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(54) **DIAL-DOWN MECHANISM FOR WIND-UP PEN**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,584,439 A 4/1986 Paddock
4,924,737 A 5/1990 Gummow

(Continued)

FOREIGN PATENT DOCUMENTS

AU 595723 1/1988
CN 1214292 A 4/1999

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 10/610,926 which is owned by the same assignee as U.S. Appl. No. 11/765,789, filed Jun. 20, 2007 by Moller et al.

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(57) **ABSTRACT**

The present invention relates to a dial-down mechanism for an injection device comprising a torsion spring for assisting injection of a dose of medicament from the injection device, the dial-down mechanism comprising a ratchet arm (21) engaging a ring element (10) and a reset element (30) which acts on a knob located on the periphery of the ratchet arm (21) to move the ratchet arm (21) out of engagement with the ring element (10) in order to allow the set dose to be reduced.

3 Claims, 3 Drawing Sheets

