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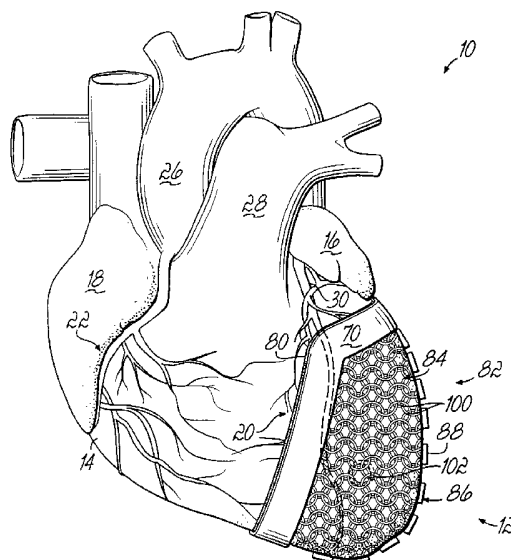
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(54) Title: A PROTECTIVE SHEATH APPARATUS AND METHOD FOR USE WITH A HEART WALL ACTUATION SYSTEM FOR THE NATURAL HEART



(57) Abstract: An actuation system (82) for assisting the operation of the natural heart includes a framework (70) for interfacing with a natural heart and which is coupled with tissue of the heart. An actuator element (86) is adapted to be coupled to the framework (70) and is configured for extending along a portion of a heart wall exterior surface. The actuator element (86) is operable for deforming the portion of the heart wall to effect a reduction in the volume of the heart. A protective sheath (84) is configured to extend along the heart wall between the actuator element and the heart wall portion for protecting the heart wall portion from damage by the actuator element. The protective sheath (84) is flexible and operable to transmit, to the heart wall portion, a force thereon by the actuator element (86) for indenting the heart wall portion.

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# INTERNATIONAL SEARCH REPORT

International application No.

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| <b>A. CLASSIFICATION OF SUBJECT MATTER</b>  |   |  |
|---|---|--|
| IPC(7) : A61M 1/10<br>US CL : 600/016   |   |  |
| According to International Patent Classification (IPC) or to both national classification and IPC   |   |  |
| <b>B. FIELDS SEARCHED</b>   |   |  |
| Minimum documentation searched (classification system followed by classification symbols)<br>U.S. : Please See Continuation Sheet   |   |  |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched   |   |  |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br>Easr  |   |  |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>   |   |  |
| Category *  | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No.  |
| Y, P  | US 2002/0007216 A1 (Melvin) 17 January 2002 (17.01.2002), See figures 1, 2, 3A, 3B, 5A, 5B; paragraphs 0021 and 0022.   | 1-3, 11-14, 16-22, 25-31   |
| Y   | US 5,702,343 A (Alferness) 30 December 1997 (30.12.1997), See figure 3; column 1, lines 4-30 and 54-62.   | 1-3, 11-14, 16-22, 25-31   |
| Y, E  | US 6,684,404 B2 (Bachner, Jr. et al.) 03 February 2004 (03.02.2004), See figures 6 and 7; column 4, lines 40-64; column 5, lines 5-10 and 23-31.                    | 4-10, 15, 23, 24   |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.   |   |  |
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