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(71) Applicant: **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 (US).

(72) Inventors: **XU, Muchen**; 3780 Keystone Ave. Apt #113, Los Angeles, California 90034 (US). **KIM, Chang-Jin**; 411 N. Oakhurst Drive, #201, Beverly Hills, California 90210 (US).

(74) Agent: **DAVIDSON, Michael S.**; Vista IP Law Group, LLP, 100 Spectrum Center Drive, Suite 900, Irvine, California 92618 (US).

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(54) Title: METHOD FOR MANUFACTURING RE-ENTRANT MICROSTRUCTURES

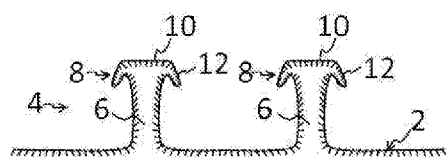


FIG. 2A

(57) Abstract: A method of making microstructures having re-entrant or doubly re-entrant topology includes forming a mold defining the negative surface features of the re-entrant or doubly re-entrant topology that is to be formed. In one embodiment, a soft or flowable material is formed on a first substrate and the mold is contacted with the same to form a solid, now positive surface having the re-entrant or doubly re-entrant topology. The mold is then released from the first substrate. The microstructures are secured to a second, different substrate, and the first substrate is removed. Any residual microstructure material located between adjacent microstructures may be removed to form the separate microstructures on the second substrate. The second substrate may be thin and flexible any manipulated into useful or desired shapes having the microstructures on one side thereof.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/014285**A. CLASSIFICATION OF SUBJECT MATTER****B81C 1/00(2006.01)i, B81C 3/00(2006.01)i**

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)

B81C 1/00; B32B 3/30; B29C 33/40; B29C 33/38; B29C 39/02; B29C 59/02; H01J 9/00; B81C 3/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & keywords: mold, negative, re-entrant, topology, superoleophobic, mushroom, repel and microstructure

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014-0010994 A1 (MASSACHUSETTS INSTITUTE OF TECHNOLOGY) 09 January 2014 See abstract, paragraphs [0015], [0018], claim 1 and figures 1, 5.	24
A		1-23
A	US 6168737 B1 (POCO et al.) 02 January 2001 See abstract, column 4, lines 20-33 and figures 2A-2D.	1-24
A	US 2012-0126458 A1 (KING et al.) 24 May 2012 See abstract, paragraph [0060] and figure 1.	1-24
A	US 6406636 B1 (VAGANOV, VLADIMIR I.) 18 June 2002 See abstract, column 4, line 50 - column 5, line 7 and figure 4.	1-24
A	US 6692680 B2 (LEE et al.) 17 February 2004 See abstract, claim 1 and figures 2(a)-2(e).	1-24

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"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

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International Application Division

Korean Intellectual Property Office

189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

LEE, Hun Gil

Telephone No. +82-42-481-8525



INTERNATIONAL SEARCH REPORT

Information on patent family members

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