

[54] **METHOD OF FORMING NICKEL FOAM**

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[52] **U.S. Cl.:** 148/13; 428/614; 429/235; 75/415

[58] **Field of Search:** 75/20 F; 419/2; 428/614; 429/235

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[57] **ABSTRACT**

The invention provides a nickel foam and a method of forming a nickel foam for a nickel containing battery. An open-cell foam structure is placed in a nickel carbonyl gas containing structure. The foam structure is heated to a temperature at which nickel carbonyl decomposes. Nickel from the nickel carbonyl gas decomposes on the foam structure to form a nickel plated foam structure. The nickel plated foam structure is then sintered leaving an open-cell nickel network to form the nickel foam. The open-cells of the nickel foam comprise substantially hollow wires having a substantially uniform transverse cross-section. The nickel foam is further characterized by the conductivity through the nickel foam multiplied by a factor of 3.4 being equal to or greater than the theoretical conductivity of nickel.

9 Claims, 6 Drawing Sheets

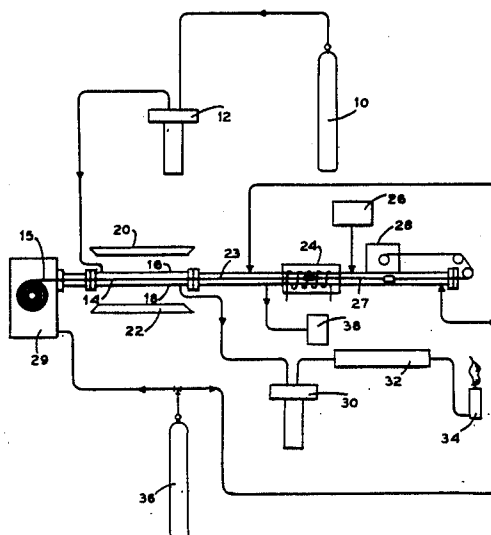
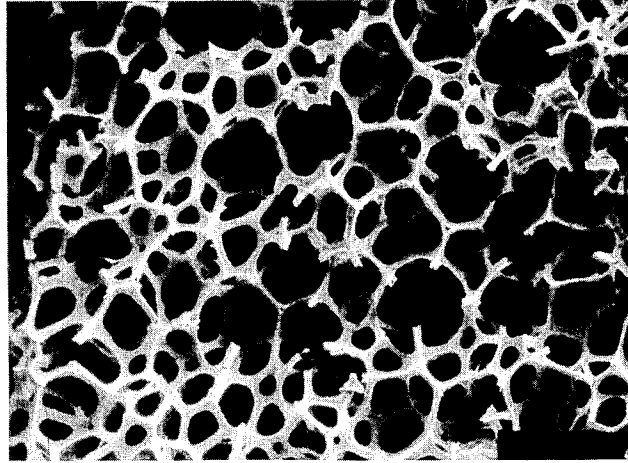


FIG. 1



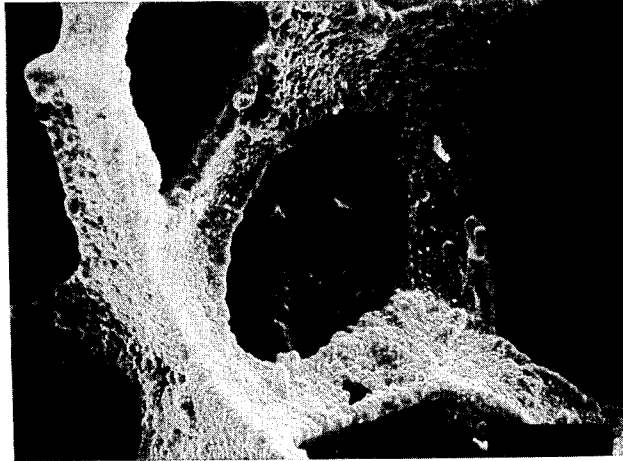


FIG. 2

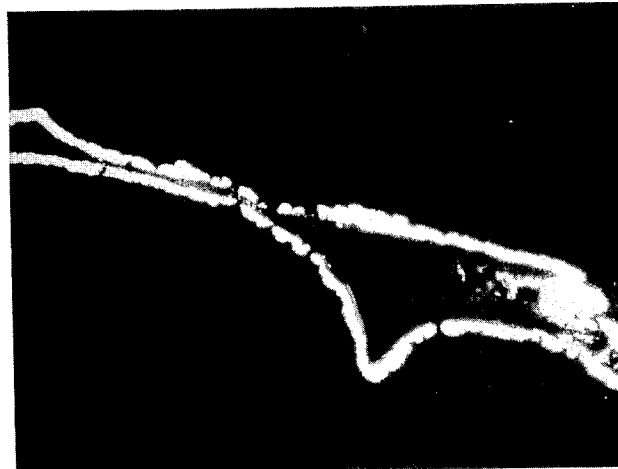


FIG. 3



FIG. 4

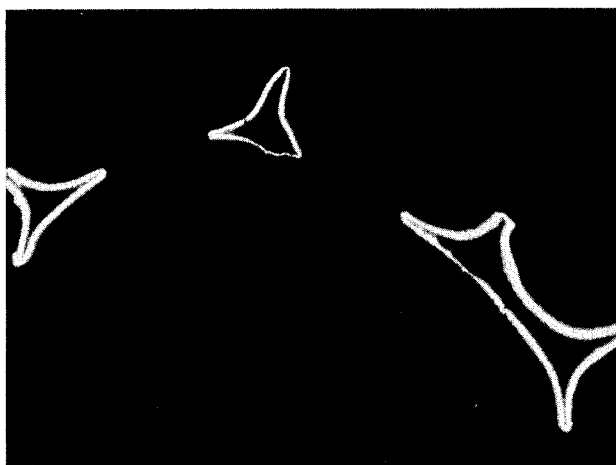
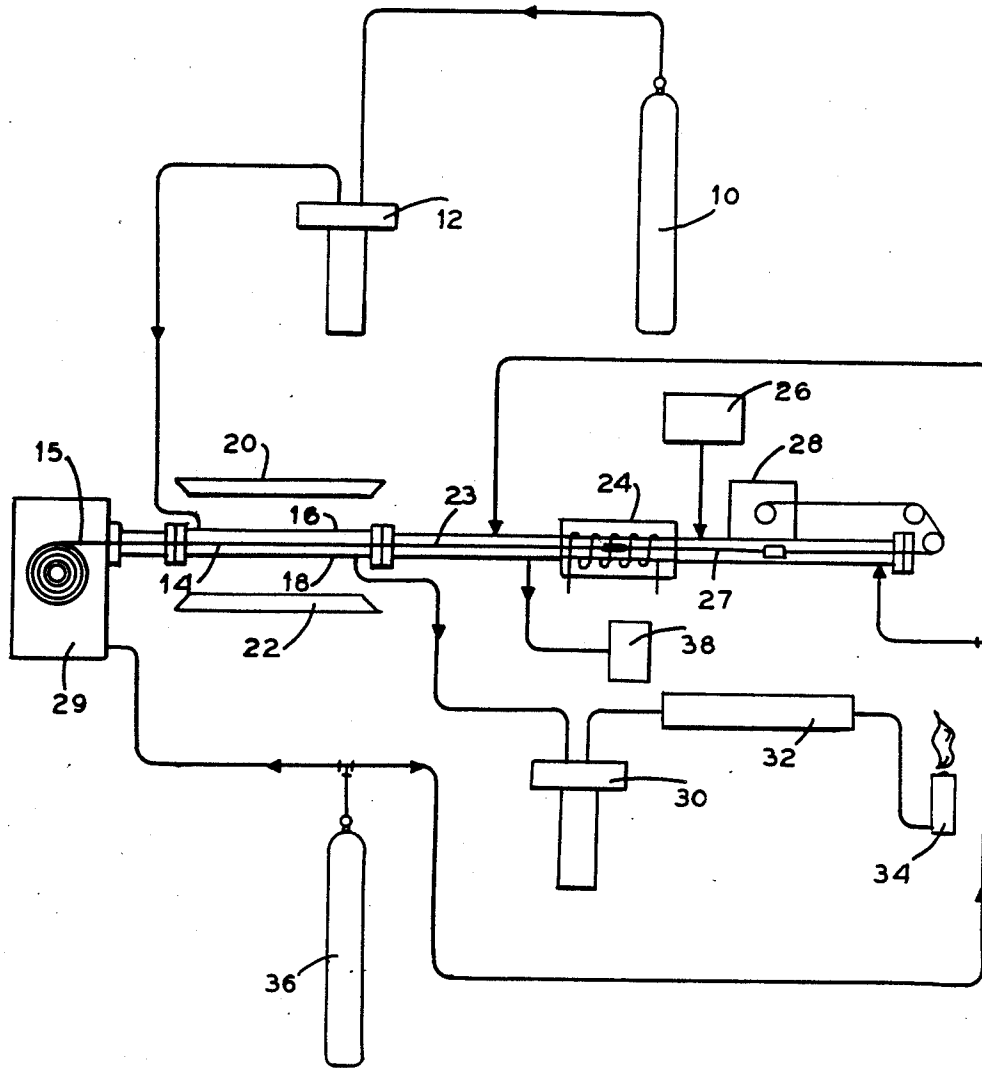


FIG. 5

FIG. 6



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