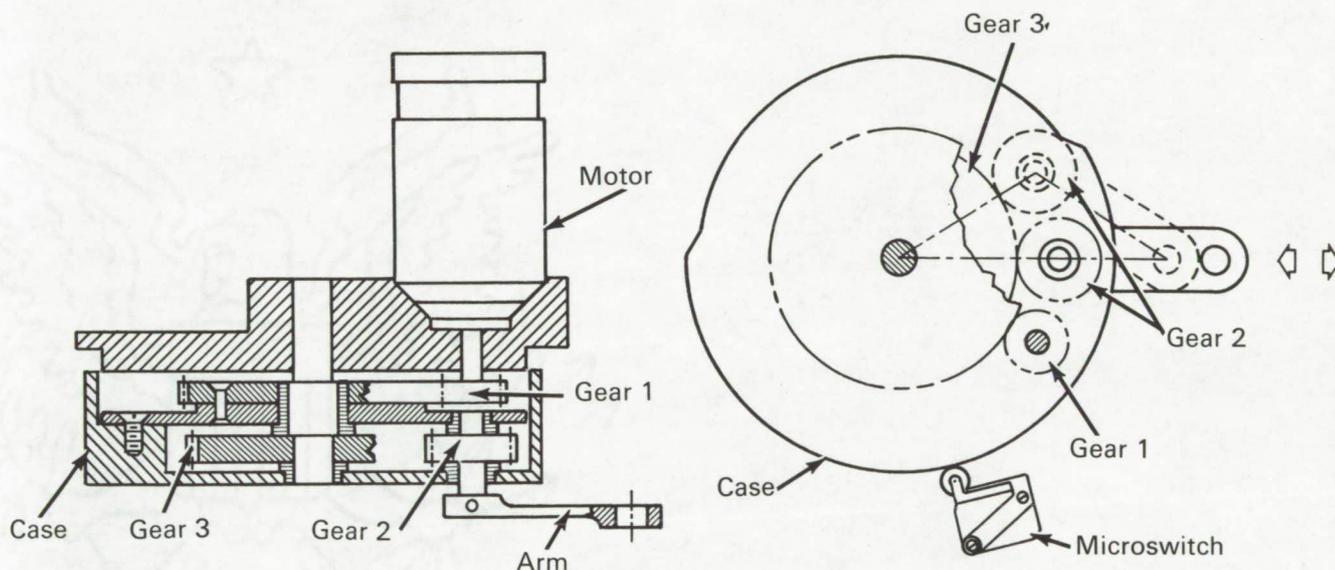


NASA TECH BRIEF



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Compact Actuator Converts Rotary to Linear Motion



The problem:

To design a mechanism that converts rotary to linear motion and is more compact and more readily packaged than a crank mechanism.

The solution:

A motor mounted on a stationary base rotates a gear train assembly in such a way that the end of an arm attached to the assembly moves in a linear path.

How it's done:

The motor rotates the case assembly around the central axis, thus rotating the axis of the arm. Since the arm is counter-rotated by means of gear 2 turning on fixed gear 3, and since the length of the arm is equal to the distance between gears 3 and 2, the lines between gear 2, the end of the arm, and the case axis

form an isosceles triangle. Since the base of the triangle is always along a plane through the center of rotation of the case assembly, the delivered motion is linear.

A microswitch engages a cam surface on the case to provide an electrical limit stop at the end of travel of the arm. The actuation of a reversal switch then initiates linear motion in the opposite direction.

Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer
 Jet Propulsion Laboratory
 4800 Oak Grove Drive
 Pasadena, California, 91103
 Reference: B66-10265

(continued overleaf)

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C., 20546.

Source: Allen G. Ford
(JPL-786)