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# United States Patent [19]

[11] Patent Number: **5,144,962**

Counts et al.

[45] Date of Patent: **Sep. 8, 1992**

[54] FLAVOR-DELIVERY ARTICLE

[56] References Cited

[75] Inventors: **Mary E. Counts; Mohammad R. Hajaligol**, both of Richmond; **Constance H. Morgan; Ulysses Smith**, both of Midlothian; **Francis M. Sprinkel**, Glen Allen; **Francis V. Utsch**, Midlothian, all of Va.

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WO90/03224 4/1990 PCT Int'l Appl. .

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*Attorney, Agent, or Firm*—Jeffrey H. Ingerman

[21] Appl. No.: **444,818**

### [57] ABSTRACT

[22] Filed: **Dec. 1, 1989**

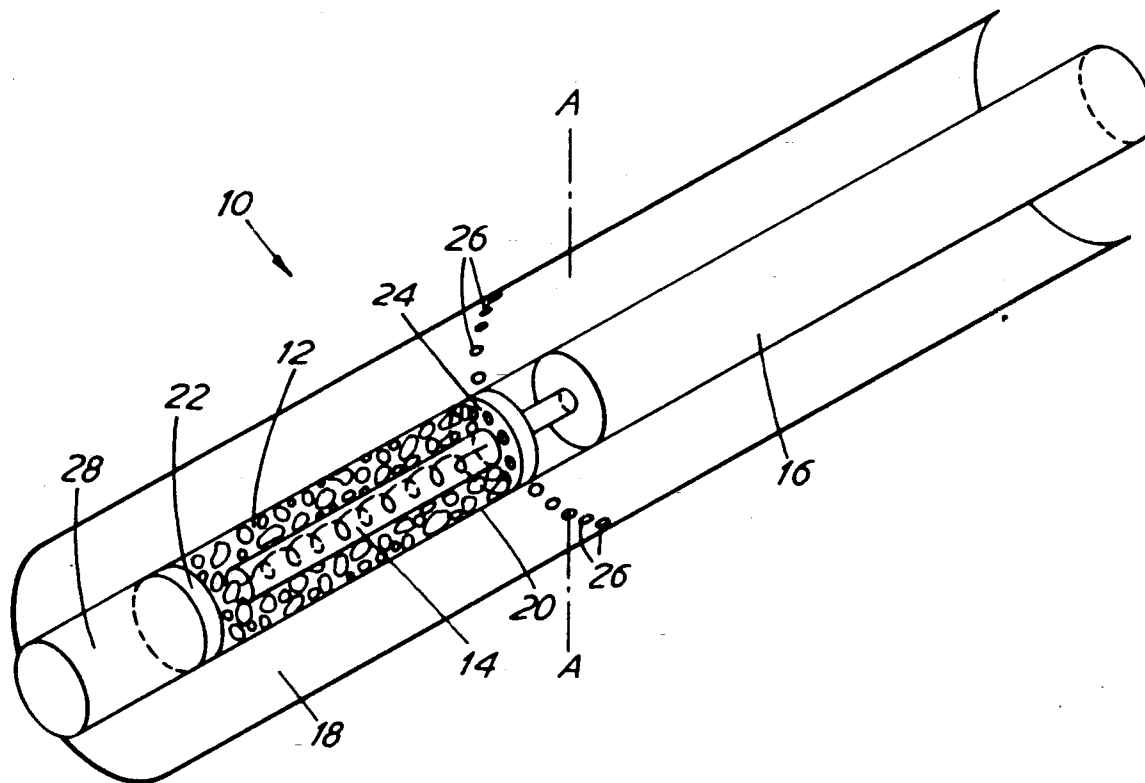
Methods and apparatus for releasing flavor components from a flavor-generating medium using an electric heating element are provided. A non-combustion flavor-generating article uses electrical energy to power a heating element which heats tobacco or other flavorants. The flavor-generating medium is formed into a packed bed. Energy delivered to the heating element is regulated to maintain the flavor-generating medium at a relatively constant operating temperature to ensure a relatively constant release of flavor.

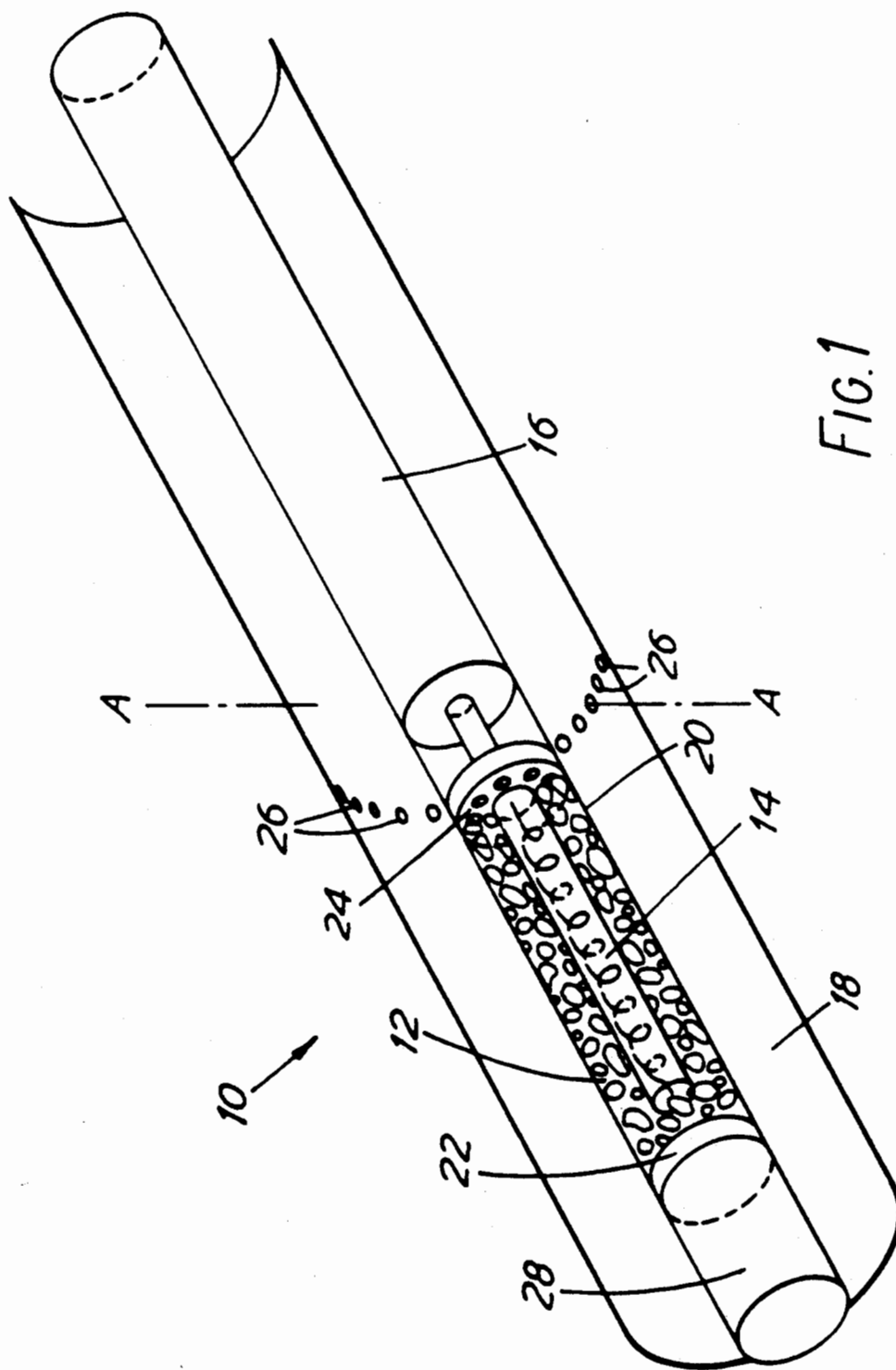
[51] Int. Cl.<sup>5</sup> ..... **A24D 1/00**

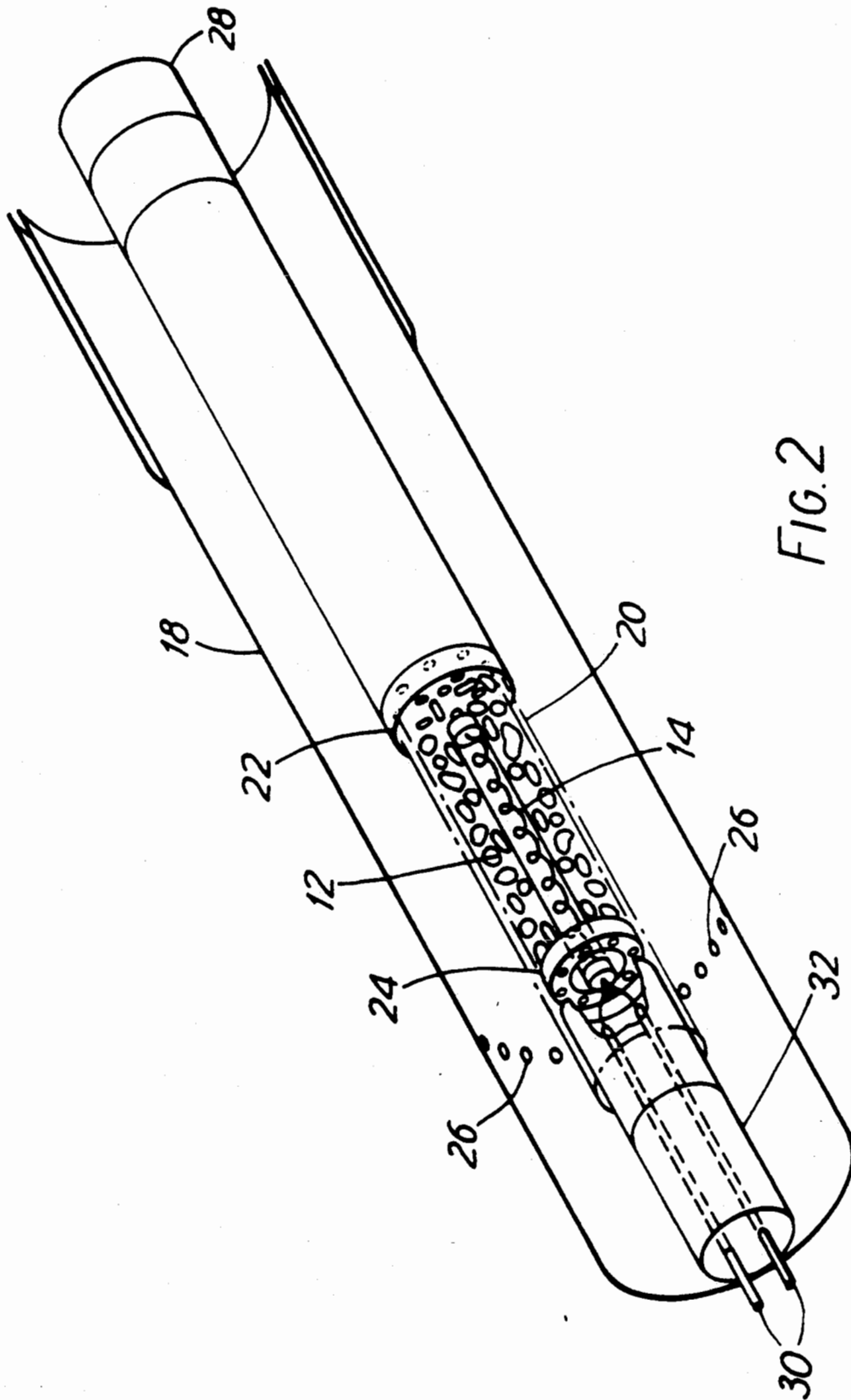
[52] U.S. Cl. .... **131/194; 131/335;**  
128/200.14; 128/202.21; 128/203.26;  
128/203.27; 128/204.13

[58] Field of Search ..... 131/270, 194, 195, 329,  
131/330, 335; 128/200.14, 202.21, 203.26,  
203.27, 204.13

**146 Claims, 9 Drawing Sheets**







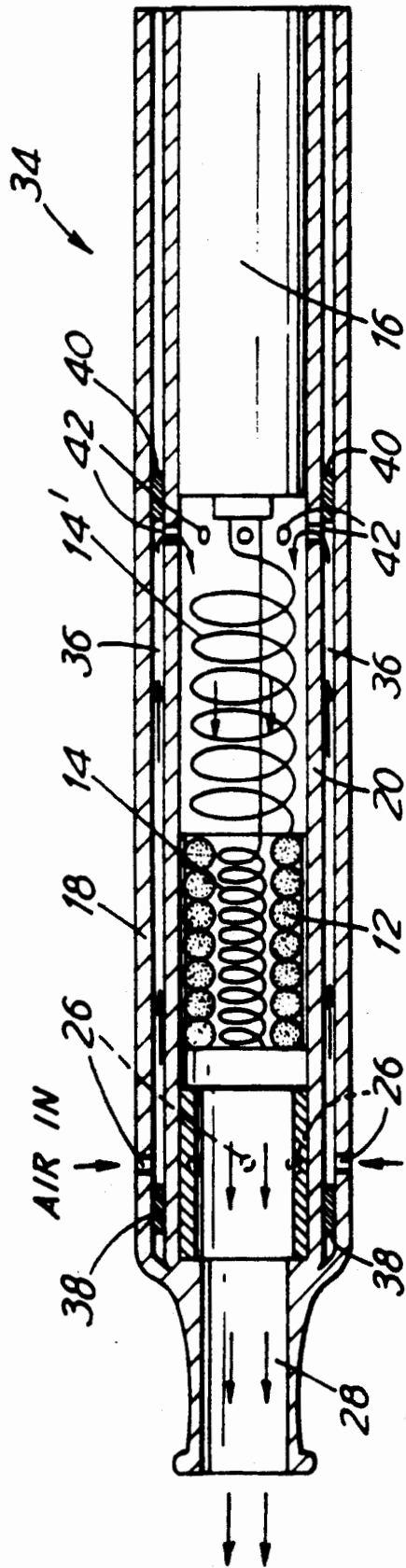


FIG. 3

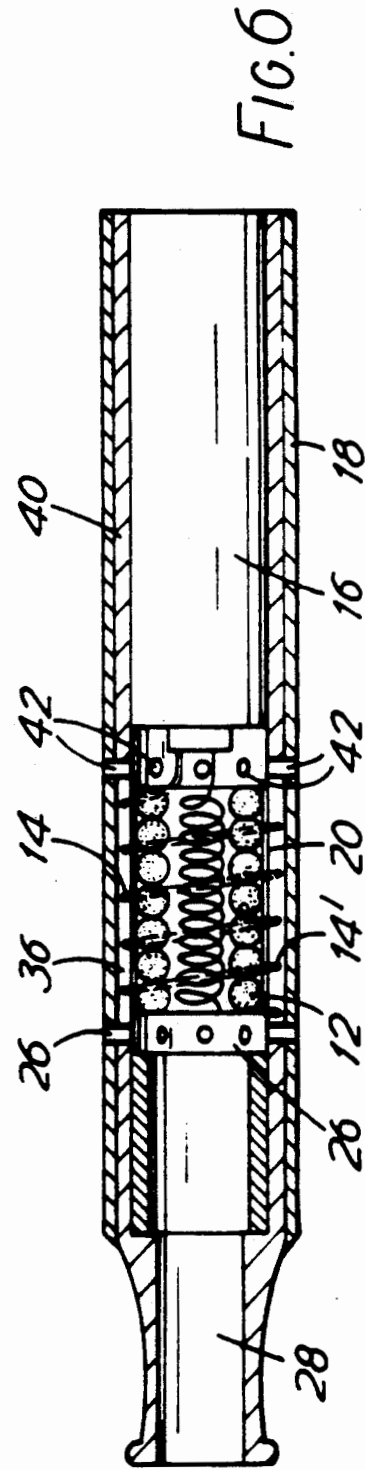
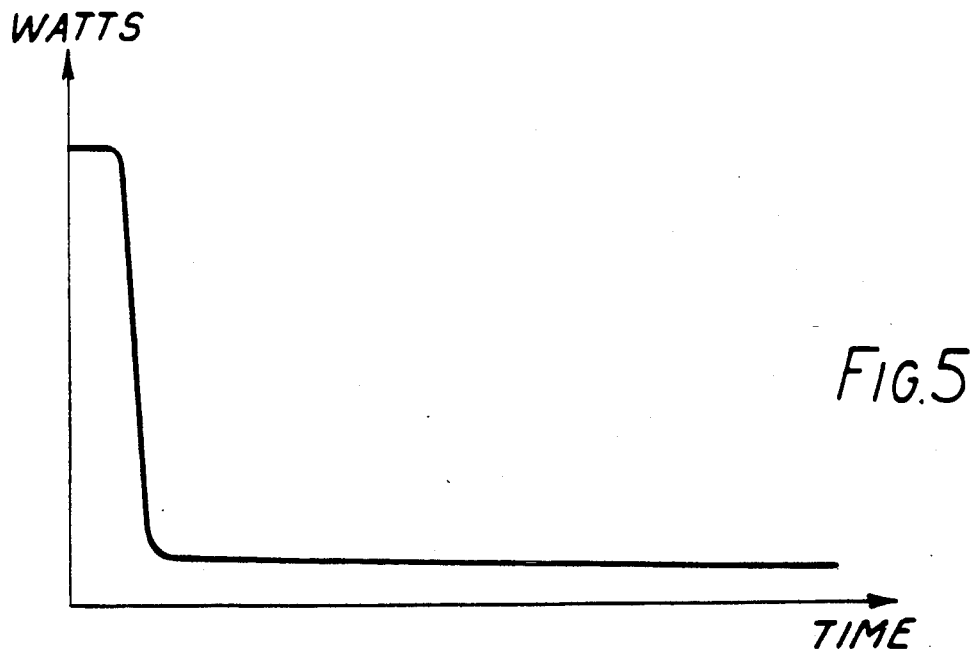
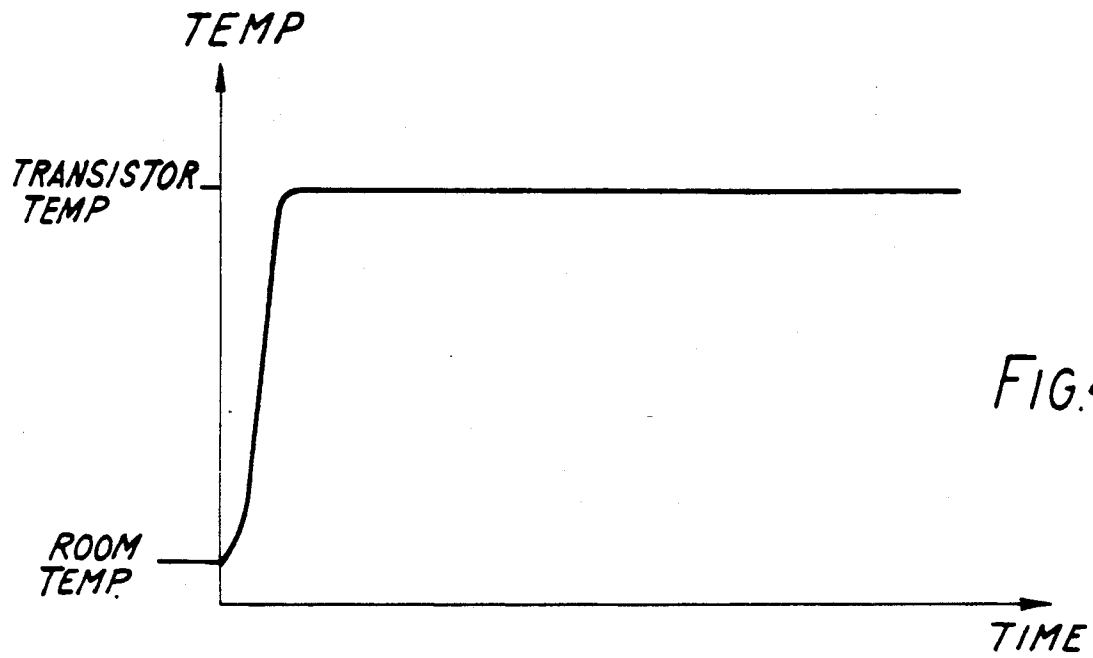


FIG. 6



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