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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

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(54) **Title:** SYSTEM OF FORCE DISPLACEMENT INSENSITIVE TO TEMPERATURE CHANGES

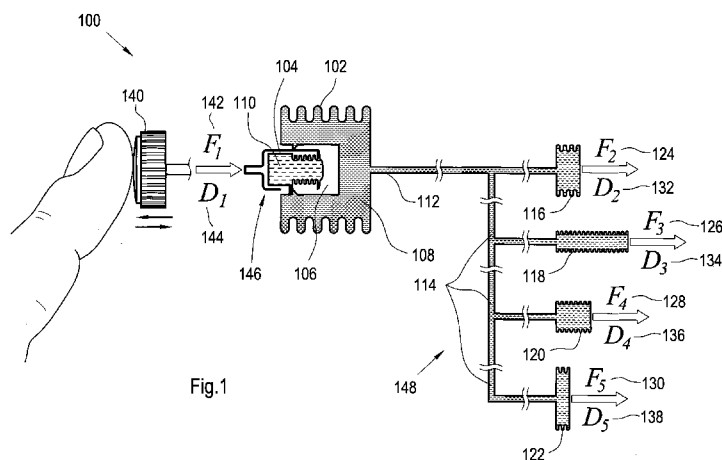


Fig.1

(57) **Abstract:** A dual bellows system and method that includes a main bellows which interacts with a thermally compensating bellows, whereby interaction of the main bellows with the thermally compensating bellows results in a transfer of force and/or displacement that is insensitive to temperature changes.

AMENDED CLAIMS

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What is claimed is:

1. A bellows system (100), comprising: a main bellows (102) which interacts with a thermally compensating bellows (104), whereby interaction of the main bellows (102) with thermally compensating bellows (104) results in a transfer of force and displacement that is insensitive to temperature changes in which the system (100) includes a plurality of bellows (116, 118, 120, 122) of different cross-sections, the cross sections being optionally cylindrical, the bellows system (100) further comprising a crown (140) which transmits a mechanical force (142) and/or displacement (144) into the bellows system.
2. The bellows system of claim 1, in which the thermally compensating bellows rests within a cavity (106) of the main bellows (102).
3. The bellows system of claim 1, in which the main bellows (102) comprises a first liquid (108), and the thermally compensating bellows (104) comprises a second liquid (110).
4. The bellows system of claim 1 in which the first liquid (108) has different thermal properties than the second liquid (110).
5. The bellows system of claim 1 further comprising at least one tube (112).
6. The bellows system of claim 1 in which at least one tube (112) comprises a tube manifold (114).
7. The bellows system of claim 1 in which at least one tube (112) is in fluid communication with at least one bellows (116).
8. The bellows system of claim 1 in which the tube manifold (114) is connected to a plurality bellows (116, 118, 120, 122).

9. The bellows system of claim 1 in which the plurality of bellows (116, 118, 120, 122) are of different cross-sections, the cross sections being optionally cylindrical.
10. The bellows system of claim 1 in which the plurality of bellows (116, 118, 120, 122) generate varying forces (124, 126, 128, 130) and generate varying displacements (132, 134, 136, 138), the varying displacements optionally being linear displacements.
11. The bellows system of claim 1 in which the forces, displacements and cross-sections of the bellows are mathematically dependent on one another.
12. The bellows system of claim 1 in which the system comprises first closed system (146) and a second closed system (148), whereby the force and/or displacement from the first closed system is transferred to the second closed system.
13. The bellows system of claim 12, wherein temperature fluctuations have no or minimal effect on the force and/or displacement produced in the second closed system.
14. A bellows system (100), comprising: a main bellows (102) which interacts with a thermally compensating bellows (104), whereby interaction of the main bellows (102) with thermally compensating bellows (104) results in a transfer of force and displacement that is insensitive to temperature changes in which a plurality of bellows (116, 118, 120, 122) generate varying forces (124, 126, 128, 130) and generate varying displacements (132, 134, 136, 138), the varying displacements optionally being linear displacements.
15. A bellows system (100), comprising: a main bellows (102) which interacts with a thermally compensating bellows (104), whereby interaction of the main bellows (102) with thermally compensating bellows (104) results in a transfer of force and displacement that is insensitive to temperature changes in which the forces, displacements and cross-sections of the bellows being mathematically dependent on one another.

16. A bellows system (100), comprising: a main bellows (102) which interacts with a thermally compensating bellows (104), whereby interaction of the main bellows (102) with thermally compensating bellows (104) results in a transfer of force and displacement that is insensitive to temperature changes.

STATEMENT UNDER ARTICLE 19

Applicant has amended the claims to remove the word “dual” from the preamble because some embodiments of the invention have more than two bellows, as clearly shown in the upper region of figure one. Applicant has further amended claim 1 so as to include the content that the Examiner identified as patentable in original claim 11 and made more clear what the crown does, namely, it “transmits” the force or displacement. This is supported in the description associated with the lower portion of the figure showing F1 and D1.