



US006452138B1

(12) **United States Patent**
Kochman et al.

(10) **Patent No.:** **US 6,452,138 B1**
(45) **Date of Patent:** **Sep. 17, 2002**

(54) **MULTI-CONDUCTOR SOFT HEATING ELEMENT**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/309,917**

(22) Filed: **May 11, 1999**

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/160,540, filed on Sep. 25, 1998.

(51) Int. Cl.⁷ **H05B 3/34**

(52) U.S. Cl. **219/549**; 219/529

(58) Field of Search 219/200, 201,
219/212, 217, 520, 527, 528, 529, 538,
539, 542, 545, 548, 549

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(57) ABSTRACT

A soft heating element utilizing individually insulated electrically conductive carbon or metal containing threads/fibers or metal wires that are woven together with nonconductive threads, into sheets, sleeves or strips. The individually insulated conductive threads/fibers or metal wires can be laminated between layers of nonconductive insulation. Nonconductive polymer insulation can be extruded around the non-insulated electrically conductive threads/fibers or metal wires to form strips, sheets or sleeves/pipes. The heating element core is shaped in a desired pattern and connected in parallel or in series to the energizing bus conductors. The thermostats are located in areas of folds in order to control their cycling. When dictated by the heating element design, the electrically conductive threads/fibers have a polymer base, which acts as a Thermal-Cut-Off (TCO) material at predetermined temperatures. Metal fibers or metal wires, incorporated in the heating element core, may be utilized as temperature sensors.

33 Claims, 2 Drawing Sheets

