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Ronan et al.

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[54] **MEDICAL DEVICES COMPRISING IONICALLY AND NON-IONICALLY CROSSLINKED POLYMER HYDROGELS HAVING IMPROVED MECHANICAL PROPERTIES**

[75] Inventors: **John M. Ronan**; **Samuel A. Thompson**, both of New Castle, Del.

[73] Assignee: **Scimed Life Systems, Inc.**, Maple Grove, Minn.

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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[52] **U.S. Cl.** **523/113**; 523/105; 524/28; 524/916; 525/903; 536/3; 424/422; 424/78.17; 623/1; 604/264

[58] **Field of Search** 523/113, 105; 524/28, 916; 424/422, 78.17; 536/3; 623/1; 604/264; 525/903

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Primary Examiner—Andrew E. C. Merriam

Attorney, Agent, or Firm—Testa, Hurwitz & Thibeault LLP

[57] **ABSTRACT**

Shaped medical devices, e.g. stents, having improved mechanical properties and structural integrity are disclosed. The devices comprise shaped polymeric hydrogels which are both ionically and non-ionically crosslinked and which exhibit improved structural integrity after selective removal of the crosslinking ions. Process for making such devices are also disclosed wherein an ionically crosslinkable polymer is both ionically and non-ionically crosslinked to form a shaped medical device. When implanted in the body, selective in-vivo stripping of the crosslinking ions produces a softer, more flexible implant having improved structural integrity.

24 Claims, No Drawings