

**United States Patent** [19]

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**Knauer**

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[54] **SELF ADMINISTERED INJECTION PEN APPARATUS AND METHOD**

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[51] Int. Cl.<sup>o</sup> ..... **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

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

- 3,905,365 9/1975 Colombo .
- 4,394,863 7/1983 Bartner .
- 4,405,317 9/1983 Case .
- 4,413,760 11/1983 Paton .
- 4,498,904 2/1985 Turner et al. .
- 4,585,439 4/1986 Michel .
- 4,601,708 7/1986 Jordan .
- 4,642,099 2/1987 Phillips et al. .
- 4,673,396 6/1987 Urbaniak .
- 4,701,165 10/1987 DeHaitre .
- 4,755,169 7/1988 Sarnoff et al. .
- 4,832,690 5/1989 Kuu .
- 4,865,591 9/1989 Sams .
- 4,874,383 10/1989 McNaughton .
- 4,883,472 11/1989 Michel .
- 4,931,043 6/1990 Ray et al. .
- 4,936,833 6/1990 Sams .
- 4,966,585 10/1990 Gangemi .
- 4,968,299 11/1990 Ahlstrand et al. .
- 4,969,874 11/1990 Michel et al. .
- 5,017,190 5/1991 Simon et al. .
- 5,019,053 5/1991 Hoffman et al. .
- 5,032,114 7/1991 Olovson .
- 5,042,977 8/1991 Bechtold et al. .
- 5,050,617 9/1991 Columbus et al. .
- 5,085,641 2/1992 Sarnoff et al. .

- 5,085,642 2/1992 Sarnoff et al. .
- 5,092,842 3/1992 Bechtold et al. .
- 5,104,380 4/1992 Holman et al. .
- 5,112,317 5/1992 Michel .
- 5,114,406 5/1992 Gabriel et al. .
- 5,176,657 1/1993 Shields .
- 5,226,895 7/1993 Harris .
- 5,226,896 7/1993 Harris .
- 5,232,459 8/1993 Hjertman .
- 5,244,465 9/1993 Michel .
- 5,273,544 12/1993 van der Wal .

**FOREIGN PATENT DOCUMENTS**

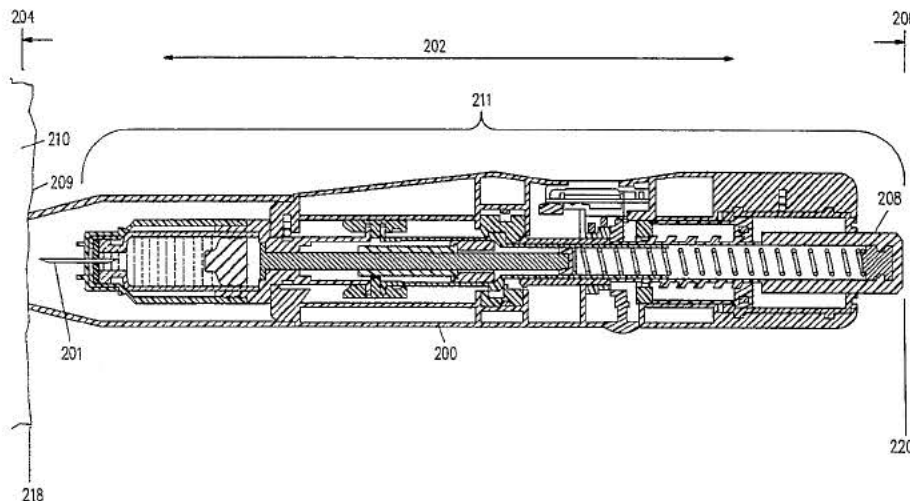
- 0268191A2 11/1987 European Pat. Off. .
- 0327910A2 8/1989 European Pat. Off. .
- 0373321A1 10/1989 European Pat. Off. .
- 0496141 7/1992 European Pat. Off. .
- 0525525 2/1993 European Pat. Off. .
- 0557559A1 9/1993 European Pat. Off. .
- 8813905 12/1989 Germany .
- WO87/02895 5/1987 WIPO .
- WO90/04423 5/1990 WIPO .
- 9310838 6/1993 WIPO .
- WO93/16740 9/1993 WIPO .

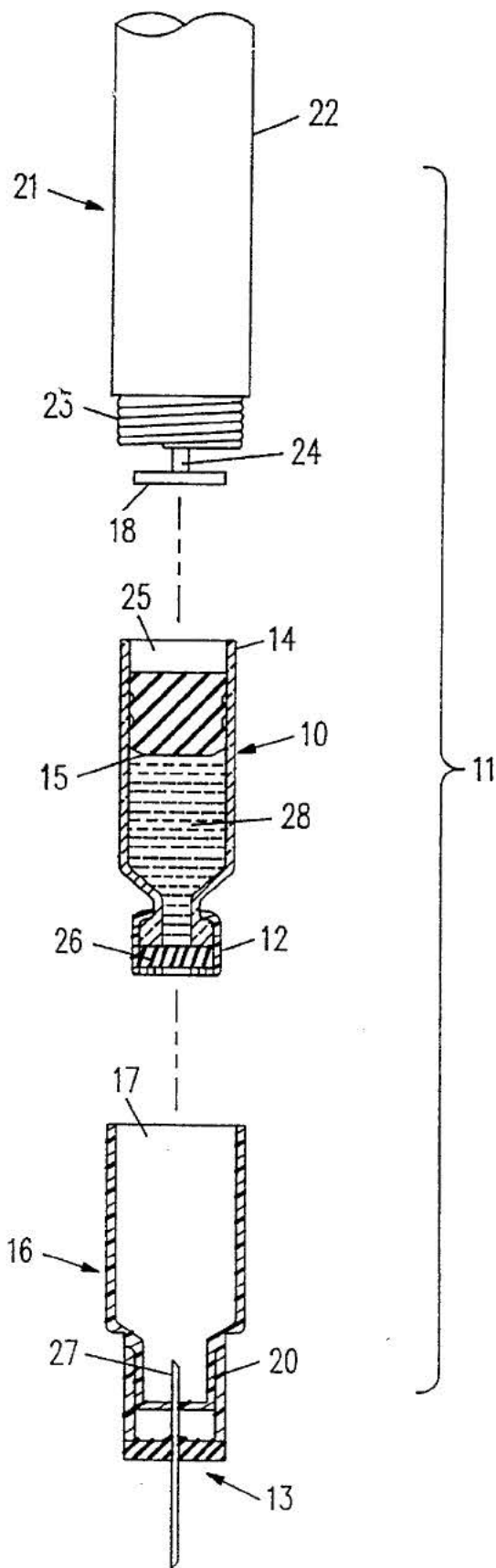
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[57] **ABSTRACT**

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

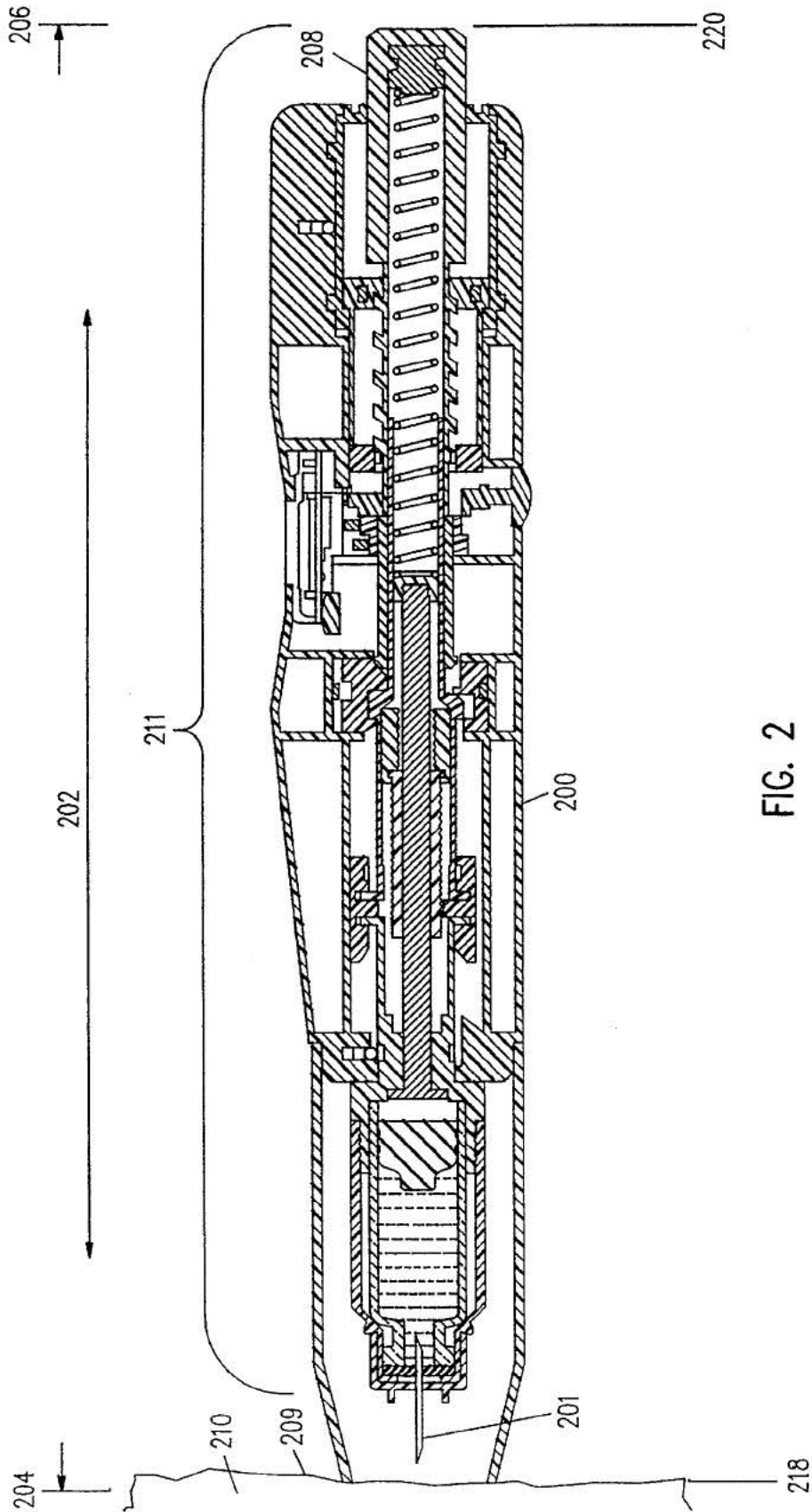


FIG. 2

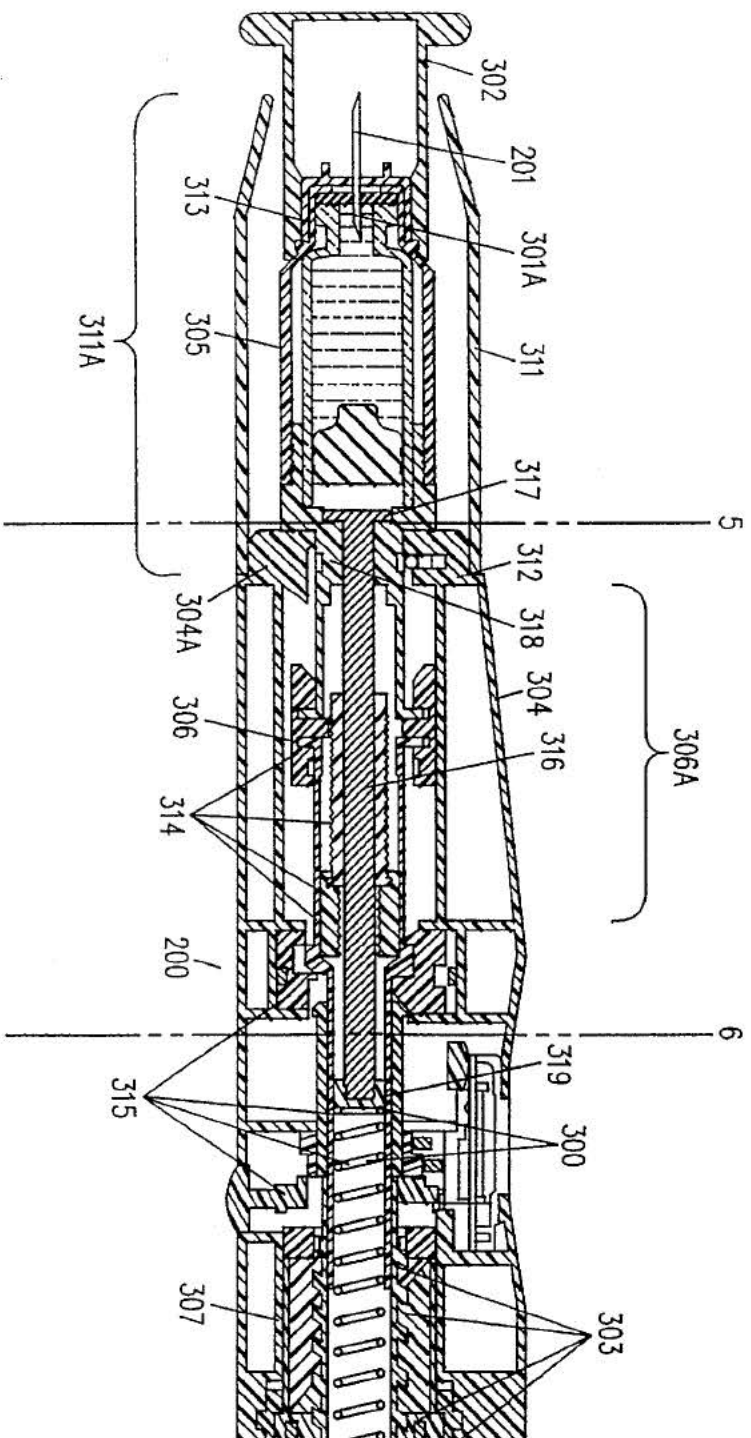


FIG. 3

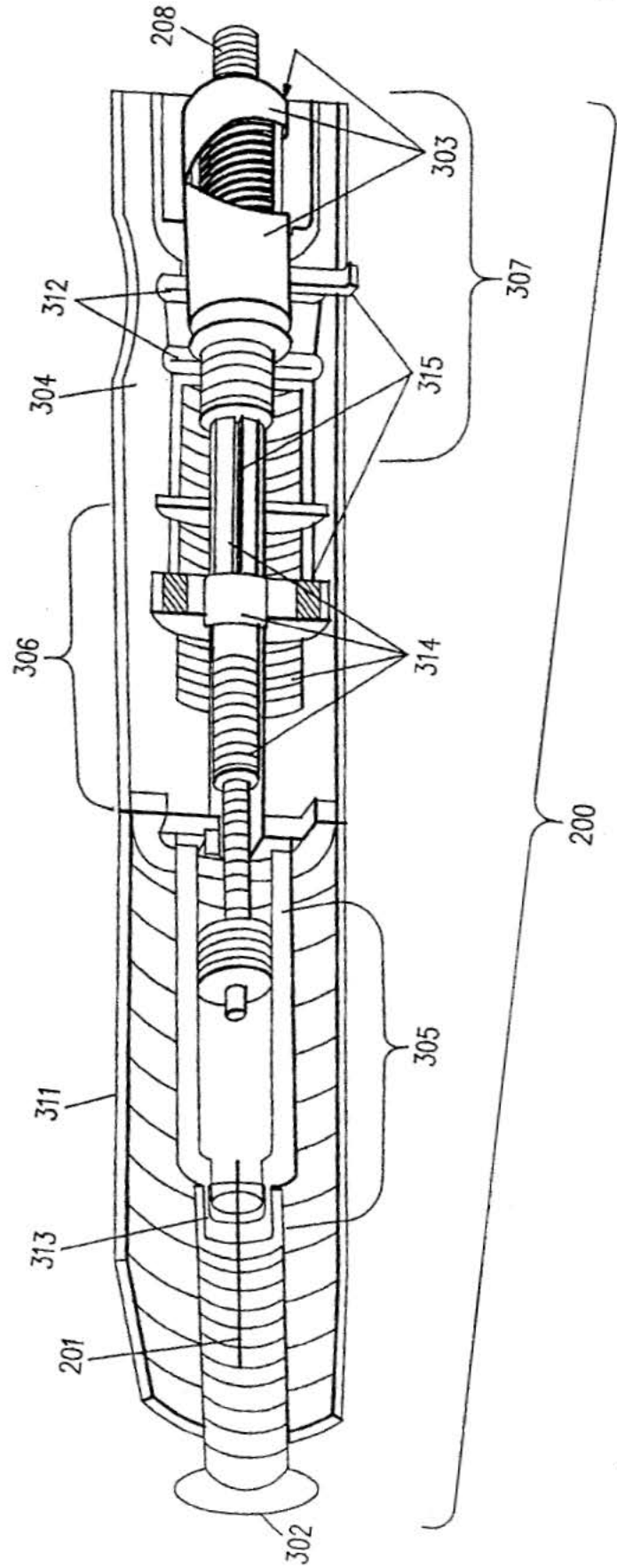


FIG. 4

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