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(54) Title: IMPROVED THERMOELECTRIC UNIT WITH ELECTRIC INPUT/OUTPUT PROVISION**(57) Abstract**

A series of closely packed thermocouples formed into a torus (60) are held in compression against the Lorentz Force by a dielectrically insulated tie strap (61). High current circulates through the torus (60) due to reduced electrical path length effected by low-thermal-conductivity elements (64) and grooves (38) formed in hot and cold fins (66 and 65). Reduced heat transfer between hot and cold fins (66 and 65) generates higher circulating current. Thermoelectric junctions formed between the hot and cold fins (66 and 65) and the low-thermal-conductivity elements (64) are preferably established by coated layer(s) (67) of dissimilar materials including bismuth, constantan, nickel, selenium, tellurium, silicon, germanium, antimony, nichrome, iron, cadmium, tungsten, gold, copper, zinc, and silver. Operating as a thermoelectric generator (40), electrical power may be drawn from the circulating electric current using either a vibrating mechanical switch (70), a Hall effect generator (140) or a Colpits oscillator (159).

