A tympanic membrane repair device is disclosed which comprises a tube having a distal end having a patch expansion mechanism such as a balloon or mechanical expansion mechanism, wherein in a retracted configuration the patch expansion mechanism is positioned in close proximity to the tube wall and wherein in an expanded configuration the patch expansion mechanism is configured to at least partially extend away from the tube wall. The repair device is capable of delivering a grafting patch to cover a perforation on the underside of the tympanic membrane. A method of using the device is also disclosed.
INTERNATIONAL SEARCH REPORT

International application No.

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61F 2/02, 2/18, 2/82, 2/844, 11/00 (2016.01)

CPC - A61B 17/00491, 17/0057; A61 F2/18, 2/0063

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): A61F 2/02, 2/18, 2/82, 2/844, 11/00 (2016.01)


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

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

PatSeer (US, EP, WO, JP, DE, GB, CN, FR, KR, ES, AU, IN, CA, Other Countries (INPADOC), RU, AT, CH, TH, BR, PH); Google Patents; Google; Google Images; EBSCO; PubMed/Medline; "tympanic membrane", ear, eardrum, perforation, repair, reconstruction, tube, patch, collapsible, retractable

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>US 2005/01 77106 A1 (NAIMARK, W et al.) August 11, 2005; figures 1a-d, 3; paragraphs [0014], [0029], [0030], [0031]; [0050]</td>
<td>1-2, 4, 7-8, 13, 6, 14</td>
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<td>Y</td>
<td>US 2005/0256532 A1 (NAYAK, A et al.) November 17, 2005; figures 4-7; paragraphs [0047], [0048]</td>
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<td>US 2009/0234380 A1 (GADEL, J et al.) September 7, 2009; figures 1-2, 6A, 7A-A1, 11-12; paragraphs [0013], [0016], [0032], [0040], [0077], [0081], [0083]-[0084], [0086]</td>
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<td>US 2006/0287698 A1 (DEBRUYNE, K et al.) December 21, 2006; figure 19; paragraphs [0217]-[0219]</td>
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<td>US 2013/0345722 A1 (MARGULIS, A) December 26, 2013; figure 3; paragraphs [0081], [0083]</td>
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<td>A</td>
<td>US 5236455 A (WILK, PJ et al.) August 17, 1993; figures 1-2; column 3, lines 33-34, 39-41</td>
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<td>A</td>
<td>CN 103860325 A (DAI FU) June 18, 2014; abstract; claims 1, 5; figures 1-2</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:
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Date of the actual completion of the international search
08 June 2016 (08.06.2016)

Date of mailing of the international search report
1 JUL 2076

Name and mailing address of the ISA/
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<td>A</td>
<td>US 5501700 A (HIRATA, K) March 26, 1996; abstract; column 5, lines 16-18</td>
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<td>E, X</td>
<td>WO 2016/005948 A2 (OTOLOGY SOLUTIONS LTD) January 14, 2016; entire document</td>
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