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**Veasey et al.**

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(54) **PEN-TYPE INJECTOR**

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(65) **Prior Publication Data**  
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**Related U.S. Application Data**

(63) Continuation of application No. 12/944,544, filed on Nov. 11, 2010, now Pat. No. 8,679,069, which is a continuation of application No. 11/483,546, filed on Jul. 11, 2006, now Pat. No. 7,918,833, which is a continuation of application No. 10/790,225, filed on Mar. 2, 2004, now abandoned.

(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**  
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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);  
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(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.

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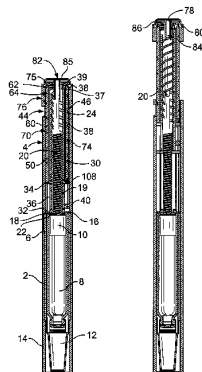
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(57) **ABSTRACT**

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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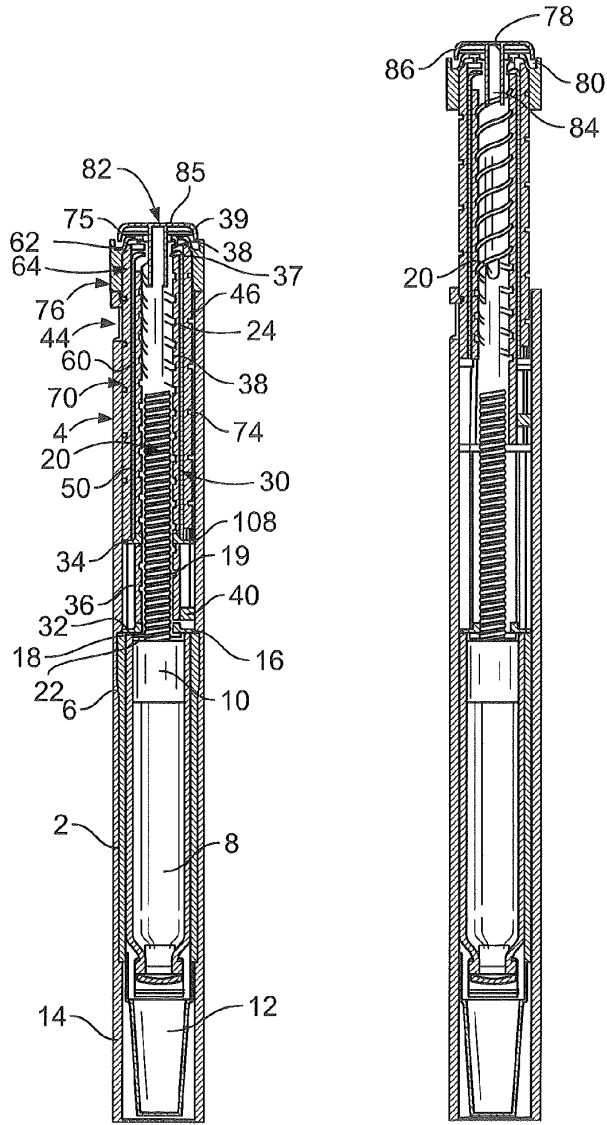


FIG. 1

FIG. 2

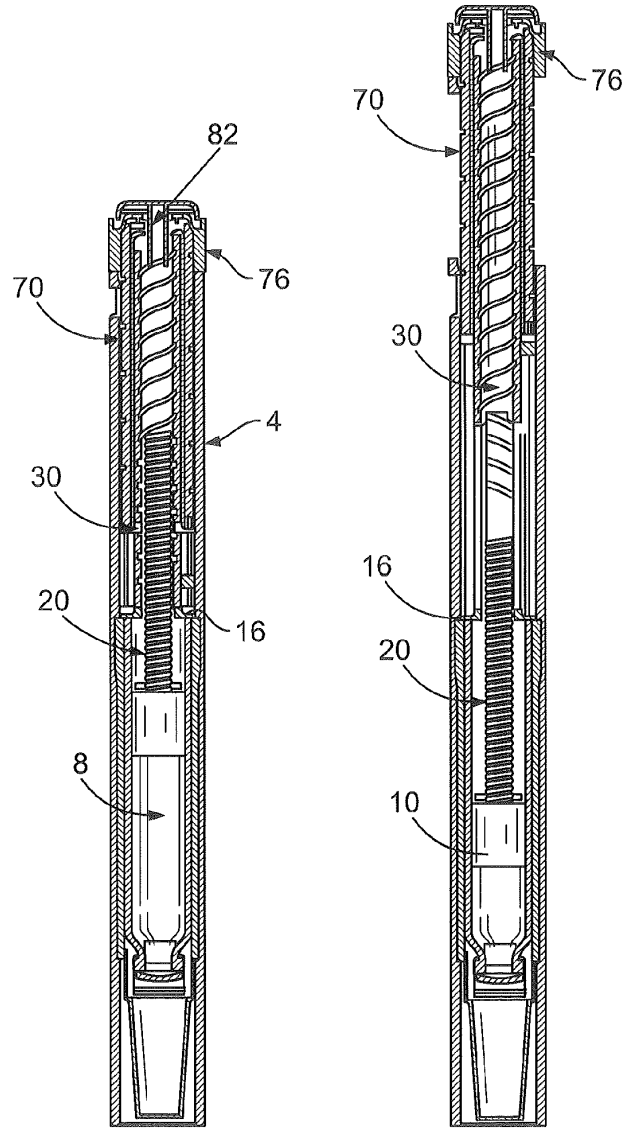


FIG. 3

FIG. 4

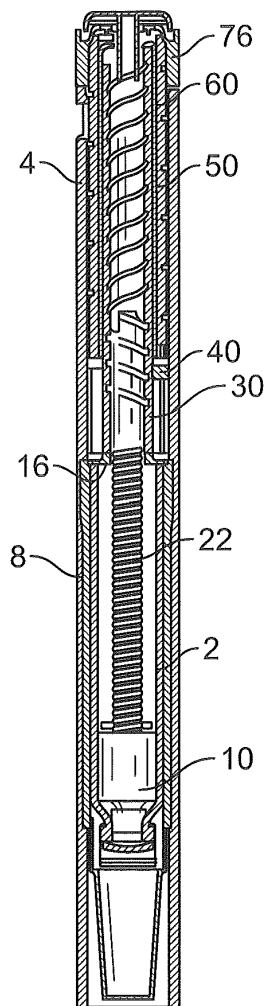


FIG. 5

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