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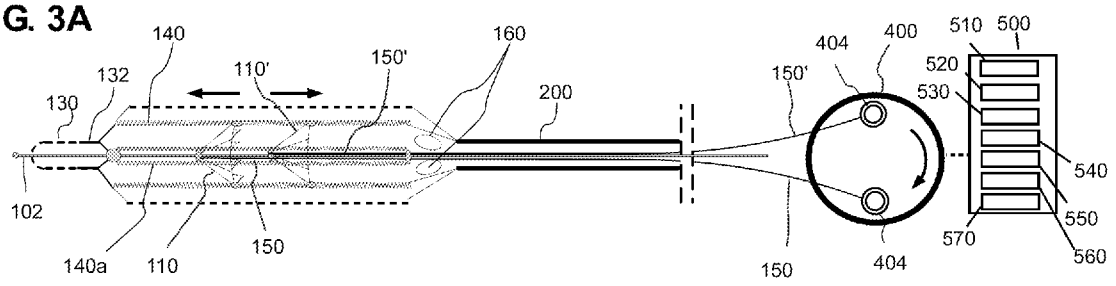
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(54) Title: HEART ASSIST SYSTEMS INCLUDING MOVING VALVE BLOOD PUMPS

FIG. 3A



(57) **Abstract:** A heart assist system includes a catheter and a collapsible/expandable pump connected to a distal end of the catheter. The pump includes an outer flexible conduit, a first movable check valve attached to the outer flexible conduit about the perimeter of the first movable check valve, and a second movable check valve, spaced from and in series with the first movable check valve, attached to the outer flexible conduit about the perimeter of the second movable check valve. A remotely positioned drive system is connected to the catheter. A first actuator and a second actuator are operatively connected to the drive system to transfer linear motion from the drive system to the first movable check valve and the second movable check valve, respectively.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A61M 60/443, A61M 60/268, A61M 1/12, A61M 60/13, A61M 60/174 (2024.01)
ADD.

CPC - INV. A61M 60/443, A61M 60/268, A61M 1/12, A61M 60/13, A61M 60/174, A61M 60/562, A61M 60/837, A61M 60/892
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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)
See Search History document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- A	US 2021/0113826 A1 (SUMMACOR, INC.); 22 April 2021 (22.04.2021); entire document, especially Figs. 1-7; Abstract, para. [0008], [0079], [0097], [0103], [0132]-[0133].	29-36 --- 1-28
A	US 4,925,377 A (INACIO et al.); 15 May 1990 (15.05.1990); entire document, especially Abstract; Fig. 1; col. 2, ln 22-46.	1-28
A	US 2020/0038565 A1 (ZAMMI INSTRUMENTAL LTDA); 6 February 2020 (06.02.202); entire document.	1-36
A	US 2004/0068220 A1 (COUVILLON, JR. et al.); 8 April 2004 (08.04.2004); entire document.	1-36
A	US 2019/0282746 A1 (BOSTON SCIENTIFIC SCIMED, INC.); 19 September 2019 (19.09.2019); entire document.	1-36

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Date of the actual completion of the international search	Date of mailing of the international search report
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