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Cantave et al.

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(54) **LITHIUM CELL WITH HEAT FORMED SEPARATOR**

FOREIGN PATENT DOCUMENTS

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(57) **ABSTRACT**

A primary lithium cell having a wound electrode assembly. The electrode assembly comprises an anode comprising lithium, a cathode comprising a manganese dioxide and an electrolyte permeable separator therebetween. The electrode assembly comprises a cathode sheet, an anode sheet and electrolyte permeable separator sheet therebetween. The sheets are wound into a spiral roll. An exposed edge of each revolution of the separator sheet is then heat treated, for example, by applying a heated platen thereto to mold said exposed edge into a continuous separator membrane. The continuous separator membrane, so formed, covers and seals off said edge of adjacent revolutions of the cathode sheet and thus provides electrical insulation therefor. The electrode assembly can then be inserted into the cell casing so that the continuous separator membrane abuts a surface of the casing and provides electrical insulation between the casing and the wound cathode sheet. This reduces the total amount of electrical insulation needed between the cell casing and wound electrodes and thereby frees up void volume which can be used for additional active material, for example, by making the anode and cathode sheets wider.

(21) Appl. No.: **09/527,508**

(22) Filed: **Mar. 16, 2000**

(51) **Int. Cl.**⁷ **H01M 2/18**

(52) **U.S. Cl.** **29/623.1; 429/133; 429/247**

(58) **Field of Search** 429/52-56, 94, 429/247, 129, 131, 140, 133; 29/623.1

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4 Claims, 7 Drawing Sheets

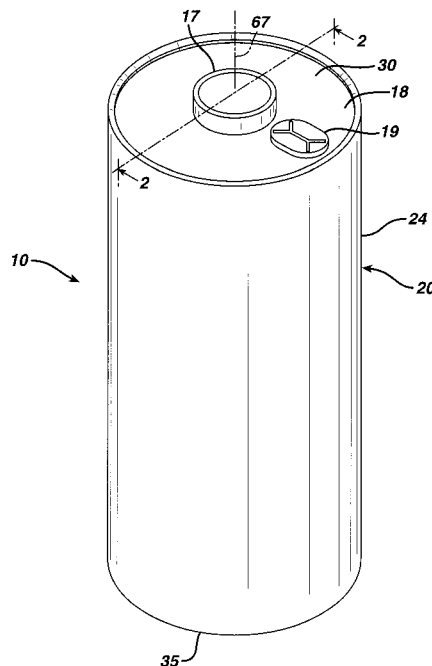


FIG. 1

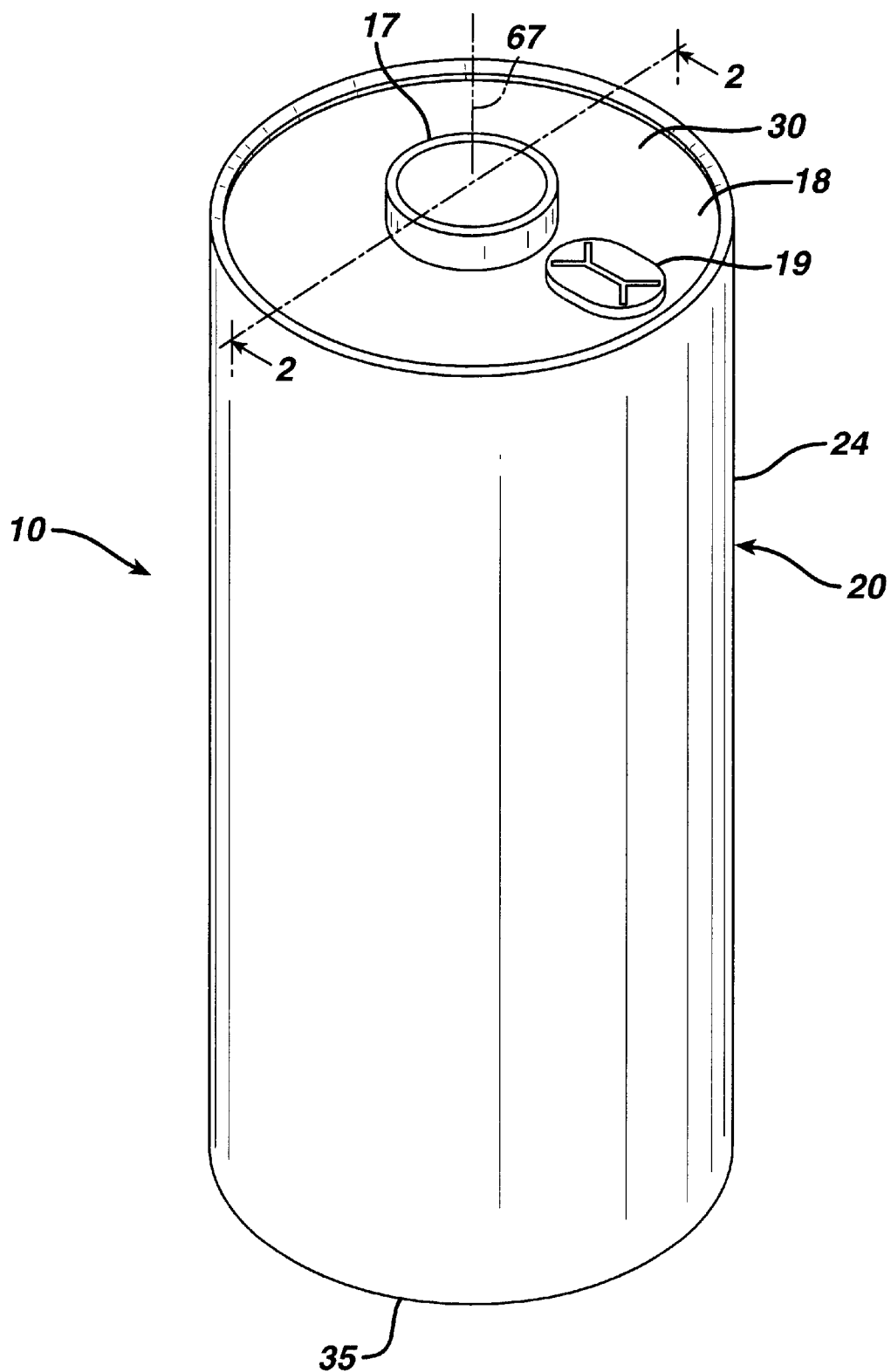


FIG. 2A

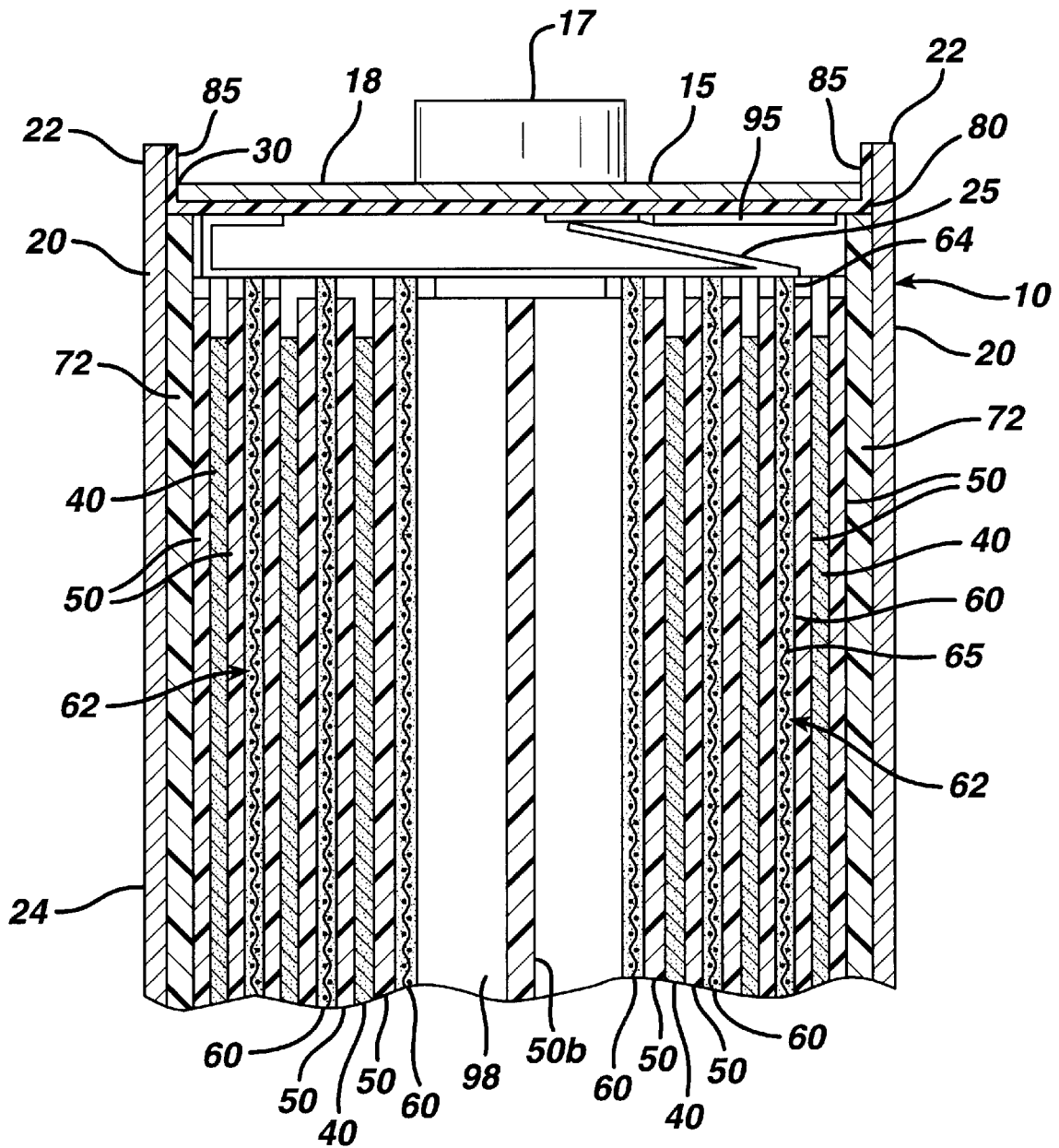


FIG. 2B

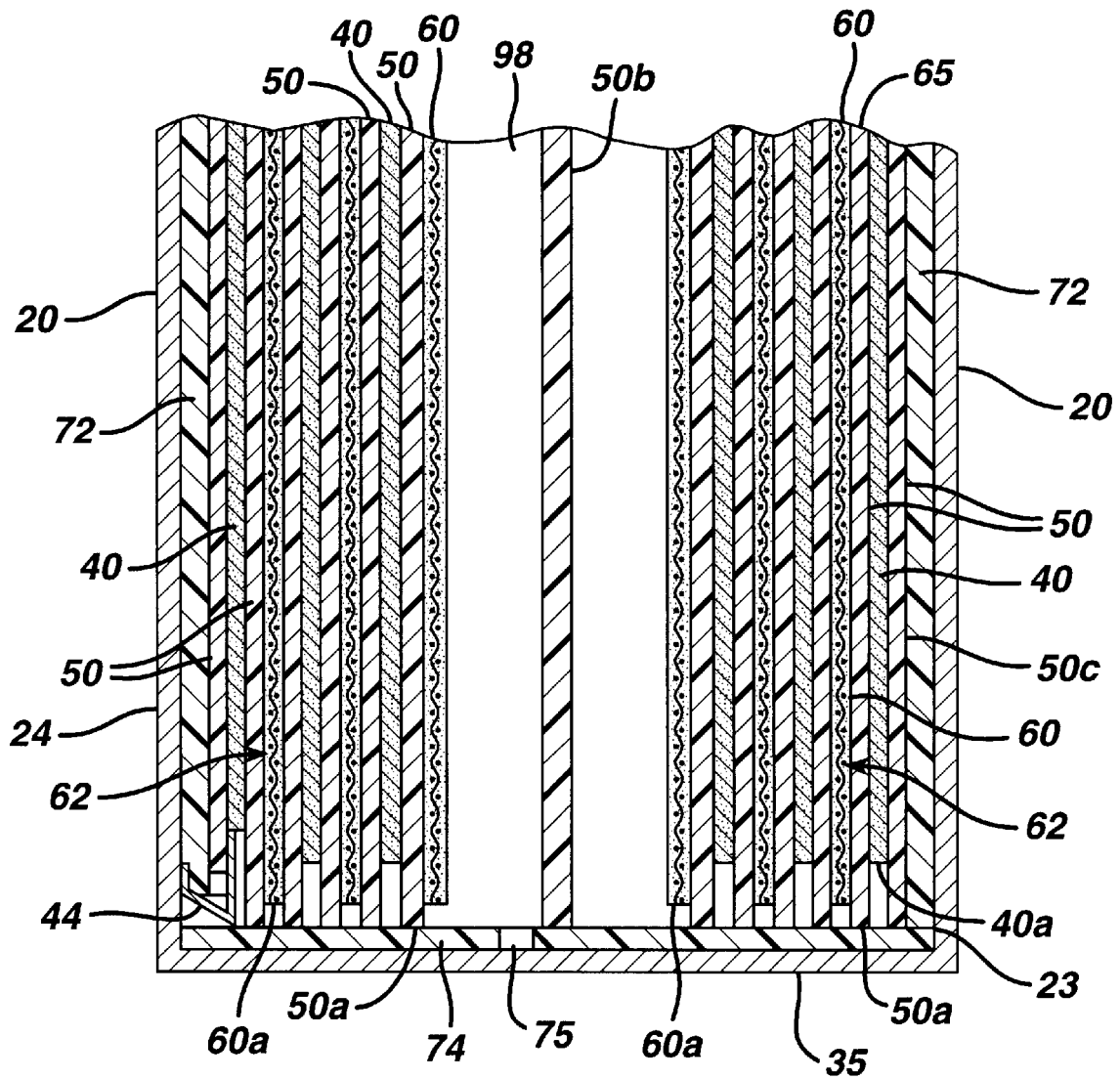
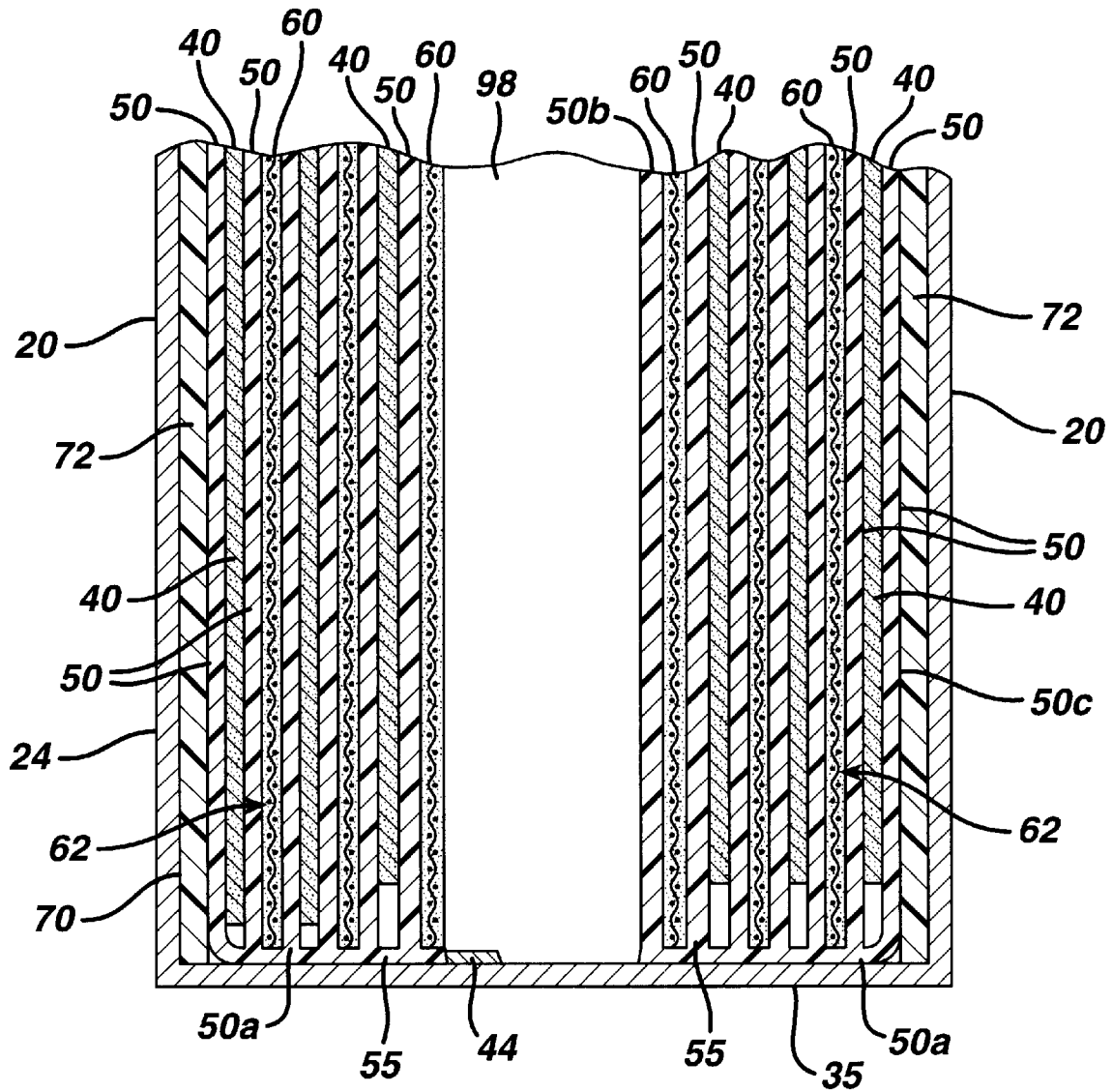


FIG. 2C



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