Artificial hand

INVENTORS: Della Santina Cosimo
Bicchi Antonio
Piazza Cristina
Grioli Giorgio
Garabini Manolo
Catalano Manuel Giuseppe.

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Invention

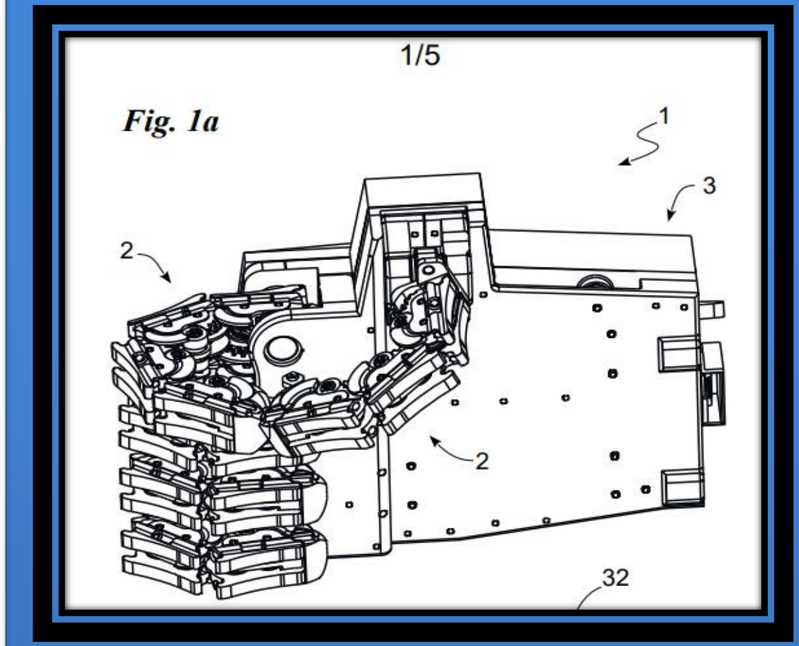
The object of the present invention is an **under-actuated robotic hand** with possible **prosthetic** application as well, i.e., a myoelectric hand having a number of actuators less than the number of degrees of freedom and capable of reproducing the movements of a human hand.

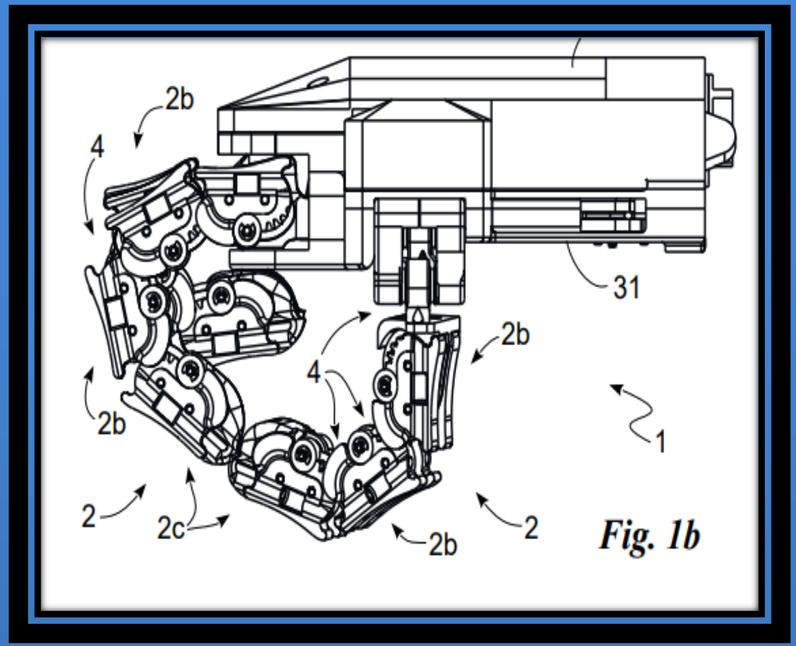
Currently available under-actuated artificial hands have various drawbacks such as limited number of poses and grips, proving unsatisfactory for the patient.

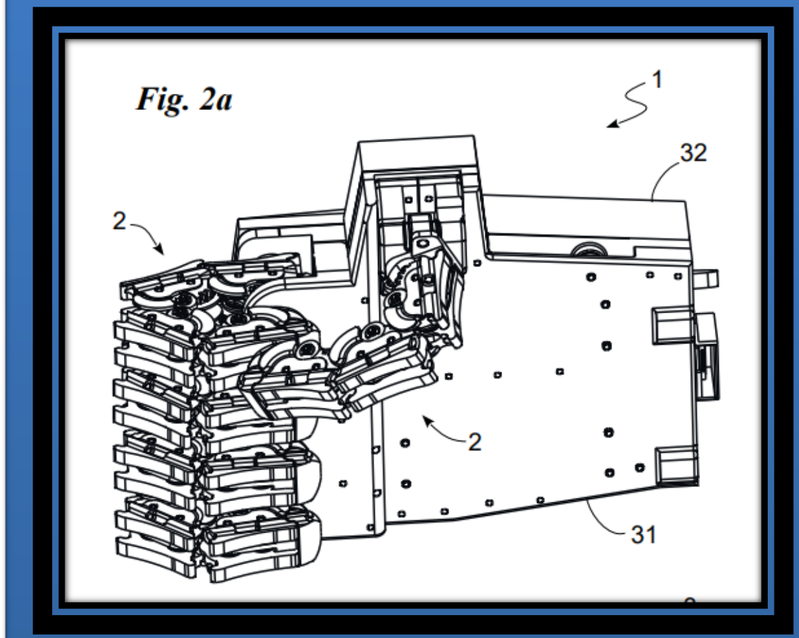
The present invention is capable of defining an **increased number of pose**s and allows the user to vary the relative velocities of the degrees of freedom and, thus, modify the pose/grip of the hand itself and vary the order in which the fingers close to form a fist or assume a pose or grip. The patient will be able to perform **a greater range of motion and see his or her expectations fulfilled.**

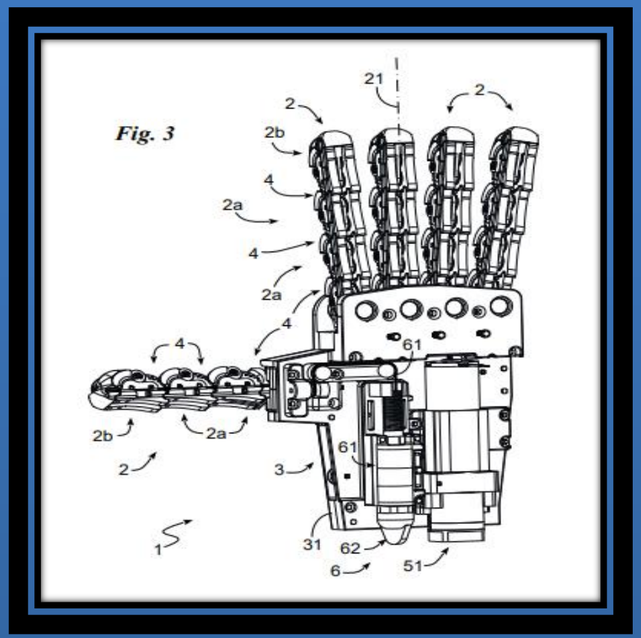
IIT - ITALIAN INSTITUTE OF TECHNOLOGY is a patent applicant.

Drawings
& pictures









Industrial applications

The developed under-actuated robotic hand allows compared to known state of the art products to i**ncrease the number of poses**, provides the ability to change the pose/grip of the hand itself by varying the speed of mutual rotation between the phalanges/fingers connected to a single actuator. The device is designed to require a simple control unit and actuation mechanism and have **a low manufacturing cost**.

The hand can be used in the field of **prosthetic surgery**, providing the patient with a prosthesis that meets his daily needs, restoring as much as possible the manipulative function. A further use is possible in the field of **industrial automation**.

Possible developments

The system can be used in industry as a **collaborative robot or in the medical field to create prostheses**.

The technology is the subject of a continuous process of research and development in order to increase its potential use.

The aim is to **replicate the grips of a human hand** and make it able to adapt naturally to the manipulated objects without the need to use sophisticated sensors that require an equally complicated programming.

For more information:

Tech Transfer Office of University of Pisa

Headquarters: Lungarno Pacinotti 43/44, Pisa (PI) 56126

Web site: www.unipi.it/index.php/trasferimento

E-mail: valorizzazionericerca@unipi.it

For more information:

Ufficio Regionale di Trasferimento Tecnologico

Sede: Via Luigi Carlo Farini, 8 50121 Firenze (FI)

E-mail: urtt@regione.toscana.it

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urtt Ufficio Regionale di Trasferimento Tecnologico