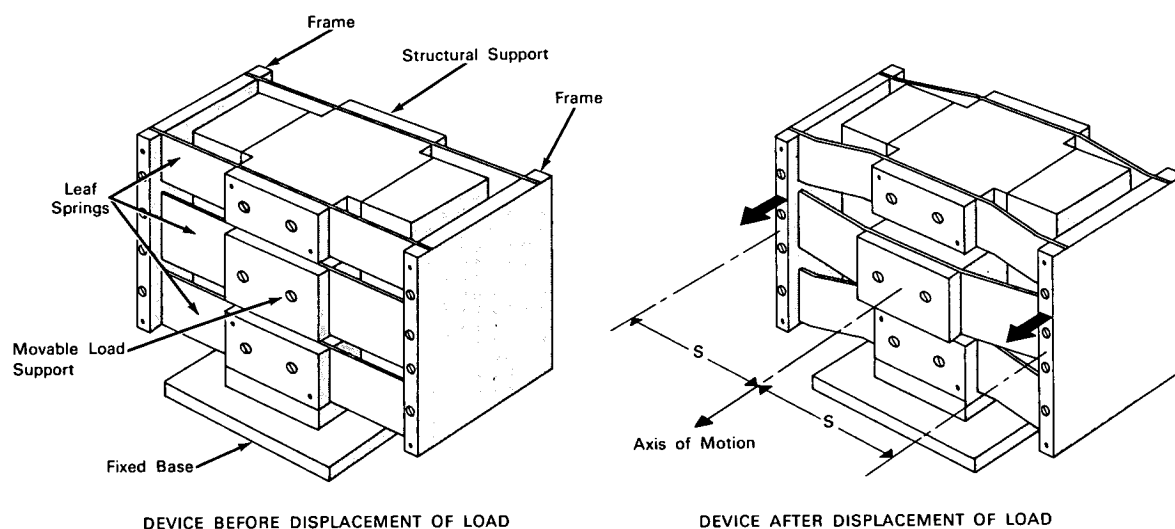


NASA TECH BRIEF



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Leaf-Spring Suspension Provides Accurate Parallel Displacements



The problem: Providing highly accurate parallel displacements of loads over short linear distances with leaf-spring suspension devices. Conventional parallel suspension devices do not constrain the motion of a load along an exact axis and are subject to errors in parallel positioning of the load because of the effects of overhanging moments and lack of structural symmetry.

The solution: An improved leaf-spring suspension device in which the leaf springs are symmetrically mounted on suspension frames.

How it's done: The movable load support is rigidly fastened to a central set of leaf springs which are mounted on two end frames. Two sets of leaf springs

symmetrically spaced above and below the central springs are also fastened to the end frames. The upper and lower springs are fastened to structural supports, which are separated from the movable load support. As the load is moved by any displacement means, the central leaf springs fastened to the load support are biased in one direction, and the leaf springs above and below the central springs are biased in the opposite direction. Therefore, for any given parallel displacement of the load the distance S between the axis of motion and the face of each end frame changes by the same amount. As the load is symmetrically mounted with respect to two orthogonal planes, errors can be further minimized by distributing it in the third direction so as to equalize the torque on the leaf springs.

(continued overleaf)

Note: Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California, 91103
Reference: B65-10104

Patent status: NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

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(JPL-480)