July 1971

Brief 71-10242

NASA TECH BRIEF

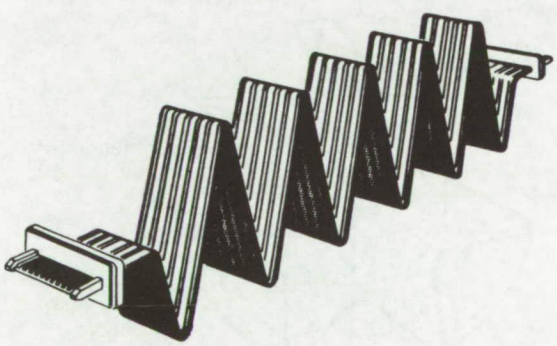
Marshall Space Flight Center

Flat-Conductor Cable Has Rotary and Linear Flexibility

Flat-conductor cable (FCC) has been shown to be far superior to standard round-wire cable (RWC) for applications involving rotary and/or linear movement between two or more electrically connected pieces of hardware. Most such applications entail repetitious or spring-like movements, for which RWC lacks endurance and requires considerably more torque.

The capabilities and limitations of FCC relative to flexure in bending, folding, rotating and extending have been reported in detail, along with its mechanical and endurance characteristics as compared to those of RWC. The report also compares the qualities of various types of insulation for FCC.

Flat-conductor cable provides the low torque flexibility needed for many applications, and has proved to be practical in many rack-mounted drawer assemblies. The figure shows some configurations for coping with the movement of one connected component relative to another.



A. Extended Accordion

Note:

The following documentation may be obtained from:

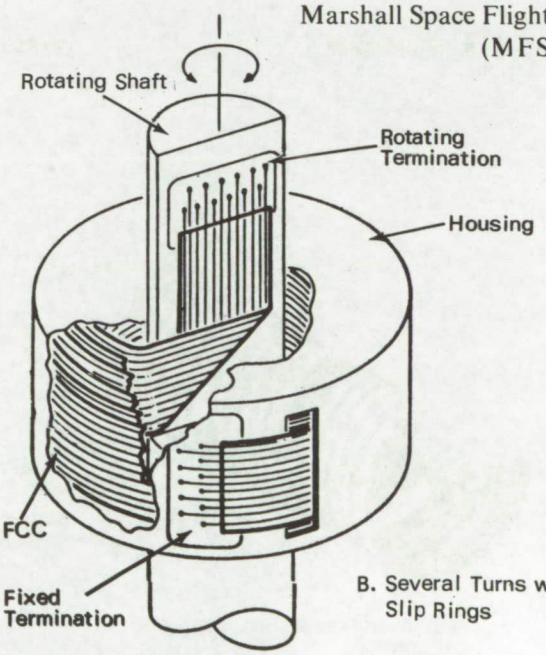
National Technical Information Service
Springfield, Virginia 22151
Single document price $3.00
(or microfiche $0.95)

Reference:
NASA-TM-X-53960 (N70-39464), Flat Conductor Cable for Limited Rotary or Linear Motion

Patent status:

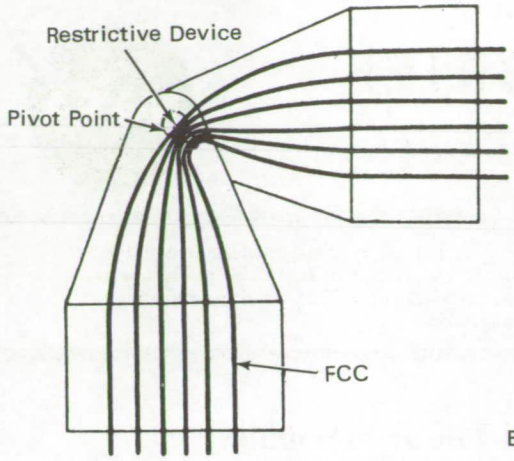
No patent action is contemplated by NASA.

Source: J. R. Carden
Marshall Space Flight Center
(MFS-21096)

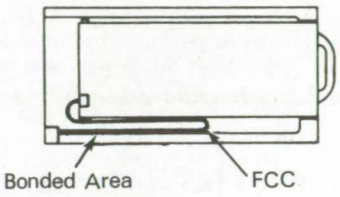


B. Several Turns without Slip Rings

(continued overleaf)

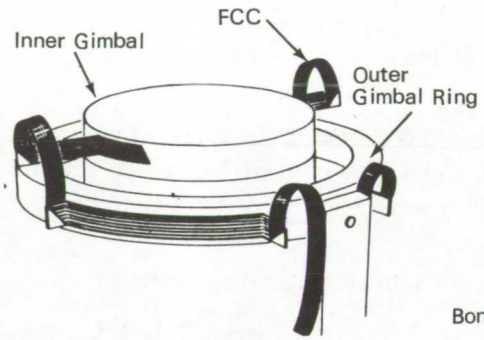


C. Pivot-Loop Hinge

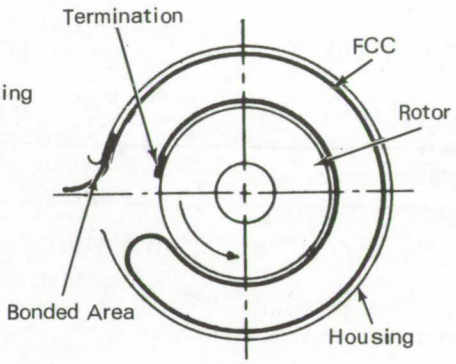


D. Drawer

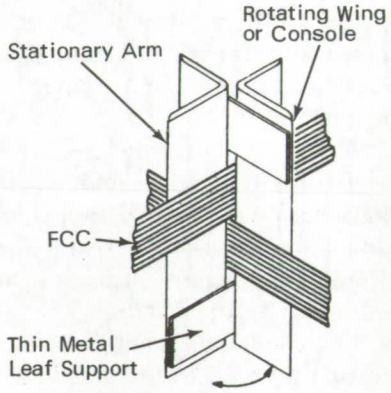
E. Self-Retracting Bifilar Coil



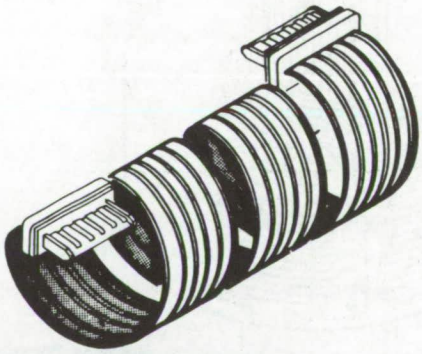
F. Helix for Limited Extension or Rotation



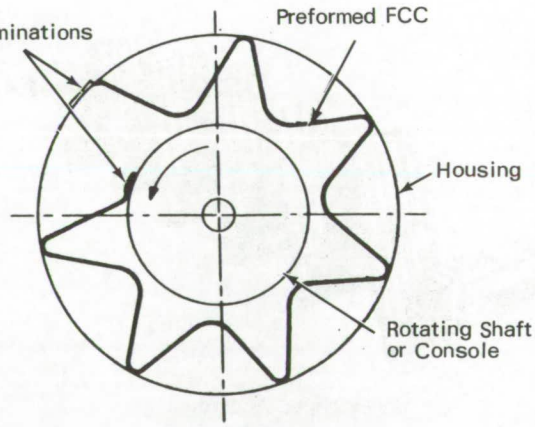
G. Single Rotor Loop



H. Reinforced Crossband Hinge



I. Extended Rotatable Accordion



J. Torque-Compensating Loop