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(71) Applicant: **California Institute of Technology**
Pasadena, California 92115 (US)

(72) Inventors:
• **Unger, Marc A.**
South San Francisco, California 94080 (US)
• **Scherer, Axel**
Laguna Beach, California 92651 (US)
• **Quake, Stephen R.**
San Marino, California 91108 (US)
• **Chou, Hou-Pu**
Sunnyvale, CA 94086 (US)
• **Thorsen, Todd A.**
Pasadena, California 91104 (US)

(74) Representative: **Bizley, Richard Edward et al**
Hepworth, Lawrence, Bryer & Bizley
Merlin House
Falconry Court
Baker's Lane
Epping Essex CM16 5DQ (GB)

(54) **Microfabricated elastomeric valve and pump systems**

(57) A method of fabricating an elastomeric structure, comprising: forming a first elastomeric layer on top of a first micromachined mold, the first micromachined mold having a first raised protrusion which forms a first recess extending along a bottom surface of the first elastomeric layer; forming a second elastomeric layer on top of a second micromachined mold, the second micromachined mold having a second raised protrusion which

forms a second recess extending along a bottom surface of the second elastomeric layer; bonding the bottom surface of the second elastomeric layer onto a top surface of the first elastomeric layer such that a control channel forms in the second recess between the first and second elastomeric layers; and positioning the first elastomeric layer on top of a planar substrate such that a flow channel forms in the first recess between the first elastomeric layer and the planar substrate.

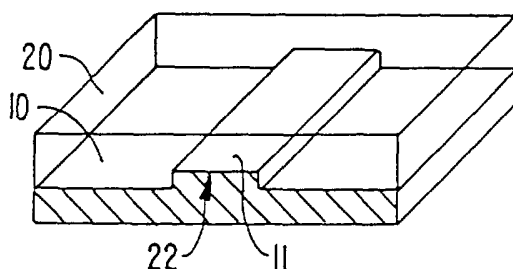


FIG. 1.

EP 1 195 523 A3



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Application Number
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Y	* the whole document *	3-6,8, 10, 17-20, 29,30,33	
A	----- -/-	11	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 November 2002	Examiner Kolby, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Application Number

EP 01 12 8819

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

11

- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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EUROPEAN SEARCH REPORT

Application Number
EP 01 12 8819

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-The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 November 2002	Examiner Kolby, L
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P4C01)



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 01 12 8819

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-10, 13-18, 19-20, 21-25, 29-33

An elastomeric membrane is deflectable into the first or second microfabricated channel (dependent claims 4,5)

2. Claim : 11

The second channel (of 3) has wide and narrow portions, the wide portion is disposed adjacent the first channel and the narrow portion is disposed adjacent the third channel.

3. Claim : 12

The membrane has a curved bottom surface, such that the top of the first channel is curved

4. Claim : 26

The first and second elastomeric layers comprise a crosslinking agent

5. Claims: 27,28

The first and second layers are bonded by a layer of adhesive



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 01 12 8819

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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Place of search THE HAGUE		Date of completion of the search 15 November 2002	Examiner Kolby, L
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Application Number
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A	* page 3, line 10 - line 18 * * page 3, line 31 - page 5, line 2 * * page 8, line 3 - line 15 *	1,6,7,11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
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EP 01 12 8819

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