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McCloskey et al.

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(54) **FATIGUE TESTING SYSTEM FOR PROSTHETIC DEVICES**

USPC 73/37
See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(65) **Prior Publication Data**

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(63) Continuation of application No. 14/137,313, filed on Dec. 20, 2013, which is a continuation of application No. 12/718,316, filed on Mar. 5, 2010, now Pat. No. 8,627,708.

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(57) **ABSTRACT**

(51) **Int. Cl.**
A61B 19/00 (2006.01)
G01N 3/32 (2006.01)

(Continued)

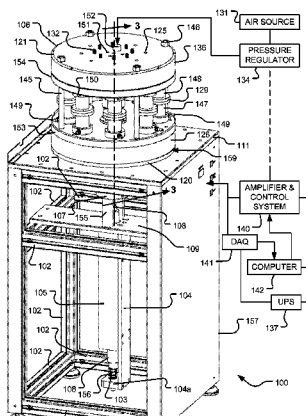
A fatigue testing system provides simultaneous cycle testing for a plurality of prosthetic devices under simulated physiological loading conditions. A plurality of sample holders containing test samples of prosthetic devices is positioned between a distribution chamber and a return fluid chamber to form an integrated test chamber. A reciprocating linear drive motor operates a rolling bellows diaphragm to cyclically pressurize fluid within the test chamber and drive the pressurized fluid through the prosthetic devices being tested. The test chamber defines a return flow conduit in fluid communication with each of the sample holders, the return fluid chamber, and the distribution chamber. Compliance chambers and throttle valves associated with each of the sample holders regulate the pressure gradient and back pressure across the prosthetic devices being tested.

(52) **U.S. Cl.**
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(58) **Field of Classification Search**
CPC G01N 3/32; G01N 2203/0089; G01N 2203/0246; G01N 2203/0204; G01N 2203/0476; A61B 19/46; A61F 2/2472; G01M 99/007

7 Claims, 9 Drawing Sheets



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A61F 2/24 (2006.01)
- (52) **U.S. Cl.**
 CPC *G01N 2203/0089* (2013.01); *G01N 2203/0204*
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2203/0476 (2013.01)

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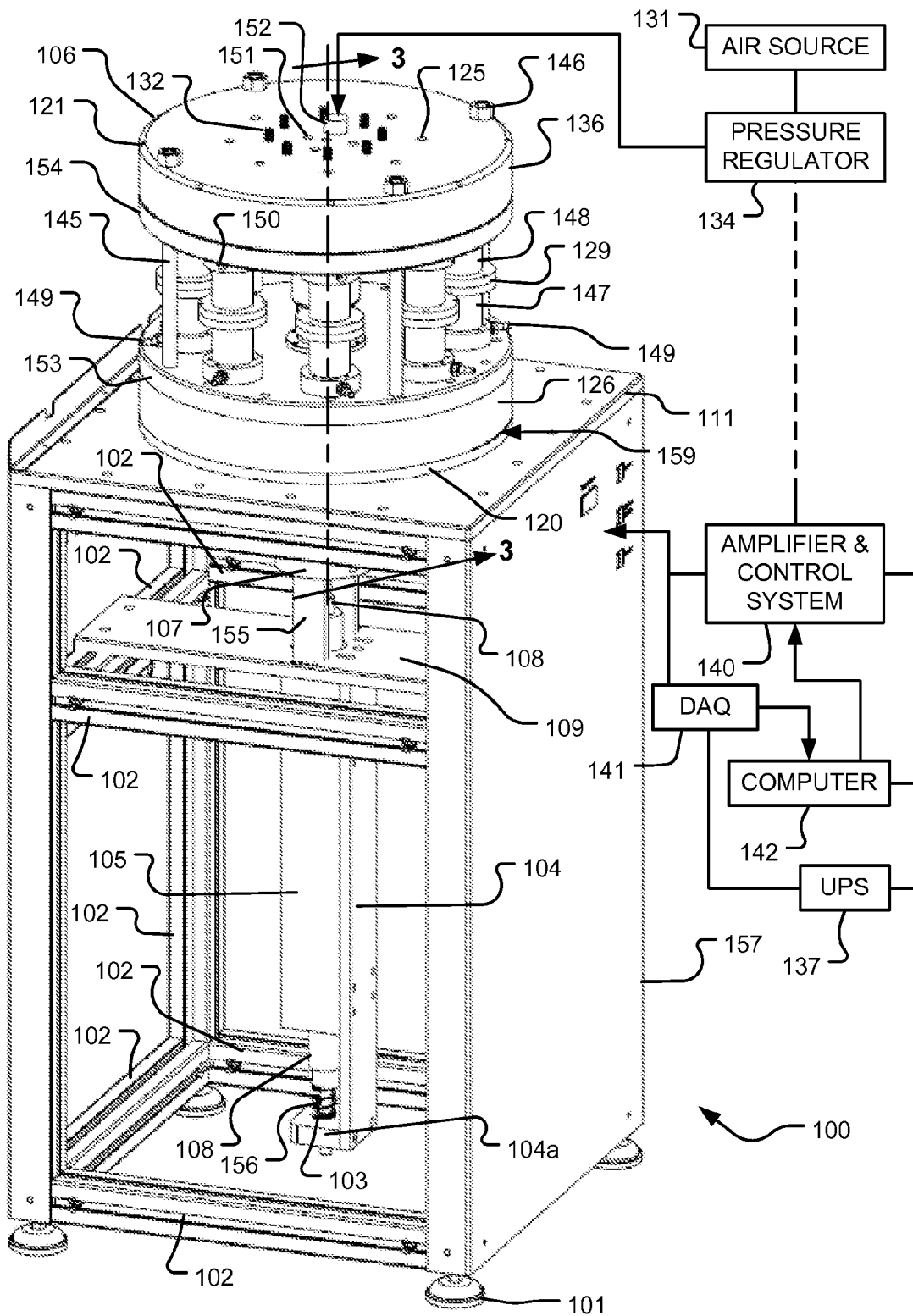


Fig. 1

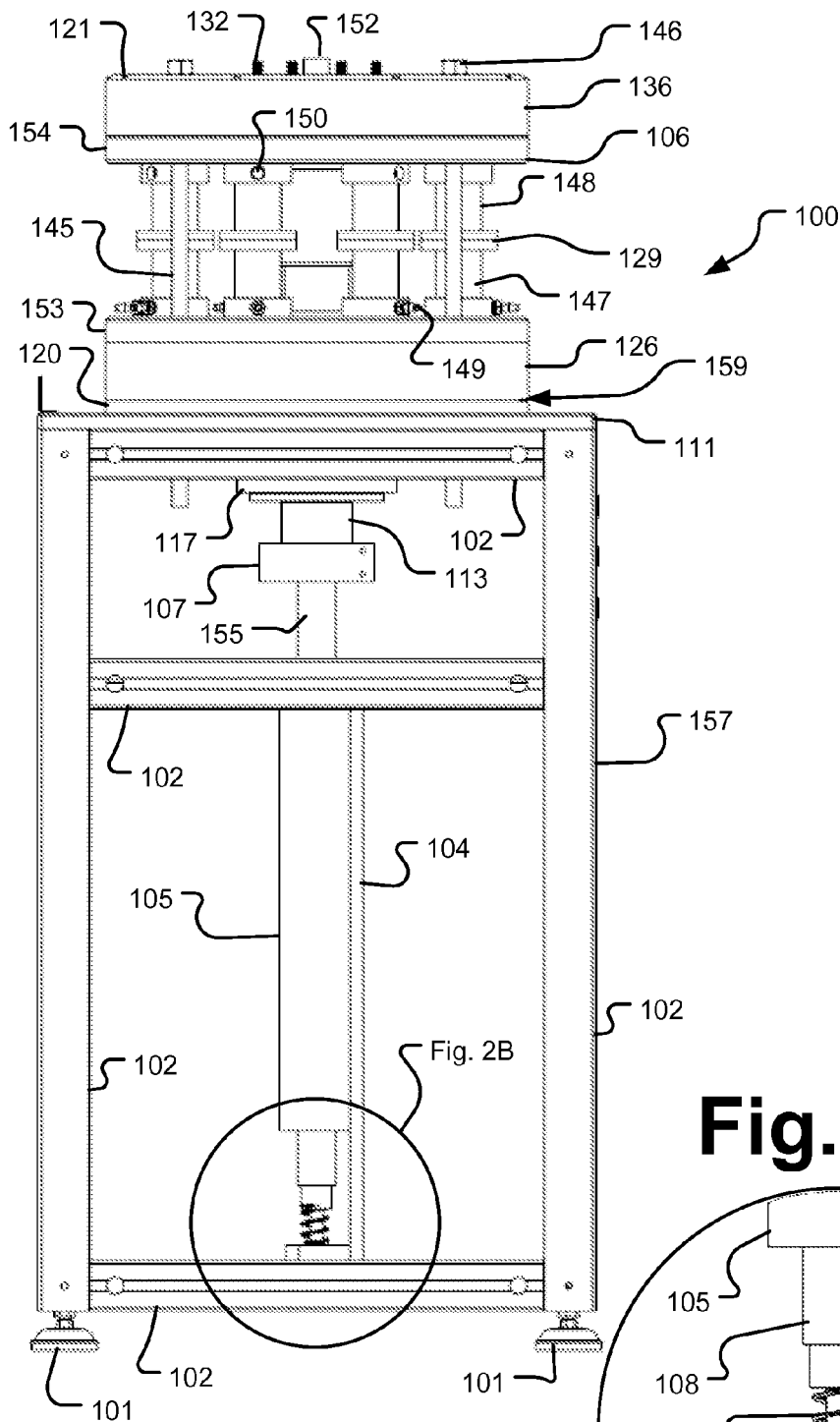
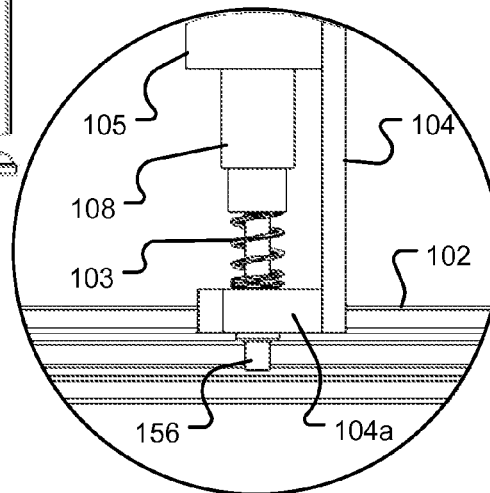


Fig. 2A

Fig. 2B



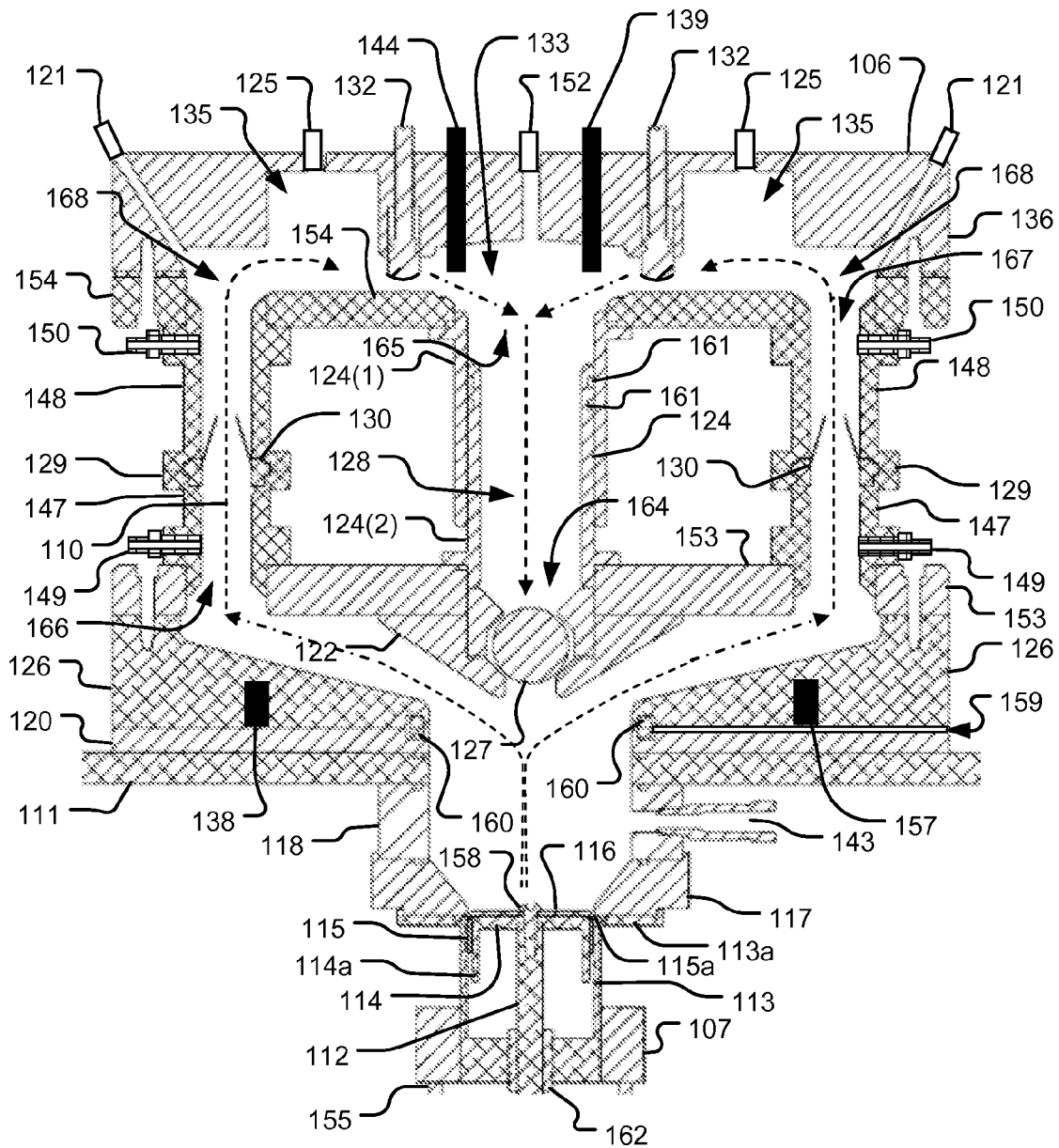


Fig. 3

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