PATENT COOPERATION TREATY

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From the INTERNATIONAL SEARCHING AUTHORITY

PCT

INVITATION TO PAY ADDITIONAL FEES AND, WHERE APPLICABLE, PROTEST FEE

(PCT Article 17(3)(a) and Rules 40.1 and 40.2(c))

Date of mailing
(day/month/year) 19 NOV 2015

PAYMENT DUE
within ONE MONTH from the above date of mailing

Applicant’s or agent’s file reference
91705R100006PC

International application No.
PCT/US15/50793

International filing date
(day/month/year) 17 September 2015 (17.09.2015)

Applicant
Soft Robotics, Inc.

1. This International Searching Authority
   (i) considers that there are 5 (number of) inventions claimed in the international application covered
by the claims indicated below/on an extra sheet:
   Group I: Claims 1-9; Group II: Claims 10-14; Group III: Claims 15-19; Group IV: Claim 20; Group V: Claims 21-26

   (ii) therefore considers that the international application does not comply with the requirement of unity of invention
   (Rules 13.1, 13.2 and 13.3) for the reasons indicated below/on an extra sheet:
   ****Please See Supplemental Page****

   (iii) [ ] has carried out a partial international search (see Annex) [ ] will establish the international search report
on those parts of the international application which relate to the invention first mentioned in claims Nos.:
   Group I: Claims 1-9

   (iv) will establish the international search report on the other parts of the international application only if, and to the extent
to which, additional fees are paid.

2. Consequently, the applicant is hereby invited to pay, within the time limit indicated above, additional fees in the amount
indicated below:

   $2080.00 x 4 = $8320.00 (See Item 2 of annex)

   Fee per additional invention x number of additional inventions = total amount of additional fees/currency

3. The applicant is informed that, according to Rule 40.2(c), the payment of any additional fees may be made under protest,
that is, a reasoned statement to the effect that the international application complies with the requirement of unity of invention
or that the amount of the required additional fees is excessive, where applicable, subject to the payment of a protest fee.

   Where the applicant pays additional fees under protest, the applicant is hereby invited, within the time limit indicated above,
to pay a protest fee (Rule 40.2(c)) in the amount of _______________ (amount/currency)

   Where the applicant has not, within the time limit indicated above, paid the required protest fee, the protest will be considered
not to have been made and the International Searching Authority will so declare.

4. [ ] Claim(s) Nos. ________________________________ have been found to be unsearchable under
   Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the ISA/US
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Form PCT/ISA/206 (April 2005)
Item 2 (continued). For International Applications filed on or after 01 January 2014, Applicant is reminded that the search fee per additional invention indicated in item 2 is the undiscounted fee per additional invention. An Applicant may pay the search fee per additional invention fee reduced by 50% (small entity assertion) or 75% (micro entity certification), as appropriate. See 37 CFR 1.27 and 1.29.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fee must be paid.

Group I: Claims 1-9 are directed towards a soft robotic hub assembly, a master side assembly, a mechanical robotic component, a tool side assembly configured to be releasably coupled to the master side assembly, one or more soft actuators configured to transition from an unactuated configuration to an actuated configuration, and an inflating fluid.

Group II: Claims 10-14 are directed towards a reinforced soft actuator, a reinforcement comprising one or more of a reinforcing wrap, an internal reinforcement, an external reinforcement comprising a tunably stiff element.

Group III: Claims 15-19 are directed towards an electroadhesive pad embedded in the soft actuator body.

Group IV: Claim 20 is directed toward a soft actuator configured to transition from an unactuated configuration to an actuated configuration, an inflating fluid, an electromagnet embedded in the soft actuator, a complementary surface interfacing with the electromagnet and provided in a substrate gripped by the soft actuator.

Group V: Claims 21-26 are directed towards a soft actuator configured to transition from an unactuated configuration to an actuated configuration, an inflating fluid, a strain limiting layer, an encapsulating elastomer layer provided on the strain limiting layer.

The inventions listed as Groups I-V do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features.

Group I has at least a master side assembly, a mechanical robotic component, and a tool side assembly releasably coupled to the master side assembly that Groups II-V do not have. Group II has at least a reinforcement comprising one or more of a reinforcing wrap, an internal reinforcement, or an external reinforcement comprising a tunably stiff element, that Groups I and III-V do not have. Group III has an electroadhesive pad embedded in the soft actuator body that Groups I, II, IV, and V do not have. Group IV has at least an electromagnet embedded in the soft actuator, a complementary surface interfacing with the electromagnet and provided in a substrate gripped by the soft actuator that Groups I-III and V do not have. Group V has at least a strain limiting layer, an encapsulating elastomer layer provided on the strain limiting layer, that Groups I-IV do not have.

The common technical features of Groups I-V are a soft actuator configured to transition from an unactuated configuration to an actuated configuration upon application of an inflating fluid.

The common technical features are disclosed by US 2013/0008546 A1 to HAIMI (hereinafter "HAIMI"). HAIMI discloses a soft actuator configured to transition from an unactuated configuration to an actuated configuration upon application of an inflating fluid (an actuator 16 (soft actuator) includes a balloon element 12 that transitions from an uninflated state (unactuated configuration) to an inflated state using a fluid 14; figures 1a-2d; paragraphs [0031-0034]).