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Yodfat et al.

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(54) **DEVICE FOR DRUG DELIVERY**

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This patent is subject to a terminal dis-
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,279,653 A 10/1966 Pflieger
4,676,122 A 6/1987 Szabo et al.

(Continued)

FOREIGN PATENT DOCUMENTS

WO WO-9723252 A1 7/1997
WO WO-2006121921 A2 11/2006

(Continued)

OTHER PUBLICATIONS

DCCT Trial Research Group, "The Effect of Intensive Treatment of
Diabetes on the Development and Progression of Long-Term Com-
plications in Insulin-Dependent Diabetes Mellitus", *N. E. J. Med.*,
329:977-986 (1993).

Powers, A. C., "Diabetes Mellitus", in *Harrison's Principles of Inter-
nal Medicine*, 16th Edition, Kasper et al., Eds., McGraw-Hill, New
York, Chapter 323, pp. 2151-2180 (2005).

(Continued)

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(57) **ABSTRACT**

Disclosed is an ambulatory therapeutic fluid delivery device.
The device includes at least one housing connectable to a
cannula, the at least one housing retaining a reservoir to hold
the therapeutic fluid. The device also includes a mechanically
powered pumping mechanism to cause delivery of at least
some of the fluid from the reservoir, and a power-transfer
mechanism to transfer manually-delivered power provided by
a user to mechanically actuate the pumping mechanism.

24 Claims, 43 Drawing Sheets

