Small Size Transformer Provides High Power Regulation with Low Ripple and Maximum Control

The problem:
To devise a means of providing extremely high power regulation with low ripple and maximum control of linearity, without using the numerous electronic components, i.e., transformers, chokes, etc., "T" Shaped Magnet Actuating Lever around an iron core in both cases, with three coils of the T-shaped secondary interacting with the U-shaped primary. This device provides high regulation of power, voltage, current and impedance, while maintaining maximum control of linearity and ensuring extremely low ripple. Another important feature is that nulling can be controlled to a very fine degree. The device eliminates the use of multiple electronic components, allows reduction of transformer to micro-micro size, and has only two movable parts.

The solution:
A single, variable, transformer/choke device (see fig.) which does the work of several.

How it's done:
In the concept proposed, two electromagnets, one U-shaped and one T-shaped, would be arranged in a component holder such that transformer interaction occurs. The interaction is varied through the use of a level attached to the T section and swiveled in a ball joint. The copper wire is wound now needed. The new technique should reduce the physical size of the drawer assembly, as well as its design and manufacturing cost.

Note:
Requests for further information may be directed to:
Technology Utilization Officer
Code A&TS-TU
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B71-10193

(continued overleaf)
Patent status:
No patent action is contemplated by NASA.

Source: R. Manoli and B. R. Ulrich of
Space Division
North American Rockwell Corp.
under contract to
Marshall Space Flight Center
(MFS-16709)