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(54) Title: SOLUTIONS FOR BRIDGING AND PRESSURE CONCENTRATION REDUCTION AT WOUND SITES

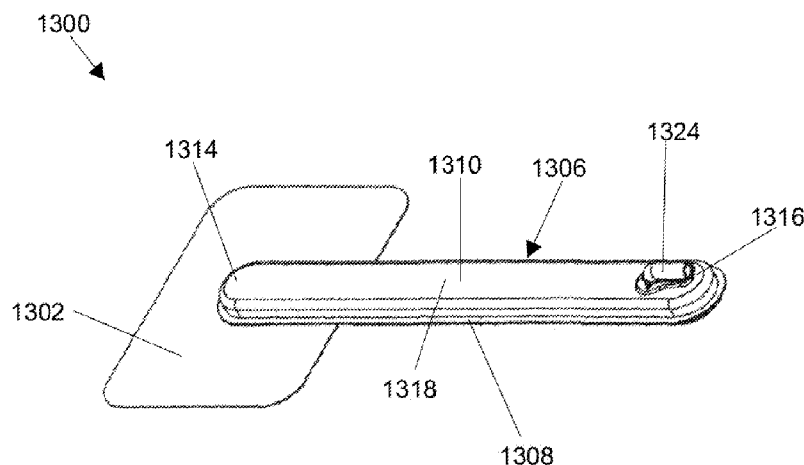


FIG. 13A

(57) Abstract: Disclosed herein are devices, systems and methods for delivering reduced pressure to a load-bearing wound site. The device can include a distal port configured to connect to a wound dressing positioned over the wound site; a proximal port located a distance from the distal port and configured to connect to a reduced pressure source, and a conduit body having an inner channel extending between the distal port and the proximal port. When the distal port is applied to the wound dressing positioned over the wound site the proximal port is positioned at a non-load bearing location remote from the wound dressing. The inner channel has a non-circular profile having a width larger than a height of the conduit body.



WO 2012/170744 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 12/41432

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61M 1/00 (2012.01)

USPC - 604/313

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)

A61M 1/00 (2012.01)
604/313

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

602/41-43, 48, 54, 56, 57

604/264, 266, 317, 319, 378, 541, 543

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

Patbase, Google Patent, Google Scholar

Port, aperture, opening, inlet, outlet, channel, conduit, tube, line, passage, vacuum, negative pressure, reduced pressure, air flow, suction, rectangular, low profile, square, polygon, oval, ellipse

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0087767 A1 (McNeil) 08 April 2010 (08.04.2010), Abstract, para [0026], [0028], [0029], [0031]-[0033], [0035]-[0041], [0049] Figs. 2A-2D, 5	1-9, 11-22 ----- 10
Y	US 2010/0137775 A1 (Hu et al.) 03 June 2010 (03.06.2010), Abstract, para [0005], [0006], [0063], [0068], [0070], [0074], Figs. 11A-11C	10
A	US 2010/0262126 A1 (Hu et al.) 14 October 2010 (14.10.2010), Abstract, para [0006]-[0008], [0015], [0065], [0081], Fig. 9A	1-22
A	US 4,759,354 A (Quarfoot) 26 July 1988 (26.07.1988), col 2, ln 3-16	5
A	US 2009/0312728 A1 (Randolph) 17 December 2009 (17.12.2009); entire document	1-22

☐ 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

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"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

"&" document member of the same patent family

Date of the actual completion of the international search

06 November 2012 (06.11.2012)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/41432

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I (Claims 1-22) is drawn to a reduced pressure device comprising: a distal port configured to connect to a wound dressing; a proximal port configured to connect to a reduced pressure source, wherein when the distal port is applied to the wound dressing positioned over the wound site the proximal port is positioned at a non-load bearing location remote from the wound dressing; and; a conduit body comprising an inner channel extending between the distal and proximal port, wherein the inner channel has a non-circular profile having a width larger than a height of the conduit body.

See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-22

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US 12/41432

Continued from Box No. III

Group II (Claims 23-41) is drawn to a reduced pressure device comprising: a conduit comprising an upper and lower surface, a passageway therebetween, a support structure located in the passageway, an inlet and outlet opening; a port coupled to the upper surface; a first porous tissue protection structure attached to the lower surface of the conduit.

Group III (Claims 42-45) is drawn to a bridging device comprising: a flat conduit with a passageway containing a foam structure; a port adhered to a proximal, upper surface of the flat conduit; a dressing attached to a distal, lower surface of the flat conduit; a foam pad attached to a middle and a proximal lower surface of the flat conduit.

Group IV (Claims 46-48) is drawn to a method comprising: orienting a dressing with a pre-attached bridging conduit about a treatment site; applying the dressing; positioning a first skin protection structure attached to an external surface of the bridging conduit in contact with a patient, wherein a second skin protection structure is releasably preattached to the bridging device.

Group V (Claims 49-58) is drawn to a tissue treatment device, comprising: an elongate body with an enlarged proximal end and a distal end smaller than the proximal end, and a cavity therebetween; an elongate support structure located in the cavity and configured to facilitate transmission of reduced pressure along the elongate body; a tubing connector attached to the enlarged proximal end of the elongate body and in communication with a proximal opening of the elongate body; and a wound cover attached to the distal end of the elongate body and in communication with a distal opening of the elongate body, the wound cover comprising a non-rectangular, nonsquare, non-circular, non-oval shape.

Group VI (Claims 59-60) is drawn to a method comprising: attaching at least one wound cover to a treatment site, wherein a foam-based conduit with a tubing connector is pre-coupled to the at least one wound cover; externally compressing the foam-based conduit; attaching a vacuum source to the foam-based conduit; and activating the vacuum source after externally compressing the foam-based conduit.

The inventions listed as Groups I-VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Groups I-VI share the technical feature of a distal and proximal port, wherein the distal port is connected to a wound dressing, and wherein a conduit extends therebetween, as shown by US 2009/0312728 A1 to Randolph et al. (hereinafter Randolph). Randolph teaches a distal and proximal port, wherein the distal port is connected to a wound dressing, and wherein a conduit extends therebetween (para[0031]; Fig. 1; elbow port has a distal and proximal port, the distal end connected to a wound dress).

The inventions of Groups I-VI each recite a special technical feature above and beyond the shared technical feature and method. In particular:

The special technical feature of Group I is the proximal port is positioned at a non-load bearing location remote from the wound dressing; and a conduit body comprising an inner channel extending between the distal and proximal port, wherein the inner channel has a non-circular profile having a width larger than a height of the conduit body, not required by the inventions of Groups II-VI.

The special technical feature of Group II is a support structure located in the passageway, and a first porous tissue protection structure attached to the lower surface of the conduit, not required by the inventions of Groups I, III-VI.

The special technical feature of Group III is a flat conduit with a passageway containing a foam structure; and a foam pad attached to a middle and a proximal lower surface of the flat conduit, not required by the inventions of Group I-II, and IV-V.

The special technical feature of Group IV is orienting a dressing with a pre-attached bridging conduit about a treatment site; applying the dressing; positioning a first skin protection structure attached to an external surface of the bridging conduit in contact with a patient, wherein a second skin protection structure is releasably preattached to the bridging device, not required by the inventions of Groups I-III, V-VI.

The special technical feature of Group V is an elongate body with an enlarged proximal end and a distal end smaller than the proximal end, and a cavity therebetween; an elongate support structure located in the cavity and configured to facilitate transmission of reduced pressure along the elongate body; a tubing connector attached to the enlarged proximal end of the elongate body and in communication with a proximal opening of the elongate body; and the wound cover comprising a non-rectangular, nonsquare, non-circular, non-oval shape, not required by the inventions of Groups I-IV, VI.

The special technical feature of Group VI is attaching at least one wound cover to a treatment site, wherein a foam-based conduit with a tubing connector is pre-coupled to the at least one wound cover; externally compressing the foam-based conduit; attaching a vacuum source to the foam-based conduit; and activating the vacuum source after externally compressing the foam-based conduit, not required by the inventions of Groups I-V.

None of these technical features are common to the other groups, nor do they correspond to a special technical feature in the other groups. Therefore, unity of invention is lacking because the groups do not share a same or corresponding special technical feature making a contribution over the prior art. Therefore, unity of invention is lacking.