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United States Patent [19] Hajaligol

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[54] **INTERDIGITATED CYLINDRICAL HEATER FOR USE IN AN ELECTRICAL SMOKING ARTICLE**

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[21] **Appl. No.:** 333,470

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 224,848, Apr. 8, 1994, which is a continuation-in-part of Ser. No. 118,665, Sep. 10, 1993, Pat. No. 5,388,594, which is a continuation-in-part of Ser. No. 943,504, Sep. 11, 1992, which is a continuation-in-part of Ser. No. 666,926, Mar. 11, 1991, abandoned, which is a continuation of Ser. No. 12,799, Feb. 2, 1993.

[51] **Int. Cl.⁶** H05B 3/58; A24F 1/22

[52] **U.S. Cl.** 219/535; 219/553; 131/194

[58] **Field of Search** 219/535, 542, 219/552-553; 131/194, 197; 128/202.21, 203.27; 338/310, 312, 320; 392/386

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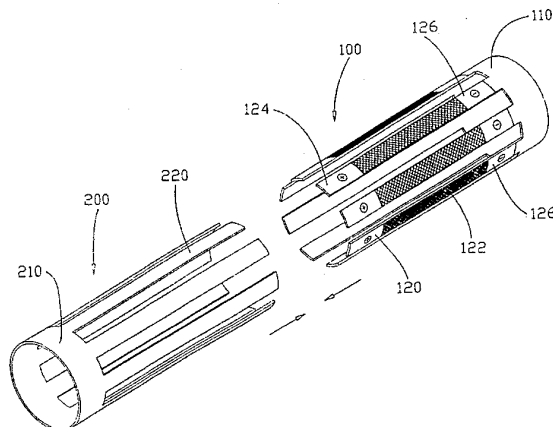
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[57] ABSTRACT

A heater having a generally cylindrical or tubular configuration comprised of a selected plurality of thermally conductive heater blades and adjacent heat sink and aerosol barrier blades interposed between the heater blades to form an interdigitated structure. A respective gap is defined between a heater blade and an adjacent heat sink blade to prevent heat loss during an electrical pulse which heats the heater blade. During the subsequent cooling period and puff interval, the adjacent heat sink blades prevent heat from propagating to other parts of the aerosol generating tube, i.e., the cigarette. In addition to the thermal function, the barrier blades also block the escape of moisture generated by the aerosol generating medium, thereby limiting the propagation of condensation. The respective gaps between the interdigitated blades are defined to be wide enough to prevent heat losses during pulsing from a heater blade to adjacent blades yet small enough to prevent escape of significant amounts of vapor.

49 Claims, 12 Drawing Sheets



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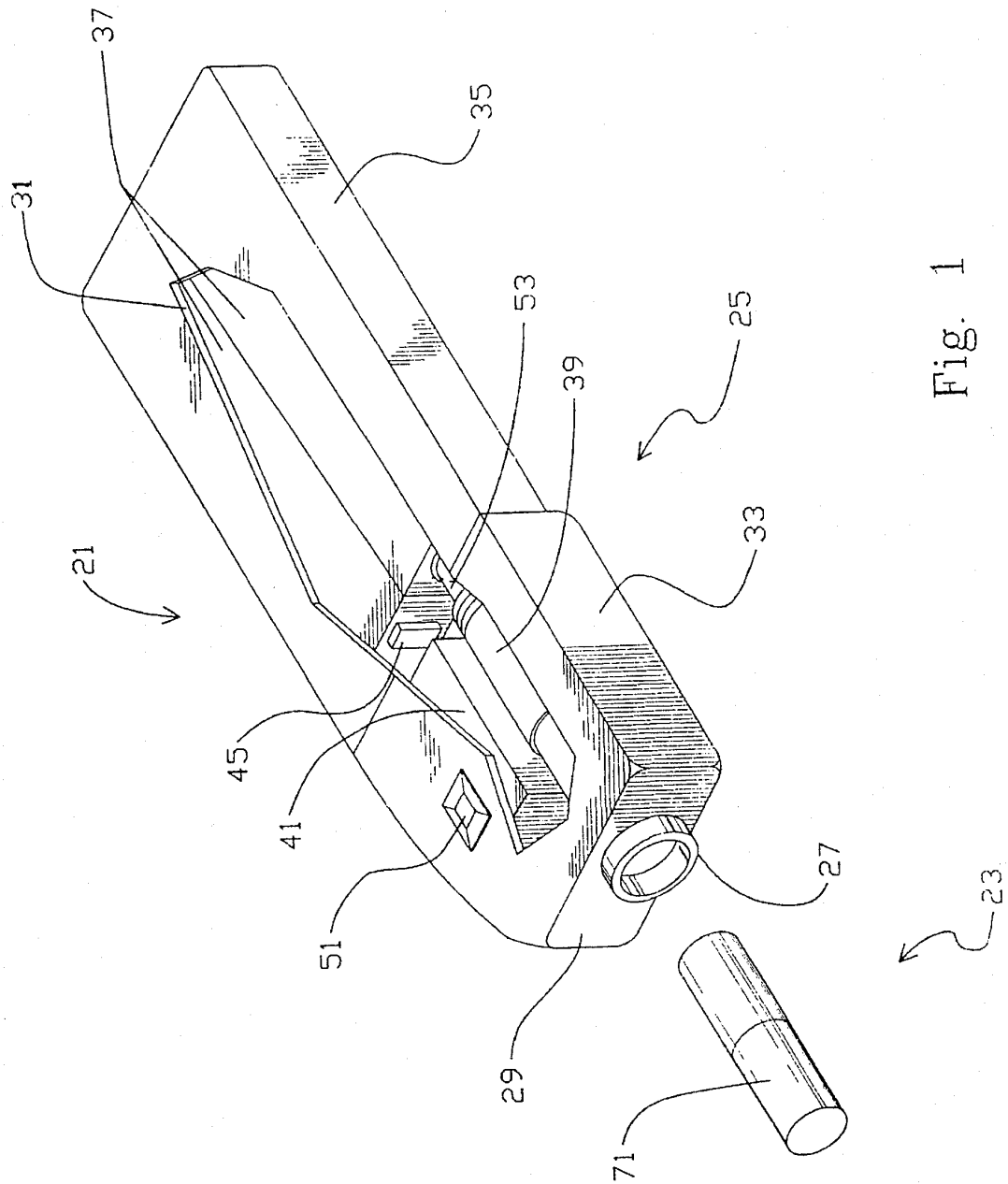


Fig. 1

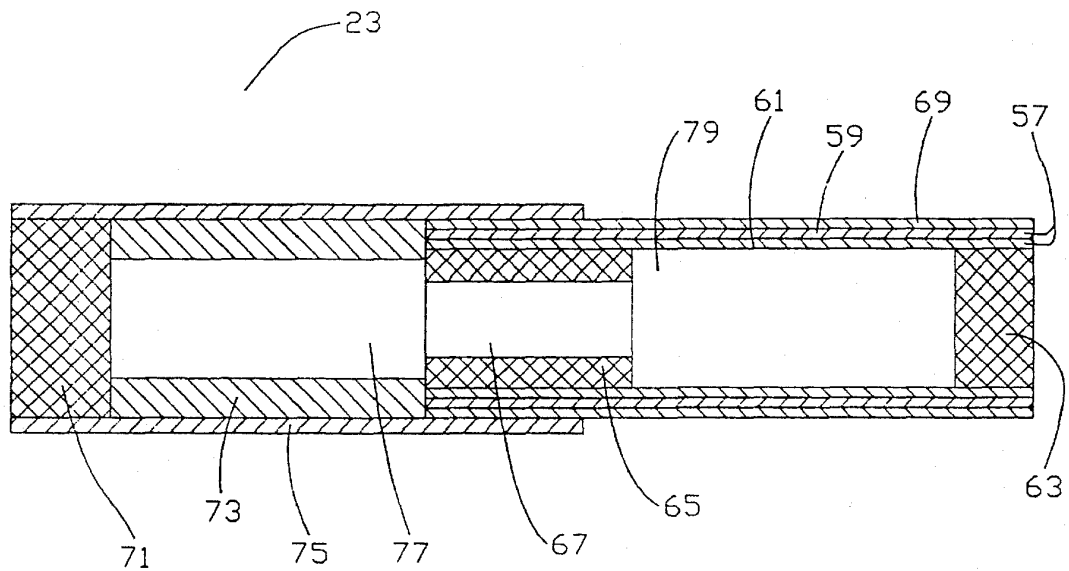


Fig. 2

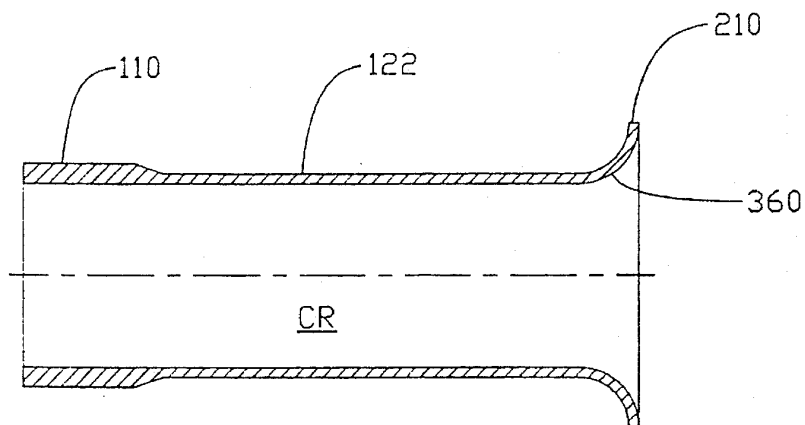


Fig. 6

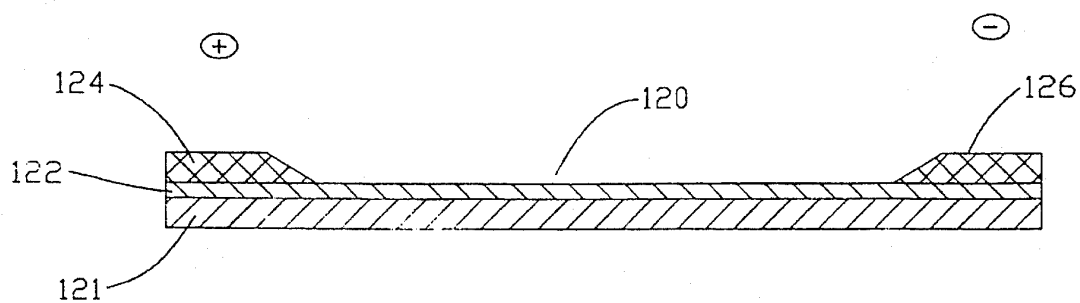


Fig. 3

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