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[Continued on next page]

(54) Title: REMOTELY CONTROLLED SUBSTANCE DELIVERY DEVICE

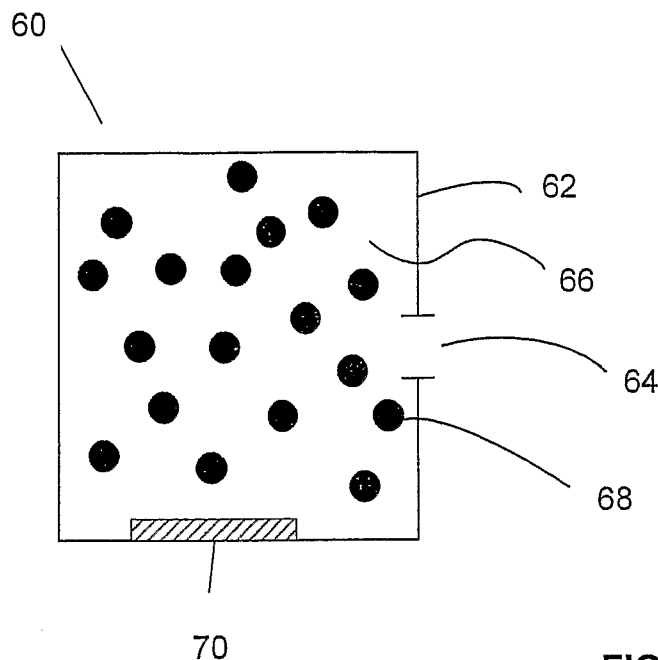


FIG. 4A

(57) Abstract: Embodiments of a system including a remotely controlled substance delivery device and associated controller are described. Methods of use and control of the device are also disclosed. According to some embodiments, a delivery device or related device may be placed in an environment in order to pump a material into the environment or into an additional fluid handling structure within the device. Exemplary environments include a body of an organism, a body of water, or an enclosed volume of a fluid. The concentration of a substance in the fluid to be delivered may be modified by a remote control signal. In selected embodiments, a magnetic field, an electric field, or electromagnetic control signal may be used.

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 604/890.1, 891.1, 891.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2005/0234431 A1 (Williams et al.) 20 October 2005 (20.10.2005), [0024], [0027], [0067], [0079]-[0080], [0083], [0102]-[0104]	1-2, 6-10, 14-15, 40, 43-51, 54, 61, 71-72, 78-90, 92-93, 101, 103-104, 106-112 ----- 3-5, 11-13, 16-39, 41-42, 52-53, 55-60, 62-70, 73-77, 91, 94-100, 102, 105
Y	US 2005/0055014 A1 (Coppeta et al.) 10 March 2005 (10.03.2005), [0035], [0037], [0044], [0083]-[0086], [0105]-[0107], [0111], [0116], [0118]	11-13, 22-28, 31-39, 41-42, 52-53, 62-63, 65-70, 74-77, 94-100, 102

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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PCT/US06/43677**C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,458,118 B1 (Lent et al.) 01 October 2002 (01.10.2002), Col. 1 line 25, Col. 3 lines 32-33	16-17, 91
Y	US 2005/0181366 (Ostermeier) 18 August 2005 (18.08.2005), [0008]-[0009], [0073]	18-20
Y	US 2003/0171257 A1 (Stirbl et al.) 11 September 2003 (11.09.2003), [0039]	21, 29-30, 70
Y	US 6,464,687 B1 (Ishikawa et al.) 15 October 2002 (15.10.2002), Col. 35 lines 35-42	55-60