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Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

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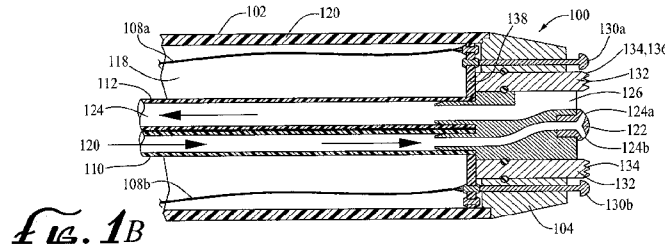
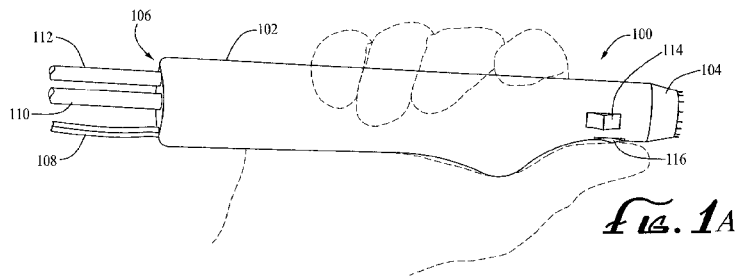
— with international search report (Art. 21(3))

— with information concerning one or more priority claims considered void (Rule 26bis.2(d))

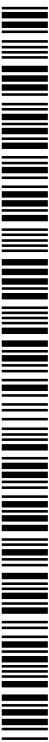
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(54) Title: APPARATUS AND METHOD FOR TRANSDERMAL FLUID DELIVERY



(57) Abstract: An apparatus for transdermal fluid delivery includes a handle and a tip, having a skin applying surface, being driven to move by a driving unit. A fluid delivery structure has an aperture formed at the skin applying surface and a vacuum entry port. An abrading structure, an electrode structure, and a micro-needling structure are selectively provided at the skin applying surface with the fluid delivery structure to provide multiple functions of the tip. A flow of fluid is delivered onto the skin applying surface through the fluid delivery structure to interact with the abrading elements and the electrodes before the fluid is returned and collected, so that three different skin treatments of abrasive peeling, electrical stimulation, and liquid infusion are achieved in one single structure for improving a skin structure.



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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 15/26834

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61M 37/00 (2015.01)

CPC - A61M 37/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC (8): A61M 37/00 (2015.01);

CPC: A61M 37/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC (8): A61M 37/00; A61B 18/18; A61H 1/00 (2015.01);

CPC: A61M 37/00 2037/0007 37/0092 37/0015; A61B 18/18 17/3207 2017/00765 2018/00452; A61H 1/00; A61N 1/04 1/0472 1/328

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Google (Web, Patents); PatBase; Search Terms Used: skin, abrasion, electrode, device, apparatus, transdermal, fluid, delivery, tip, inlet, vacuum, microdermabrasion, treatment, infusion, channel, rotating, drive, shaft, handle, radiation, radio, passage, suction, end, vibration, grip, motor, power, rod, unit, liquid

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2010/0049177 A1 (Boone, III et al.) 25 February 2010 (25.02.2010), entire document, especially fig 3-8, 11; para [0046], [0048], [0051]-[0052], [0107], [0110], [0120], [0149]-[0155], [0157]-[0158], [0162], [0165], [0173]	1-10
A	US 6,200,281 B1 (Frajdenrajch) 13 March 2001 (13.03.2001), entire document, especially fig 1; col. 4, ln. 1-5, col. 5, ln. 54-56, col. 6, ln. 13-19	1-10
A	US 2013/0345661 A1 (Chang) 26 December 2013 (26.12.2013), entire document, especially fig 3A-3B; para [0037]	1-10
A	US 2013/0158547 A1 (David) 20 June 2013 (20.06.2013), entire document	1-10
A	US 2010/0130972 A1 (Yambor et al.) 27 May 2010 (27.05.2010), entire document	1-10
A	US 2013/0137951 A1 (Chuang et al.) 30 May 2013 (30.05.2013), entire document	1-10
A	US 2011/0009882 A1 (Remsburg et al.) 13 January 2011 (13.01.2011), entire document	1-10
A	US 2008/0139995 A1 (Guerra) 12 June 2008 (12.06.2008), entire document	1-10

 Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

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