

Parallel manipulators with four degrees of freedom

A manipulator for receiving and displacing an object, comprising a moving portion, adapted to receive the object. Four articulated support legs each extend between the moving portion and a ground for supporting the moving portion. Each of the articulated support legs is connected to the ground by a first joint, and with sequentially second, third, fourth and fifth joints connecting the first joints to the moving portion. The articulated support legs are topologically equivalent to one another with respect to the first, second, third, fourth and fifth joints. Each of the articulated support legs has constraints in the joints operable to restrict movement of the moving portion to three translational degrees of freedom and one rotational degree of freedom. Four actuators are each operatively connected to a different one of the first joints for controlling the movement of the moving portion in any one of the three translational degrees of freedom and the one rotational degree of freedom. A method for controlling the movement of the moving portion is provided.
