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Veasey et al.

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(54) **DRIVE MECHANISMS SUITABLE FOR USE IN DRUG DELIVERY DEVICES**

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This patent is subject to a terminal disclaimer.

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(30) **Foreign Application Priority Data**

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CPC ***A61M 5/31551*** (2013.01); ***A61M 5/24*** (2013.01); ***A61M 5/3157*** (2013.01);
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(58) **Field of Classification Search**
CPC A61M 5/24; A61M 5/31533; A61M 5/31535; A61M 5/31536; A61M 5/31541;
(Continued)

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(57) **ABSTRACT**

A drive mechanism suitable for use in drug delivery devices is disclosed. The drive mechanism may be used with injector-type drug delivery devices, such as those permitting a user to set the delivery dose. The drive mechanism may include a housing, a dose dial sleeve, and a drive sleeve. A clutch is configured to permit rotation of the drive sleeve and the dose dial sleeve with respect to the housing when the dose dial sleeve and drive sleeve are coupled through the clutch. Conversely, when the dose dial sleeve and drive sleeve are in a de-coupled state, rotation of the dose dial sleeve with respect to the housing is permitted and rotation of the drive sleeve with respect to the housing is prevented. In the de-coupled state, axial movement of the drive sleeve
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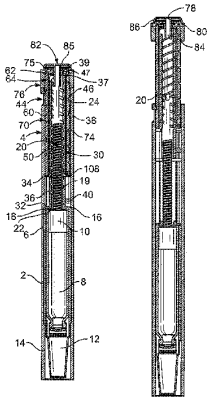

transfers force in a longitudinal direction for actuation of a drug delivery device.

19 Claims, 13 Drawing Sheets

Related U.S. Application Data

continuation of application No. 12/320,189, filed on Jan. 21, 2009, now Pat. No. 7,850,662, which is a continuation of application No. 11/520,598, filed on Sep. 14, 2006, now Pat. No. 7,935,088, which is a continuation of application No. 10/790,866, filed on Mar. 3, 2004, now abandoned.

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A61M 5/31 (2006.01)

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(58) **Field of Classification Search**
CPC A61M 5/31551; A61M 5/31565; A61M 5/31578
See application file for complete search history.

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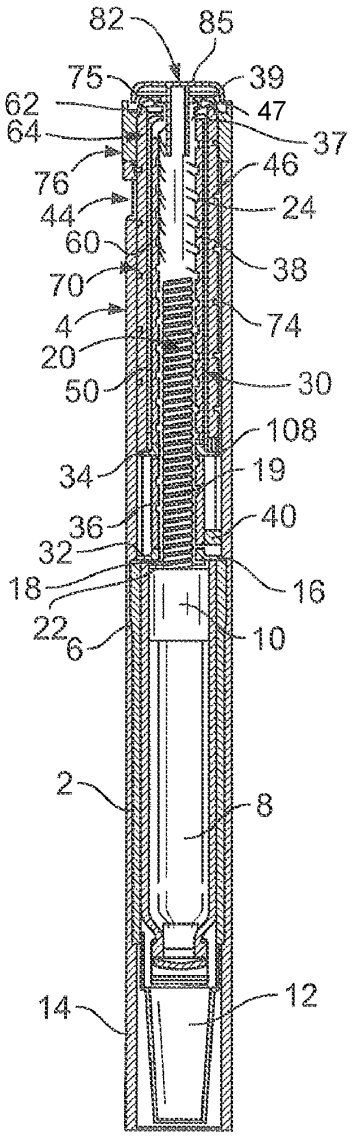

FIG. 1

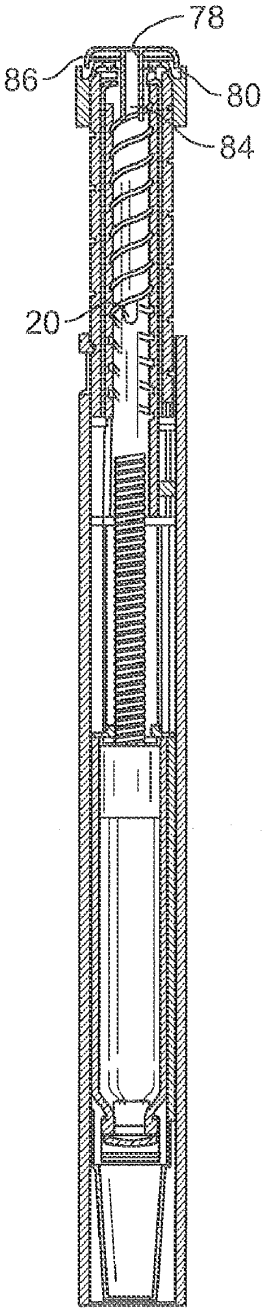

FIG. 2

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