

7-17-2018

# Self-adjusting tissue holder

Leslie Sierad

Richard Pascal

Christopher deBorde

Dan Simionescu

Agneta Simionescu

Follow this and additional works at: [https://tigerprints.clemson.edu/clemson\\_patents](https://tigerprints.clemson.edu/clemson_patents)

---

## Recommended Citation

Sierad, Leslie; Pascal, Richard; deBorde, Christopher; Simionescu, Dan; and Simionescu, Agneta, "Self-adjusting tissue holder" (2018). *Clemson Patents*. 600.

[https://tigerprints.clemson.edu/clemson\\_patents/600](https://tigerprints.clemson.edu/clemson_patents/600)

This Patent is brought to you for free and open access by TigerPrints. It has been accepted for inclusion in Clemson Patents by an authorized administrator of TigerPrints. For more information, please contact [kokeefe@clemson.edu](mailto:kokeefe@clemson.edu).



(12) **United States Patent**  
**Sierad et al.**

(10) **Patent No.:** **US 10,022,225 B2**  
(45) **Date of Patent:** **Jul. 17, 2018**

- (54) **SELF-ADJUSTING TISSUE HOLDER**
- (71) Applicant: **CLEMSON UNIVERSITY**, Clemson, SC (US)
- (72) Inventors: **Leslie Sierad**, Central, SC (US); **Richard Pascal**, Chapin, SC (US); **Christopher deBorde**, Longwood, FL (US); **Dan Simionescu**, Pendleton, SC (US); **Agneta Simionescu**, Pendleton, SC (US)
- (73) Assignee: **CLEMSON UNIVERSITY RESEARCH FOUNDATION**, Clemson, SC (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 123 days.

(21) Appl. No.: **14/807,407**  
(22) Filed: **Jul. 23, 2015**

(65) **Prior Publication Data**  
US 2016/0022420 A1 Jan. 28, 2016

**Related U.S. Application Data**

- (60) Provisional application No. 62/028,064, filed on Jul. 23, 2014.
- (51) **Int. Cl.**  
*A61F 2/24* (2006.01)
- (52) **U.S. Cl.**  
CPC ..... *A61F 2/2472* (2013.01)
- (58) **Field of Classification Search**  
CPC .... *A61F 2/2409*; *A61F 2/2412*; *A61F 2/2415*; *A61F 2/2427*  
See application file for complete search history.

- (56) **References Cited**
- U.S. PATENT DOCUMENTS
- |               |         |                 |             |
|---------------|---------|-----------------|-------------|
| 5,488,789 A * | 2/1996  | Religa .....    | A61F 2/2412 |
|               |         |                 | 38/102.2    |
| 5,607,470 A * | 3/1997  | Milo .....      | A61F 2/2409 |
|               |         |                 | 623/2.39    |
| 5,800,531 A * | 9/1998  | Cosgrove .....  | A61F 2/2412 |
|               |         |                 | 623/2.11    |
| 5,823,342 A * | 10/1998 | Caudillo .....  | A61F 2/0095 |
|               |         |                 | 206/363     |
| 5,846,828 A   | 12/1998 | Peterson et al. |             |
| 5,899,937 A   | 5/1999  | Golstein et al. |             |
| 5,976,183 A * | 11/1999 | Ritz .....      | A61F 2/2409 |
|               |         |                 | 623/2.11    |
| 6,121,042 A   | 9/2000  | Peterson et al. |             |
- (Continued)

**OTHER PUBLICATIONS**

Aleksieva, et al.; "Use of a special bioreactor for the cultivation of a new flexible polyurethane scaffold for aortic valve tissue engineering," *BioMedical Engineering Online*, 2012; 11, pp. 92. (20 pages).

(Continued)

*Primary Examiner* — Christopher M Koehler  
(74) *Attorney, Agent, or Firm* — Dority & Manning, P.A.

(57) **ABSTRACT**

Tissue holders that can be used for gripping natural or synthetic heart valves are described. The tissue holder can include a clamping mechanism and a spring and can be self-adjusting with regard to pressure applied to the tissue gripped in the holder. The tissue holder can be removably attached to systems for processing the tissues and can provide completely hands-free processing of a tissue from development or excisement to implantation and/or completion of testing.

**12 Claims, 10 Drawing Sheets**

