Abstract: A urine collection catheter is provided. The catheter includes: a conduit having an open distal end; a drainage tube positioned at least partially within the conduit; and a bladder superior wall support. The drainage tube includes one or more fluid ports or perforations for permitting fluid flow into a drainage lumen defined by the drainage tube. The bladder superior wall support includes a support cap and a plurality of support members extending from a proximal surface of the support cap through the open distal end of the conduit. The support cap is capable of being moved between a retracted position and a deployed position. In the deployed position, the distal end of the drainage tube is spaced apart from the support cap, such that the support cap supports portions of the superior wall of the bladder from occluding the one or more fluid ports or perforations of the drainage tube.
TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG). — before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report: 16 March 2017
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— with international search report (Art. 21(3))
INTERNATIONAL SEARCH REPORT  

International application No.  
PCT/US 16/43101  

A. CLASSIFICATION OF SUBJECT MATTER  
IPC(8)  ... Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. 571-273-8300
Form PCT/ISA/210 (January 2015)

B. FIELDS SEARCHED  
Minimum documentation searched (classification system followed by classification symbols)  
IPC(8) : A61M 27/00 (2016.01)  
CPC : A61M 27/008, 27/002

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
IPC(8) : A61M 25/00, 25/01, 25/02, 25/04 (2016.01)  

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Patbase, Google Patent, Google Scholar: bladder, urethra, urine, urological, catheter, drain, suction, suck, vacuum, negative pressure, wall, tissue, support, frame, scaffold, tine, prong, sma, shape memory, nitinol, expand, enlarge, deploy, shield, umbrella, retract, malecot, framework, superior, trigone, finger, anchor, retention, retain, dual, d

C. DOCUMENTS CONSIDERED TO BE RELEVANT  

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
</table>
| X         | US 5,514,1 12 A (CHU et al) 7 May 1996 (07.05.1996) see especially col 1, ln 6-16, col 4, ln 59 to col 5, ln 16, col 5, ln 26-35, figs 6, 8 | 1  
|           |                                                                                 | 2, 3(1), 3(2) |
| Y         | WO 2015/150916 A1 (CONSANO Inc) 16 July 2015 (16.07.2015) see especially para [0073], [0077], [0080], [0082], [0096], [0097], [0132], [0155], [0163], [0173], [0180], [0181], fig 1, 24A-B | 10-12, 24-28, 53-55 |
| X         | US 2010/0241240 A1 (WILLARD et al) 23 September 2010 (23.09.2010) see especially para [0061], [0067], [0089], [0107], fig 3 | 34-37 |
| Y         | US 2006/0229553 A1 (HAMMACK et al) 12 October 2006 (12.10.2006) see especially para [0017]-[0020], [0022], [0027], [0028], [0029], fig 1A, 2, 3, 4 | 13-14, 39-41, 56 |

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  
"A" document member of the same patent family

Date of the actual completion of the international search  
9 January 2017

Date of mailing of the international search report  
03 FEB 2017

Name and mailing address of the ISA/US  
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-8300

Authorized officer:  
Lee W. Young

Form PCT/ISA/210 (second sheet) (January 2015)
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
</table>
INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 16/43101

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.: 1-11 because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.: 12-20 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.: 21-30, 31-40 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:

Group I: claims 1-3 directed to a urine collection catheter having a support cap and a plurality of support members extending from a proximal surface of the cap.

Group II: claims 10-14, 24-28, 39-41, 53-56 directed to a urine collection catheter having a support cap connected to and extending radially from a portion of the distal end.

Group III: claims 34-37 directed to a urine collection catheter having a coiled retention portion.

— 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.: 31-40.

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.: 1-10.

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.

Form PCT/ISA/210 (continuation of first sheet (2)) (January 2015)
Box III - Observations where unity of invention is lacking (Continuation of item 3 of first sheet):

The groups of inventions above 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:

Special Technical Features:
The special technical feature of the Group I claims is a support cap and a plurality of support members extending from a proximal surface of the cap such that the cap is spaced from the distal end of the tube, which is not present in the claims of Group II-III.
The special technical feature of the Group II claims is a support cap connected to and extending radially from a portion of the distal end support members extending radially, which is not present in the claims of Group I, III.
The special technical feature of the Group III claims is a coiled retention portion, which is not present in the claims of Group I-II.

Common Technical Features:
Groups I-II share the technical feature of a urine collection catheter having a tubular body with one or more fluid ports and a support cap being capable of being moved between a retracted position and a deployed position such that it may support the bladder wall. This generic feature does not avoid the prior art, as evinced by US 5,514,12 A to Chu et al (hereinafter Chu) which notably teaches a urinary catheter having a cap capable of being deployed such that it may support the bladder wall (col 1, in 6-16, col 4, in 59 to col 5, in 16, col 5, in 28-35, fig 6, 6, catheter 50 with end 66 supported and deployed by segments 61).

Therefore, the listed inventions lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.

Claims 4-9, 15-23, 29-33, 38, 42-52, 57-58 are improper multiple dependent claims not in compliance with PCT Rule 6.4 (a) and have not been included in any of the above groups.