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United States Patent [19]
Knauer

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- [54] **SELF ADMINISTERED INJECTION PEN APPARATUS AND METHOD**
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- [73] Assignee: **Genentech, Inc.**, South San Francisco, Calif.
- [21] Appl. No.: **195,307**
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- [51] Int. Cl.⁶ **A61M 5/20**
- [52] U.S. Cl. **604/136; 604/187; 604/198; 604/218**
- [58] **Field of Search** **604/131, 135-139, 604/156, 187, 208, 211, 218, 220, 232**

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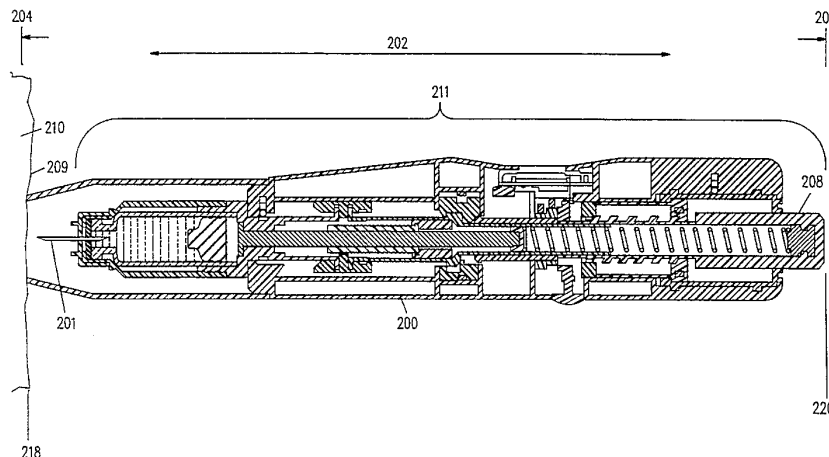
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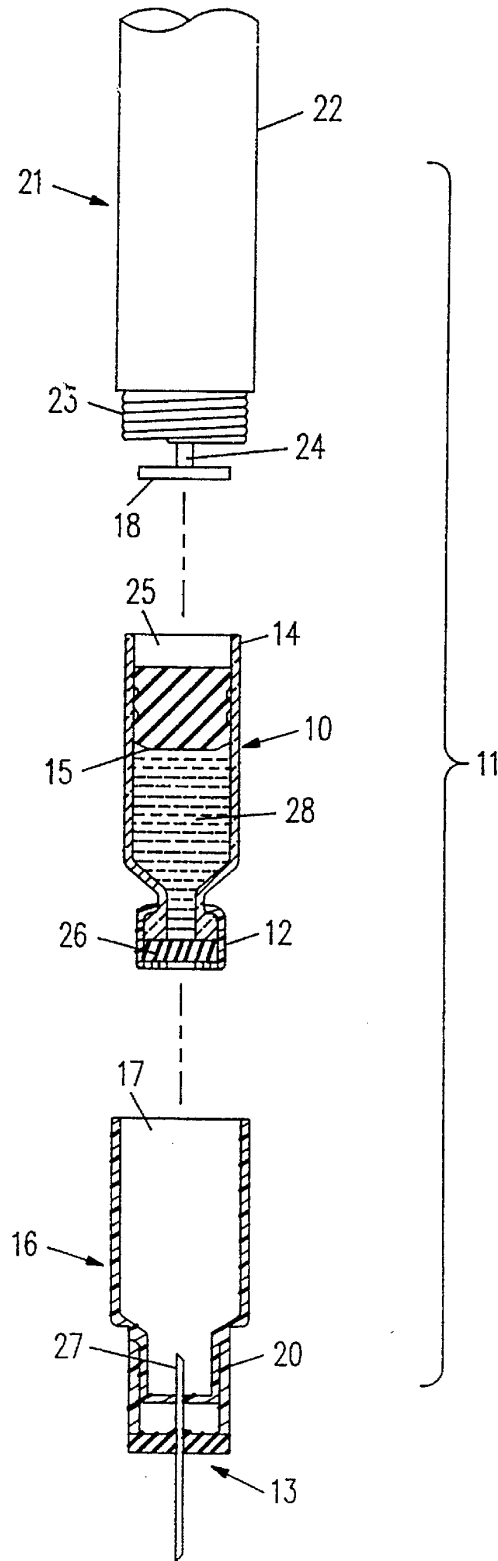
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Assistant Examiner—Perry E. Van Over
Attorney, Agent, or Firm—Skjerven, Morrill, MacPherson, Franklin & Friel; Forrest E. Gunnison; Philip J. McKay

[57] **ABSTRACT**

A medicament injection apparatus for subcutaneous or intramuscular delivery of a medicament conceals the needle behind a needle shroud. On apparatus activation, the needle is trust forward, pushing the needle tip outside the needle shroud with enough force to puncture the skin. The needle is thus automatically introduced into the tissue at the proper needle\skin orientation. In the same action, the apparatus automatically dispenses an accurate pre-set dose. The dose can be set by a manual, variable dosing assembly or by an automatic dosing assembly. The automatic dosing assembly includes a safety mechanism preventing the pre-set dose from being changed except by a doctor or patient using a special wrench or tool.

62 Claims, 16 Drawing Sheets





PRIOR ART
FIG. 1

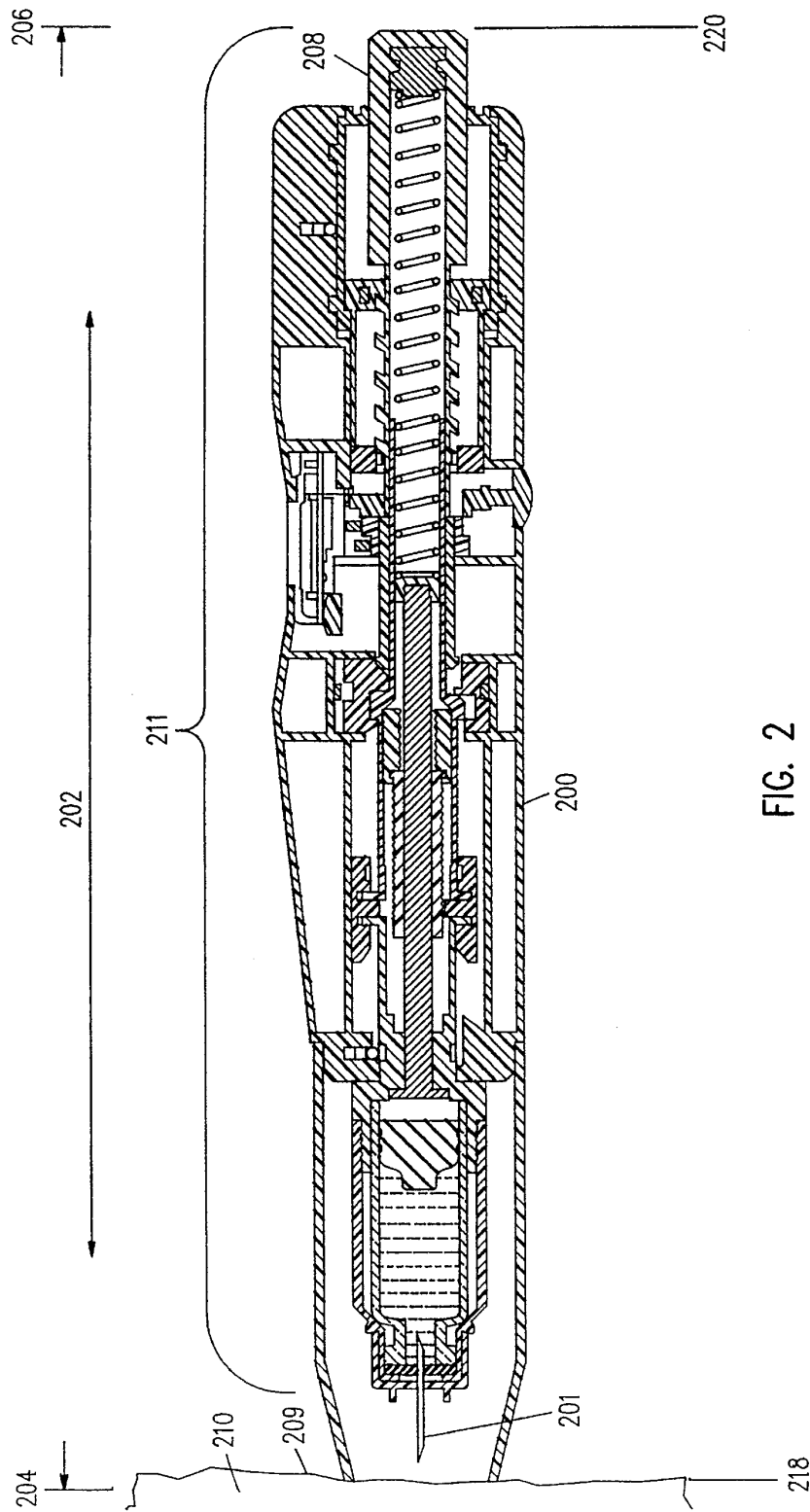


FIG. 2

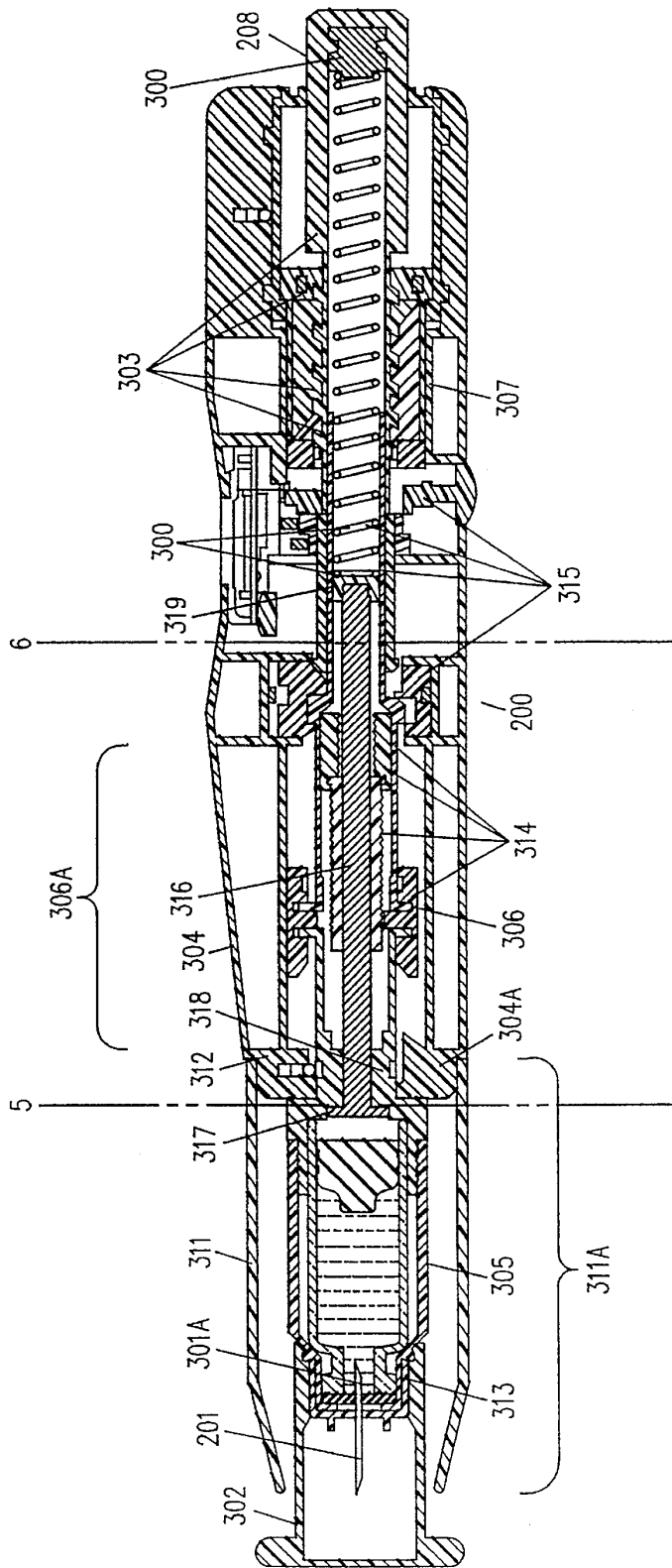


FIG. 3

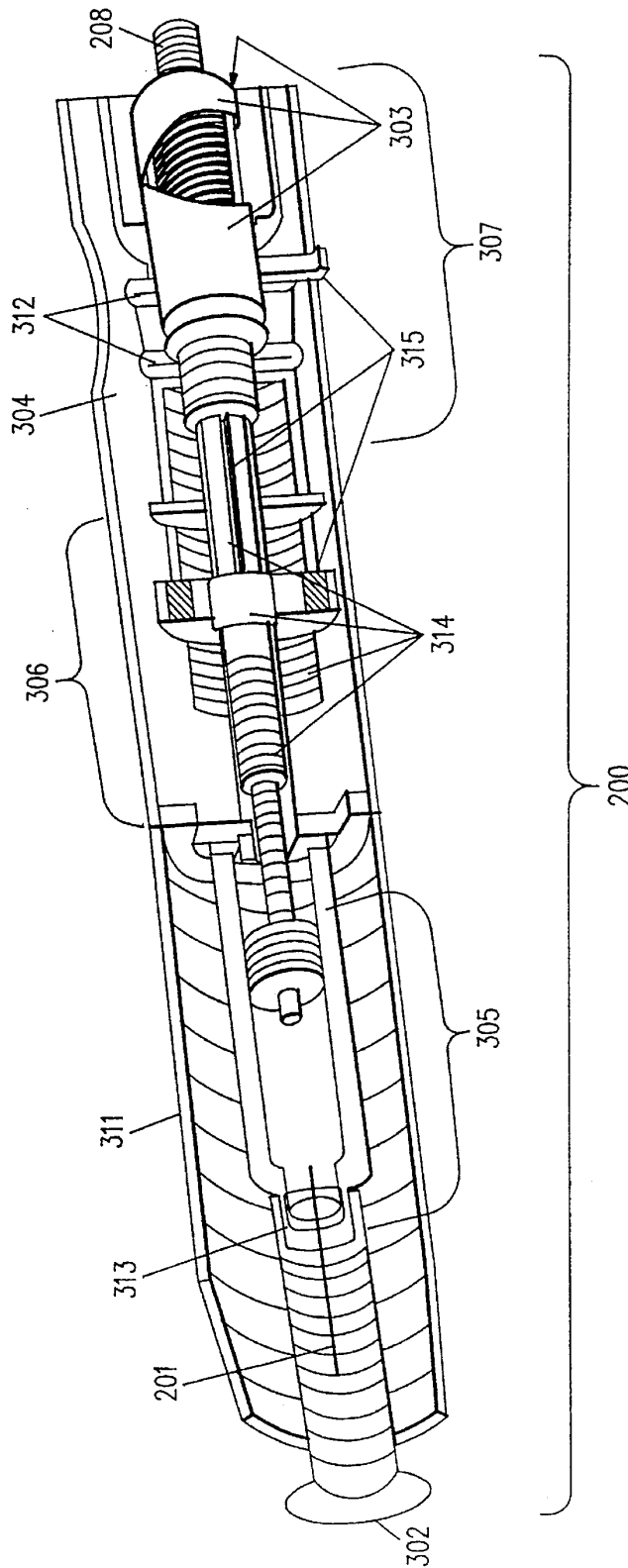


FIG. 4

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