Definitions

The term "tube", "tubular" or "conduit" refers to a structure having a hollow, bore or through passage or other passageway, substantially aligned along a longitudinal axis of the structure and which may have various cross sections. Thus, these terms refer not only to a common tube having a circular cross section with a central opening, but also to other structures including those having square, elliptical or non-geometric and even irregular cross-sections, which include such a passageway.

The term "tip" refers to the end of a structure or assembly. As used herein, the applicator tip is that component, whether integral or attachably fixed to the device, which is the endmost extremity of the device and is used in contacting the skin.

A "vacuum line" as used herein is a tubular structure that interconnects other components of the system so as to form a vacuum pathway therebetween.

FIG. **1** shows a partially exploded view of a microabrasion device **10** according to the present invention. Device **10** is designed to be handheld by a user for its application to the skin of a patient in the performance of microdermabrasion. As such, it may be designed with an elongated handle **12** to facilitate grasping by a user. One of ordinary skill in the art will appreciate that many different shapes and materials may be employed for the handle **12** and the present invention is not to be limited to an elongated, substantially cylindrical handle **12** as shown. In the example of FIG. **1**, handle **12** is made of plastic, such as nylon or other plastic having sufficient toughness and mechanical strength, but may also be made of metal, such as stainless steel, for example, or ceramics or composites. Handle **12** is annular or tubular, providing a passageway **12***a* through which tube **14** is extended.

Tube **14** is adapted to be connected at its proximal end **14***a* (the end extending away from handle **12**) to a fluid reservoir **70** (described below with regard to FIGS. **6** and **8**) which is in turn, open to atmosphere. Tube **14** is flexible and may be made of PVC or other compatible plastic, for example. Similarly, all other vacuum lines described herein are flexible to afford maneuverability to device **10** and may be made of PVC or other compatible plastic. Alternatively, the proximal end of tube **14** can be left open to atmosphere or connected to a flow control valve and/or filter, with or without connection to fluid reservoir **70**. The distal end **14***b* of tube **14** is connected to functional block **16**, by a frictional fit, as shown. Alternatively, a clamp or other type of connector may be provided to facilitate a pressure tight seal between tube **14** and functional block **16**. Functional block **16** is adapted to be fixed to handle **12** and may be machined from metal such as surgical stainless steel or may be machined or molded of plastic or casted or molded from ceramic. Functional block **16** may be fixed to handle **12** using threads **16***a* (see FIG. **2**) or other mechanical or chemical equivalent, although the fixation or interconnection is preferably done so that the functional block **16** can readily be detached and reconnected easily.

Vacuum head base **18** is fitted over functional block **16**, as shown in FIG. **3**, for example, to form a pressure tight seal therewith. Vacuum head base **18** may be machined from machined from metal such as surgical stainless steel or may be machined or molded of plastic or casted or molded from ceramic. Vacuum head base **18** may be frictionally fit over functional block **16** with a seal being effectuated by positioning of one or more O-rings **16***b* (see FIG. **5**) or other sealing members between functional block **16** and vacuum head base **18**.

A treatment tip **20** is fitted over the end of vacuum head base **18**, and, likewise may be friction fit and/or provided with threads or other attachment means to provide a pressure tight fit between the components. The tip is smooth surfaced and adapted to glide over the skin surface for application of lotions/vitamins or other fluids thereto during processing. The tip may be made of plastic such as nylon or glass, such as pyrex, for example and is preferably, although not necessarily transparent or translucent. A transparent tip allows better visualization by the operator during processing. One or more O-rings **18***a* (see FIG. **4**) or other sealing members may be provided between vacuum head base **18** and tip **20** to facilitate the pressure tight seal. Alternatively, tip **20** may be integrally machined or molded with vacuum head base **18**. Tip **20** includes an opening **20***a* which targets an area of skin to be microabraded when tip **20** is applied to the skin. Although shown with a single large opening **20***a*, it is conceivable that tip **20** could be provided with more than one opening to perform a similar function as described below.

Functional block **16** is a tubular structure that is configured to mate with vacuum head base **18**. Vacuum head base **18** is also a tubular structure which has a significantly larger inside diameter than the outside diameter of the distal portion of functional block **16**, so as to form an annulus **22** therebetween. Tip **20** extends the annular space **22**, as shown in FIG. **1**. A passageway **16***c* runs the full length of functional block **16** and forms a continuation of the flow path defined by tube **14** when tube **14** is connected to the proximal end of functional block **16**. An abrasive member **24** is formed at the distal end of functional block **16** thereby closing off the passageway **16***c* at the distal end of functional block **16**. The abrasive member **24** is formed by fusing abrasive particles to the end of the functional block **16**, or could alternatively be made as an abrasive disk and fitted within an open end of the functional block to seal the end or mounted to a closed end of a functional block **16**. Although the abrasive member shown is substantially planar, it may alternatively be rounded, flared, concave, convex or elongated, for example. The abrasive particles are of a size ranging from about 50 to 300 grit, typically about 100 to 120 grit and are typically carborundum (aluminum oxide) or sodium bicarbonate, or the like. The coarser particles (at the lower ends of the grit ranges) may be provided on a functional block for use in initial treatments, while finer particles (at the higher ends of the grit ranges) may be employed for subsequent treatments. Alternatively, the abrasive member may be formed by knurling, machining, laser treatment or otherwise mechanically or chemically treating a closed end of the functional block to form the abrasive end.

One or more openings **16***d* are provided through the wall of the distal tubular structure of functional block **16** to establish one or more flow pathways between passageway **16***c* and annulus **22**. Tip **20** extends beyond the extremity of functional block **16** such that abrasive member **24** is positioned internally of the assembled device **10**, and surrounded by annulus **22**.

An opening or port **18***b* is provided in vacuum head base **18** for connection of a vacuum source, for example, by connecting the vacuum port **18***b* to the vacuum source via a vacuum line. When vacuum is applied through opening **18***b* and opening **20***a* is sealed off, for example by placing it up against skin tissue, a closed loop vacuum flow path is established between the vacuum source and connecting line, vacuum opening **18***b*, annulus **22**, opening(s) **16***d*, passageway **16***c* and tube **14**. This flow path is shown in FIG. **1**.

FIG. **6** shows an example of a microdermabrasion system **30** according to the present invention, which incorporates device **10**. Vacuum opening **18***b* is connected with a vacuum source **40** as described above, by vacuum line **42**. A collection reservoir **50** and, optionally, an inline filter **60** are connected in the vacuum line between device **10** and vacuum source **40**. Vacuum line **42** connects to an input **52** to collection reservoir **50** via elbow **54**, for example, and output **56** connects with a second vacuum line **44** via elbow **58**, for example. A manifold cover **59** sealably interfaces the input (**52**,**54**) and output (**56**,**58**) connections with a reservoir **51** which is typically ajar made of glass or plastic for example. An extension tube **53** connects with input **52**,**54** and extends into the reservoir **51** to ensure effective delivery of waste materials (abraded skin particles and, optionally, fluids) to reservoir **51**.

Optionally, a back-up filter **60** may be provided inline between vacuum lines **44** and **46** as added insurance that no or substantially no fluid, skin particles, abrasive particle or other materials being collected by collection reservoir **50** can be transported to vacuum source **40**. Filter **60** may be an in-line condensation filter, such as water condenser produced by Wilkerson Labs and available as part no. F0001-000 from Nor-Cal Controls, Inc. of Santa Clara, Calif.

The vacuum source may be the same as that provided for currently existing microdermabrasion devices, such as the ProPeel, MDPeel or ipeel, for example, each available from emed, Inc., Westlake Village, Calif. A power switch is used to activate the vacuum source and a vacuum in the range of about 2 to 14 psi is generally used during a procedure, depending upon the skin condition of the person being treated.

Tube **14** extends from the proximal end of the microdermabrasion device **10**, and connects with output **72** of fluid reservoir **70** via elbow **74**, for example. A breather line **76** may be connected inline via T-joint **76'**, for example, or other interconnection, and includes an adjustable valve **78** or other means for varying an amount of air that is allowed into the tube **14**. This feature not only allows the amount of vacuum to be adjusted for a given fluid, but allows fluids having different viscosities to be applied at the same vacuum level, since different viscosities will require varying amounts of air to be inletted through the breather line, to give a constant vacuum level. Alternatively, a breather line or input with adjustment valve may be located on elbow **74** or directly on manifold cover **79**. Still further, a valve or other flow control mechanism may be provided in the fluid delivery line **14** to control the amount of liquid passing through the line. This feature can be provided alternatively, or in addition to the breather line discussed above. An input **75** is provided in manifold **77** which is open to atmosphere to prevent vacuum buildup in reservoir **70**. A manifold cover **79** sealably interfaces the input output (**72,74**) connections with a reservoir **71** which is typically a jar made of glass or plastic, for example, and contains lotions, vitamins and/or other skin treatment fluids to be applied to the skin through tip opening **20***a*. An extension tube **73** connects with output **72,74** and extends into the reservoir **71** to near the bottom of the reservoir to ensure that most all of the contents of reservoir **71** are capable of being delivered through the system.

Abrasive particles, such as corundum crystals, sodium bicarbonate particles or other abrasive particles, including those disclosed in U.S. Pat. No. 5,971,999 (which is hereby incorporated in its entirety by reference thereto), for example may be included in reservoir **71** for delivery through the system to perform a microabrading function, although this is not the preferred configuration of the present invention, as sufficient microabrasion may be accomplished via abrasive member **24**. If used, the abrasive particles may be used together with any of the fluids mentioned above or with some other fluid carrier medium, such as those described in U.S. Pat. No. 5,971,999,for example.

Still further, the present system may be used by eliminating the fluid reservoir **70** altogether, wherein microdermabrasion is performed in a "dry state" and tube **14** is simply left open to atmosphere, with or without a filter and/or valve for adjusting the amount or flow rate of air that is allowed into tube **14**.

In use, device **10** positioned so as to place tip **20** in contact with the skin surface to be microabraded and the vacuum source is turned on to establish a vacuum within the system **30**. It should be noted here that the order of positioning and turning on the vacuum is not critical as the vacuum can be turned on prior to contacting the tip **20** with skin, since the vacuum loop will not be closed until such time that opening **20***a* is sealed by the skin.

Upon forming the vacuum loop as described above, the fluid contents in fluid reservoir **70** are drawn through tube **14** and into device **10** where they flow out of the functional block **16** through openings **16***d* and are applied to the skin. A targeted area of the skin (which is defined by the perimeter of the opening **20***a* is drawn up into the tip **20** and a central portion of the targeted area of skin is drawn into contact with abrasive member **24**, while portions of the targeted area surrounding the central portion are treated with the fluid contents. As the user or operator of the device **10** glides the tip **20** over the surface of the skin, the targeted area in contact with the abrasive surface **24** is scraped over the abrasive surface wherein microdermabrasion of that portion of the skin is performed. Continued movement of the tip over the skin likewise continues the microdermabrasion of the targeted area, which changes along with the movement of the tip.

Advantageously, since the flow of fluids surrounds the area of skin being microabraded, the skin is both pretreated and post-treated with the vitamins, lotions, etc. contained in the reservoir **70**. Pretreatment can soften the area of skin treatment to be microabraded, thereby rendering exfoliation more complete and easier to accomplished with less trauma to the skin tissues left behind, while post-treatment helps to reduce streaking and redness of the skin tissues left behind.

As the flow of the fluids continues out of the vacuum head base and into vacuum line **42**, it carries with it the exfoliated skin particles and any other waste that is removed through the microdermabrasion process. Since the fluids surround the abrasive member **24**, they are very effective in taking up substantially all of the particles that are loosened during the microdermabrasion process, in contrast with prior art mechanisms having a abrasive tip that can only vacuum up particles from the leading portion of the tip (through a central opening through the abrasive tip), while all of the particles that are loosened or freed up by the trailing side of such a tip (i.e., that portion of the abrasive tip that is behind the central opening with respect to the direction of movement over the skin) are left behind.

Although the abrasive member **24** and functional block **16** described herein are one example of constructing the device according to the present invention, it is noted that they need not be constructed in this exact manner, as other configurations could be assembled to carry out the invention as described. For example, an abrasive member similar to that described, could be mounted to the inner walls of a vacuum head base with several spokes, while still maintaining an annulus substantially around the perimeter of the abrasive member, with the remainder of the functional block then simply being replace by an extension of tube **14**. Also, the abrasive member could be formed in different shapes such as square or any other shape that substantially maintains an annulus or other flow paths that would substantially surround the abrasive member with fluid flow as described. Still further, the abrasive member could be mounted in the vacuum head base so as to allow flow channels only over upstream and downstream perimeters of the abrasive member, while leaving no openings along the side perimeters of the abrasive member which could be welded or otherwise sealed against the inner walls of the vacuum head base. Such a configuration would still allow leading edge and trailing edge uptake of microabraded skin particles.

However, an annulus or other flow configuration which flows over substantially the entire perimeter of the abrasive member is preferred. Such a configuration is particularly more effective when circular movements of the tip **20** over the skin are applied.

While the present invention has been described with reference to the specific embodiments thereof, it should be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the true spirit and scope of the invention. In addition, many modifications may be made to adapt a particular situation, material, composition of matter, process, process step or steps, to the objective, spirit and scope of the present invention. All such modifications are intended to be within the scope of the claims appended hereto.

That which is claimed is:

1. A system for performing microabrasion, comprising:

an applicator tool having a substantially non-abrasive tip with at least one opening therethrough, said tip being adapted to contact the skin of a patient;

an abrasive member located internally of said applicator tool;

means for applying vacuum through said at least one opening outside a periphery of said abrasive member, wherein upon application of vacuum a portion of the skin is drawn into contact with said abrasive member.

2. The system of claim **1**, further comprising means for delivering fluid through said applicator tool and said at least one opening in said tip to be applied to the skin.

3. A microdermabrasion device, comprising:

a body having a longitudinal axis;

a substantially non-abrasive tip attached to an end of said body and having at least one opening therethrough;

an abrasive member located internally of said body and tip; and

a vacuum access opening adapted to apply negative pressure to a skin surface of a patient through said tip outside a periphery of said abrasive member, thereby drawing a portion of the skin into contact with said abrasive member.

4. The device of claim **3**, further comprising at least one opening through said body adapted to be connected to at least one of a source of fluid and atmospheric pressure.

5. The device of claim **3**, further comprising a conduit extending into said body and generally aligned with said longitudinal axis, said conduit adapted to be connected to at least one of a source of fluid and atmospheric pressure.

6. The device of claim **5**, wherein said abrasive member seals an end of said conduit within said body and said conduit includes at least one opening through a wall thereof in a portion of said conduit that is located within said body.

7. The device of claim **6**, wherein said at least one opening through a wall comprises a plurality of openings.

8. A system for performing micro abrasion, comprising:

an applicator tool having a longitudinal axis and a substantially non-abrasive tip with at least one opening therethrough, said tip being adapted to contact the skin of a patient;

a conduit extending centrally into said applicator tool;

an abrasive member mounted on an end of said centrally-located conduit and located internally of said applicator tool; and

a vacuum access opening through a side wall of said tool, adapted to connect with a source of vacuum and apply vacuum to said at least one opening of said tip.

9. The system of claim **8**, wherein said abrasive member seals off said end of said conduit located internally of said applicator tool, and wherein said conduit further comprises at least one opening through a wall thereof.

10. The system of claim **9**, wherein said at least one opening through a wall is located internally of said applicator tool and is adapted to deliver liquids from said conduit to said at least one opening in said tip.

11. The system of claim **10**, further comprising a fluid reservoir adapted to hold treatment liquids, said conduit connected to said fluid reservoir, wherein, upon application of vacuum through said vacuum access opening, the treatment liquids are drawn through said conduit and delivered to said at least one opening in said tip.

12. The system of claim **8**, further comprising a collection reservoir connected through a first opening to said vacuum access opening via a vacuum line; said collection reservoir further having a second opening adapted to be connected to the source of vacuum.

13. The system of claim **12**, further comprising a filter connected inline between said collection reservoir and the source of vacuum.

14. A device for exfoliating skin cells from an external surface of skin, comprising:

a vacuum head base having a longitudinal axis, said vacuum head base defining a chamber therein and having a substantially smooth treatment tip having at least one central opening which is open to said chamber, said tip being adapted to contact the skin and traverse the skin in a substantially non-abrasive manner, a vacuum access opening through a side wall of said vacuum head base and adapted to connect said vacuum head base with a source of vacuum;

an abrasive member located within said chamber, wherein the device is adapted to apply negative pressure outside a periphery of said abrasive member; and

at least one opening adapted to allow the flow of one or more fluids through said chamber, wherein upon application of vacuum through said vacuum access opening, the one or more fluids are drawn through said chamber, applied to the skin and taken up through said vacuum access opening, and a portion of the skin targeted by said at least one central opening is drawn into said chamber and contacted with said abrasive member.

15. The device of claim **14**, wherein said tip is integral with said vacuum head base.

16. The device of claim **14**, wherein said tip is connected to said vacuum head base and scale thereagainst.

17. The device of claim **14**, wherein said vacuum head base forms an annulus around said abrasive member.

18. The device of claim **14**, further comprising a tubular member adapted to be connected to a source of fluid, wherein said vacuum head base is fitted over said tubular member and sealed thereagainst.

19. The device of claim **18**, wherein said abrasive member is attached to said tubular member at an end thereof, thereby closing off said end of said tubular member, and wherein said at least one opening adapted to allow the flow of one or more fluids comprises at least one opening through a wall of said tubular member.

20. A method of performing microabrasion, said method comprising the steps of:

applying a non-abrasive treatment tip to a skin surface;

providing negative pressure through an opening in the treatment tip to establish a relative vacuum outside a periphery of an abrasive member;

drawing a portion of the skin surface through the opening and into contact with said abrasive member; and

moving the non-abrasive treatment tip over the skin surface and micro abrading the portion of the skin in contact with the abrasive member.

21. The method of claim **20**, further comprising the step of collecting microabraded skin particles through a vacuum conduit through which said negative pressure is provided.

22. The method of claim **21**, further comprising the step of applying fluid to the skin though said opening in the treatment tip.

23. The method of claim **21**, wherein vacuum provided by said negative pressure surrounds a perimeter of the abrasive member so that microabraded skin particles are collected downstream of the abrasive member and from all locations surrounding the abrasive member.

24. The method of claim **22**, wherein the fluid is collected together with the microabraded skin particles.

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