



Near Constant Force Electrical Contact

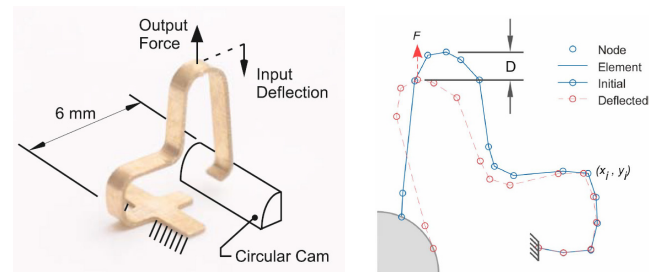
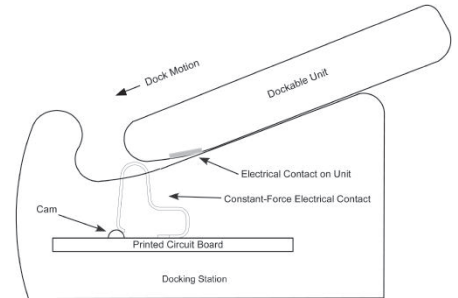
BYU #2000-28

DESCRIPTION

Near constant force electrical contacts are small scale springs that conduct electricity. Researchers at BYU developed a method and device for delivering a substantially constant reaction force in response to an applied displacement, regardless of the magnitude or change of the displacement. The invention consists of a cam with a non-planar surface; a compliant member with a free end, a fixed end, and an intermediate contact area therebetween.

PROBLEM SOLVED

In the case of electrical connectors, too much force can cause fretting and wear, while too little force results in high contact resistance. Ideally the deflection of the contact can be controlled to keep the contact normal force at a desirable magnitude, but smaller scale devices, manufacturing uncertainties, and possible dynamic operating conditions make this control difficult in practice. To overcome these challenges, a constant-force mechanism has been developed to keep the magnitude of the contact normal force nearly constant at a desirable value for large range of possible deflection motion.



KEY ADVANTAGES

- » *Simple and robust design that leads to smaller and more reliable electronic connectors*
- » *Substantially constant force*
- » *Decreased effects of fretting and wear*

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APPLICATIONS

Airplanes, vehicles, heavy equipment and any other application where there is a requirement for electric connectors that can maintain a constant force even in the presence of vibration and relative movement of parts.

ISSUED PATENTS:
US 6945800
CN 01820630.1



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