



FEDERAL SERVICE
FOR INTELLECTUAL PROPERTY

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(54) **WALKING ROBOT-NANOPOSITIONER AND METHOD OF CONTROLLING MOVEMENT THEREOF**

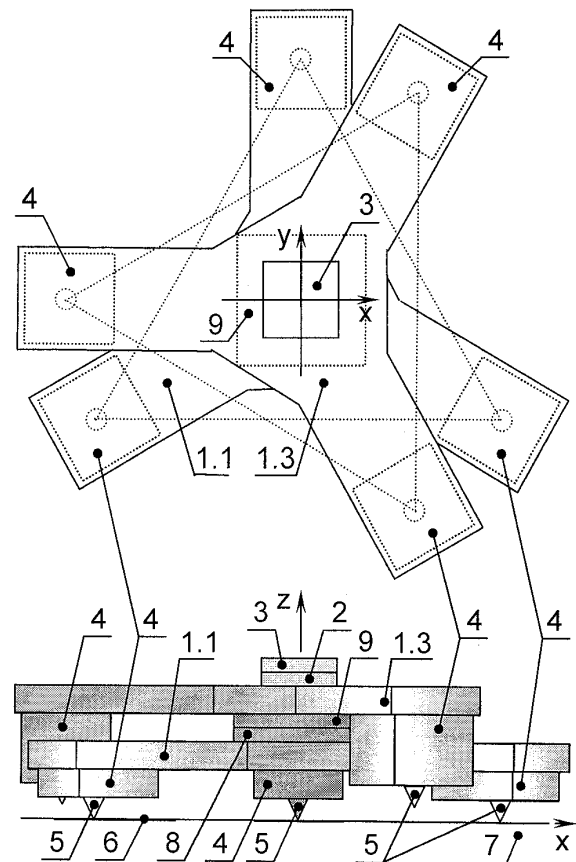
(57) Abstract:

FIELD: physics, robotics.

SUBSTANCE: invention relates to scanning probe microscopy, micromechanics, robotics and nanotechnology. A walking robot-nanopositioner is designed for precision movement of a microscope probe or an analysed sample under a microscope and comprises a movable platform, more than three supports and a bearing surface. Structural components thereof are made of materials with a low coefficient of thermal expansion. The supports are located at the corners of regular polygons to form beams fixed by a central component and are provided with their own X, Y, Z support propellers. The free end of each support has a protrusion made of diamond, silicon or silicon nitride for contact with the bearing surface. The supports are built-in with recording systems for measuring, using a probe, the relief of the bearing surface at the intended point of installing the support. The robot-nanopositioner is provided with a computer which is connected to the recording systems to receive information for recognising and analysing the measured relief of the bearing surface and generating control commands for the X, Y, Z support propellers.

EFFECT: invention is aimed at obtaining a small, stable reproducible step on smooth, rough and tilted surfaces while maintaining an unlimited range of movement.

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