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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(in))

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(54) Title: SPACE-EFFICIENT CONTAINMENT DEVICES AND METHOD OF MAKING SAME

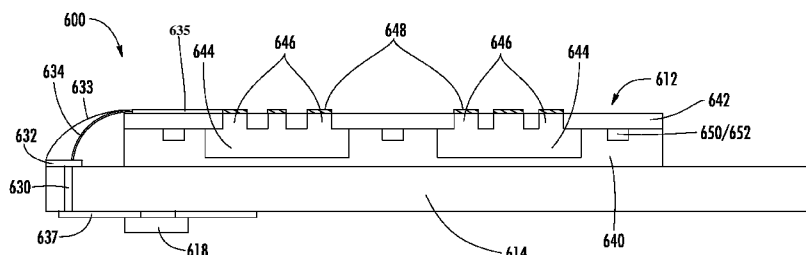


FIG. 6

(57) Abstract: Containment devices and methods of manufacture and assembly are provided, in an embodiment, the device includes at least one microchip element, which includes a containment reservoir that can be electrically activated to open, and a first electronic printed circuit board (PCB) which comprises a biocompatible substrate. The first PCB may have a first side on which one or more electronic components are fixed and an opposed second side on which the microchip element is fixed in electrical connection to the one or more electronic components. The device may further include a second PCB and a housing ring securing the first PCB together with the second PCB. The microchip element may include a plurality of containment reservoirs, which may be microreservoirs, and/or which may contain a drug formulation or a sensor element.

## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/052463

## A. CLASSIFICATION OF SUBJECT MATTER

INV. A61B5/07 B65D81/22 A61M31/00  
ADD.

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)

A61B B65D A61M

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)

EPO-Internal , WPI Data, COMPENDEX, INSPEC, EMBASE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	wo 2006/026768 AI (MICROCHIPS INC [US] ; SANTINI JOHN T JR [US] ; SBIAA ZOUHAI R [US] ; COPPE) 9 March 2006 (2006-03-09) abstract page 8, paragraph 1 page 9, paragraphs 2,3 page 13, paragraph 3; figures 2,5 -----	1-14, 26-33
A	US 2005/267440 AI (HERMAN STEPHEN J [US] ET AL) 1 December 2005 (2005-12-01) abstract paragraphs [0124] - [0126] ; figures 4-6 ----- -/- .	1-14, 26-33



Further documents are listed in the continuation of Box C.



See patent family annex.

\* 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

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

Date of the actual completion of the international search

8 February 2013

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18/02/2013

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2012/052463

## 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:

see additional 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 an 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.:

### 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

International application No

PCT/US2012/052463

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	RANDALL ET AL: "3D lithographically fabricated nanoliter containers for drug delivery" , ADVANCED DRUG DELIVERY REVIEWS, ELSEVIER BV, AMSTERDAM, NL, vol. 59, no. 15, 21 November 2007 (2007-11-21), pages 1547-1561, XP022355289, ISSN: 0169-409X, DOI: 10.1016/J.ADDR.2007.08.024 abstract; figure 8 -----	1-14, 26-33
A	WO 2004/033034 A1 (MICROCHIPS INC [US]) 22 April 2004 (2004-04-22) abstract; figure 2 -----	1-14, 26-33
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A	abstract paragraphs [0006] - [0013], [0044] - [0052], [0068] - [0073]; figures 3-5,7-9 -----	18-20, 22,24,25
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A	abstract; figure 1 paragraphs [0010] - [0014], [0017], [0018], [0033] - [0036] -----	16-25
A	W0 01/91902 A2 (MASSACHUSETTS INST TECHNOLOGY [US]) 6 December 2001 (2001-12-06) abstract page 1, line 31 - page 3, line 2 page 4, line 30 - page 9, line 22 page 12, line 22 - page 15, line 15; figures 1,2,7 -----	15-25
A	US 2004/121486 A1 (UHLAND SCOTT A [US] ET AL) 24 June 2004 (2004-06-24) the whole document -----	15-25

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Information on patent family members

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Information on patent family members

International application No

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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14, 26-33

Containment device with microchip having containers and printed circuit boards containing electronic components electrically connected to the microchip. Method for fabricating it.

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2. claims: 15-25

Microchip element formed by a first substrate having openings with conductive caps and a second substrate comprising reservoirs in fluid communication with the openings, the two substrates being hermetically bounded. Method for fabricating it.

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