

# Exhibit H



(12) **United States Patent**  
**Moller et al.**

(10) **Patent No.:** **US 9,457,154 B2**  
 (45) **Date of Patent:** **Oct. 4, 2016**

(54) **INJECTION DEVICE WITH AN END OF DOSE FEEDBACK MECHANISM**

5/31593; A61M 5/31535; A61M 2205/582;  
 A61M 2205/583; A61M 5/3157; A61M 5/20;  
 A61M 5/31561; A61M 5/31585; A51M

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2205/581  
 USPC ..... 604/118, 186, 189, 207-211, 232, 246, 604/260  
 See application file for complete search history.

(73) Assignee: **Novo Nordisk A/S**, Bagsvaerd (DK)

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 615 days.

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(21) Appl. No.: **11/813,389**

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(22) PCT Filed: **Jan. 20, 2006**

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§ 371 (c)(1),  
 (2), (4) Date: **Jul. 9, 2008**

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English Abstract of RU2212254 From Espacenet.

(Continued)

(65) **Prior Publication Data**

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*Assistant Examiner* — Lauren M Peng  
 (74) *Attorney, Agent, or Firm* — Wesley Nicholas

(57) **ABSTRACT**

**Related U.S. Application Data**

(60) Provisional application No. 60/647,491, filed on Jan. 27, 2005.

An injection device with a dose delivering mechanism being adapted to provide a non-visual, e.g. audible and/or tactile, feedback signal when a set dose has been at least substantially injected. A first and a second part of the injection device are adapted to perform a relative rotational movement with respect to each other. The relative rotational movement causes at least two parts of the injection device to abut or engage, and this abutment or engagement causes the non-visual feedback signal to be generated. A very distinct and precise feedback is provided as compared to prior art axial solutions because the generation of the feedback signal is initiated by the relative rotational movement. Feedback signal may be generated by a change in a rotational velocity of at least one part, e.g. by changing the pitch of a threaded portion or by engaging a non-rotating part and a rotating part, thereby causing the non-rotating part to start rotating. May alternatively be generated by building up and releasing a tension. The injection device is suitable for injecting insulin.

**Foreign Application Priority Data**

Jan. 25, 2005 (EP) ..... 05075187

**17 Claims, 14 Drawing Sheets**

(51) **Int. Cl.**

**A61M 5/315** (2006.01)  
**A61M 5/24** (2006.01)  
**A61M 5/20** (2006.01)

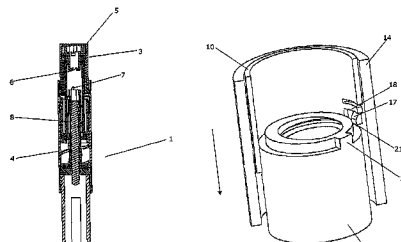
(52) **U.S. Cl.**

CPC ..... **A61M 5/3157** (2013.01); **A61M 5/3155** (2013.01); **A61M 5/20** (2013.01);

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(58) **Field of Classification Search**

CPC .. **A61M 5/24**; **A61M 5/31551**; **A61M 5/315**; **A61M 5/31541**; **A61M 5/3155**; **A61M**



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Page 2

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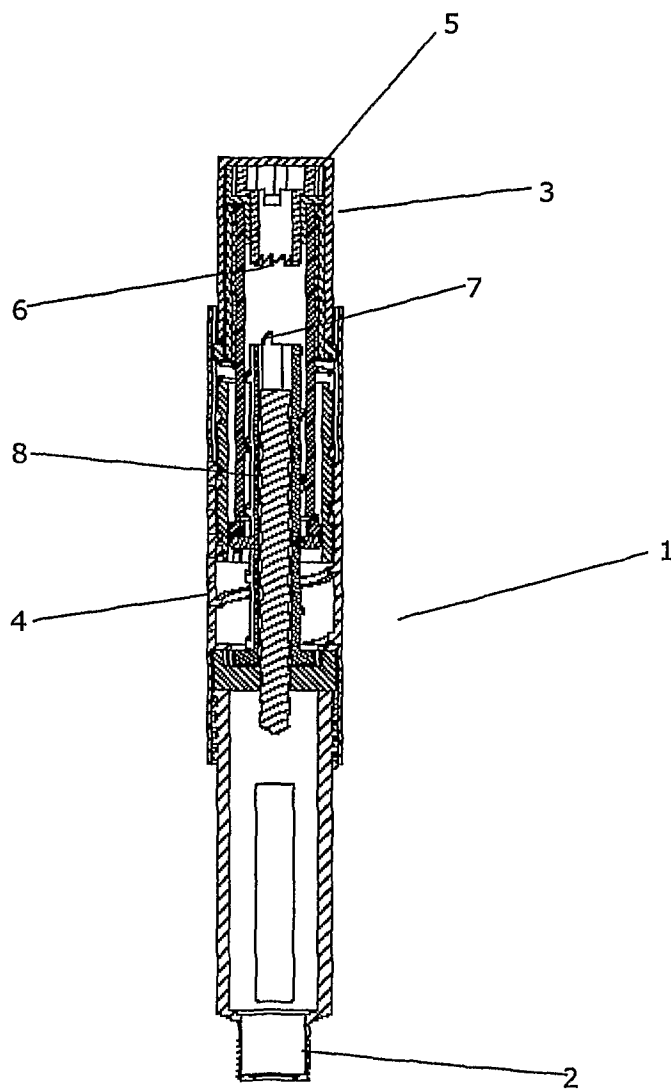


Fig. 1

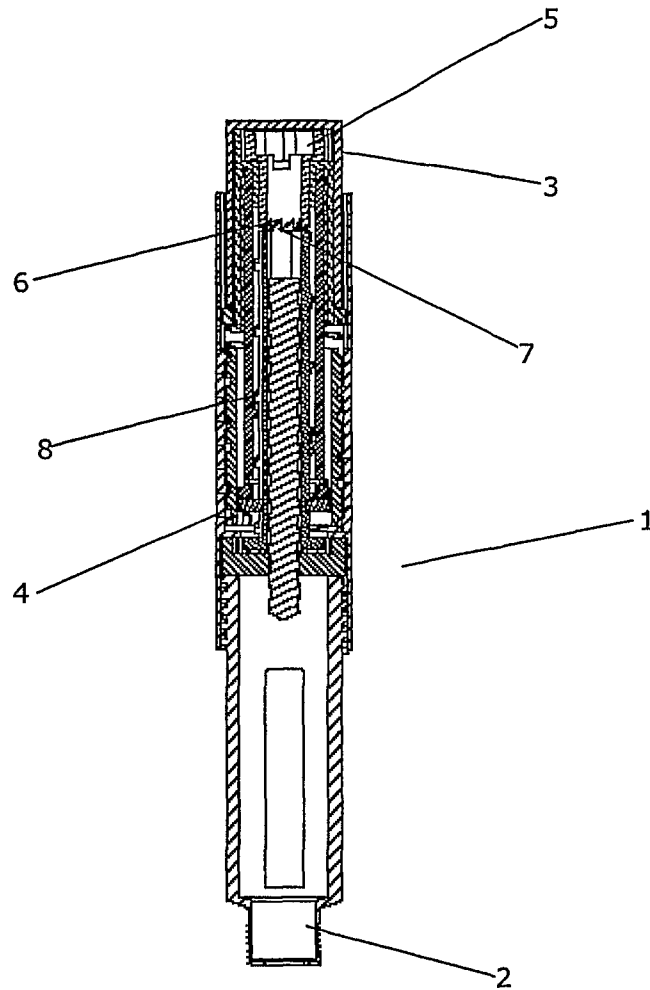


Fig. 2

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