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(54) **PEN-TYPE INJECTOR**

(71) Applicants: **Robert Frederick Veasey**, Warwickshire (GB); **Robert Perkins**, Oxfordshire (GB); **David Aubrey Plumptre**, Worcestershire (GB)

(72) Inventors: **Robert Frederick Veasey**, Warwickshire (GB); **Robert Perkins**, Oxfordshire (GB); **David Aubrey Plumptre**, Worcestershire (GB)

(73) Assignee: **Sanofi-Aventis Deutschland GmbH**, Frankfurt am Main (DE)

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Related U.S. Application Data

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A61M 5/315 (2006.01)
A61M 5/24 (2006.01)

(52) **U.S. Cl.**

CPC *A61M 5/31533* (2013.01); *A61M 5/24* (2013.01); *A61M 5/31535* (2013.01);
(Continued)

(58) **Field of Classification Search**

CPC *A61M 5/31533*; *A61M 5/31536*;
A61M 5/31535; *A61M 5/31551*; *A61M*
5/31541; *A61M 5/31585*
USPC 604/187, 207-211, 218, 221, 224, 232
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,304,152 A 4/1994 Sams
5,320,609 A 6/1994 Haber et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0937471 A2 8/1999
EP 0937476 A2 8/1999

(Continued)

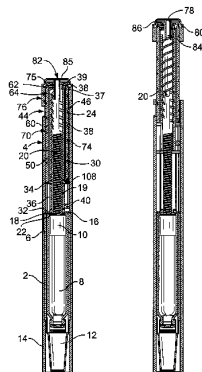
Primary Examiner — Manuel Mendez

(74) *Attorney, Agent, or Firm* — McDonnell Boehnen Hulbert & Berghoff LLP

(57) **ABSTRACT**

A housing for a dispensing apparatus. The housing comprising a main housing and a dose dial sleeve. The dose dial sleeve comprising a helical groove configured to engage a threading provided by the housing. A dose knob is disposed near a proximal end of the dose dial sleeve and a piston rod is provided within the housing. The piston rod is non-rotatable during a dose setting step. A driver comprises an internal threading near a distal portion of the driver and is adapted to engage an external thread of the piston rod. A tubular clutch is located adjacent a distal end of the dose knob and operatively coupled to the dose knob. The dose dial sleeve may extend circumferentially around at least a portion of the tubular clutch.

57 Claims, 7 Drawing Sheets



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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,480,387 A	1/1996	Gabriel et al.
5,505,704 A	4/1996	Pawelka et al.
5,626,566 A	5/1997	Petersen et al.
5,674,204 A	10/1997	Chanoch

FOREIGN PATENT DOCUMENTS

WO	91/14467 A1	10/1991
WO	99/38554 A1	8/1999
WO	9938554 A1	8/1999

* cited by examiner

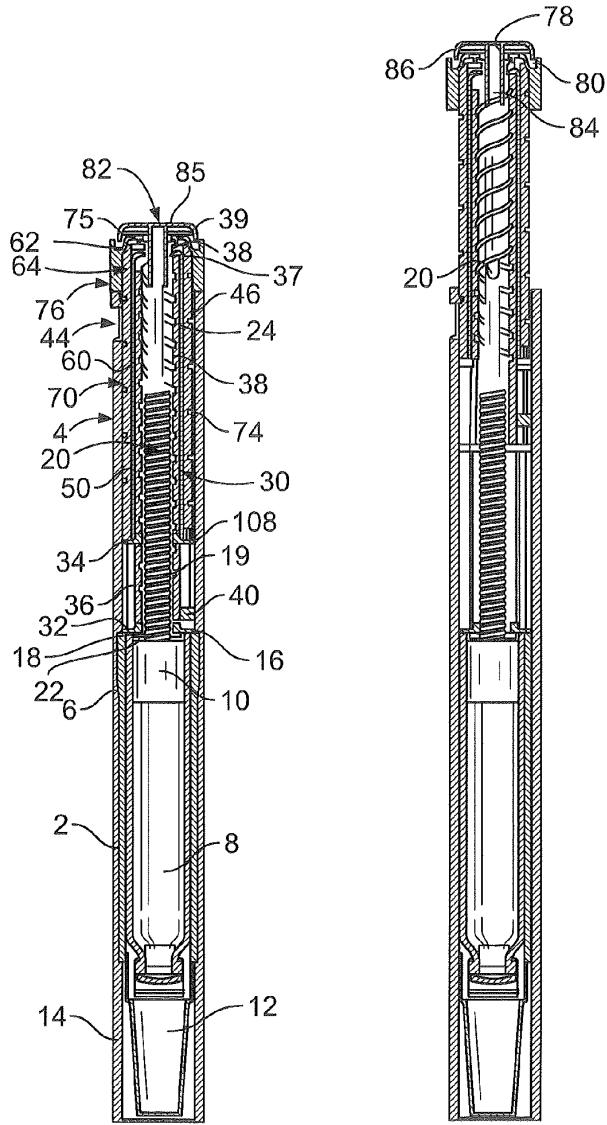


FIG. 1

FIG. 2

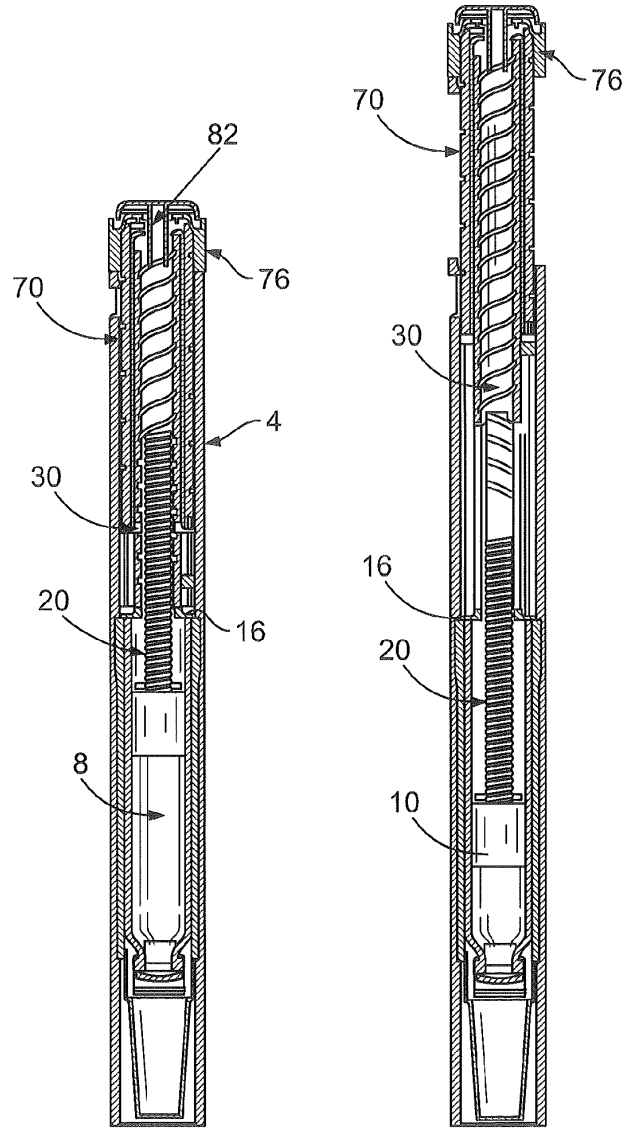


FIG. 3

FIG. 4

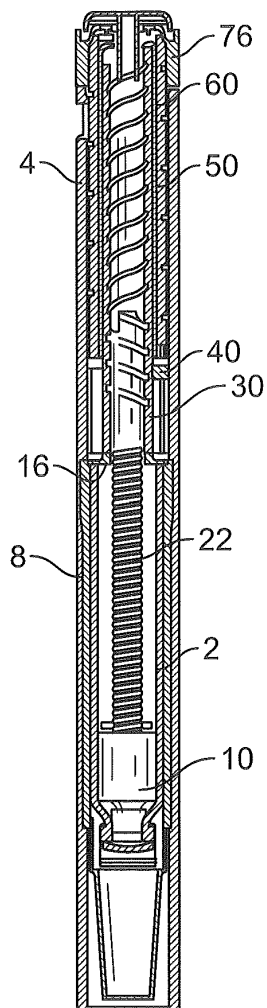


FIG. 5

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