

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
26 November 2009 (26.11.2009)

(10) International Publication Number  
**WO 2009/141650 A3**

(51) International Patent Classification:

A61M 5/20 (2006.01) A61M 5/32 (2006.01)  
A61M 5/24 (2006.01) A61M 5/315 (2006.01)

(21) International Application Number:

PCT/GB2009/050542

(22) International Filing Date:

20 May 2009 (20.05.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0809134.0 20 May 2008 (20.05.2008) GB  
61/071,931 27 May 2008 (27.05.2008) US

(71) Applicant (for all designated States except US): **OWEN MUMFORD LIMITED** [GB/GB]; Brook Hill, Woodstock, Oxford Oxfordshire OX20 1TU (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **WOZENCROFT, Robert, Michael** [GB/GB]; 35 Horton Hill, Epsom, Surrey KT19 8SS (GB).

(74) Agent: **NEWELL, William**; Wynne-Jones, Laine & James LLP, Essex Place, 22 Rodney Road, Cheltenham Gloucestershire GL50 1JJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

21 January 2010

(54) Title: INJECTION DEVICE HAVING A MAGNETIC COMPLETED INJECTION INDICATOR AND A NEEDLE SHEATH REMOVING MEANS

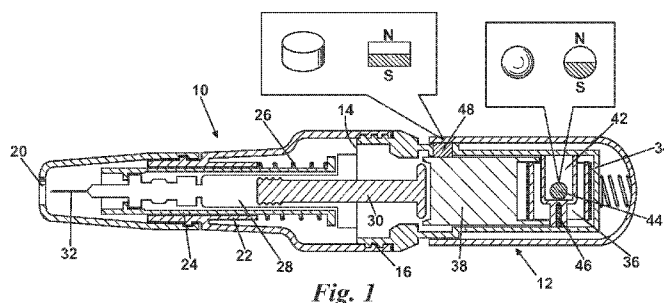


Fig. 1

(57) Abstract: An autoinjector is provided with a magnetically operated "injection complete" indicator. A moveable magnet (44) associated with the drive piston (38) is kept at one end of a recess by a soft iron keeper (46) until the drive piston reaches its final position where the moveable magnet (44) is attracted to impact a magnet (48) on the housing to generate an audible click. Also described is a spring finger (52) that slips behind the rear edge of the syringe boot (50) temporarily to hold the end of the boot well clear of the housing so that it can be gripped for removal.

WO 2009/141650 A3

# INTERNATIONAL SEARCH REPORT

International application No PCT/GB2009/050542
---

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. A61M5/20  
 ADD. A61M5/24                      A61M5/32                      A61M5/315

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 A61M

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 practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/175427 A1 (JONIENZT BERTHOLD [CH]; KOHLBRENNER PHILIPPE [CH]) 10 August 2006 (2006-08-10)	1-11
A	paragraphs [0023], [0029], [0041], [043]; figures 1-6b	12
X	WO 2006/134153 A1 (NOVO NORDISK AS [DK]; GREEN REZA [US]) 21 December 2006 (2006-12-21)	1-11
A	page 1, last paragraph - page 2, paragraph 4 page 3, paragraph 4 - page 4, paragraph 5; figure 1	12
	----- -/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*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
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

26 November 2009

Date of mailing of the international search report

04/12/2009

Name and mailing address of the ISA/  
 European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040,  
 Fax: (+31-70) 340-3016

Authorized officer  
  
 Björklund, Andreas

## INTERNATIONAL SEARCH REPORT

 International application No  
 PCT/GB2009/050542

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/020983 A1 (SCHREIJAG KARL [DE]; KIEHN RALF [DE]) 27 January 2005 (2005-01-27) paragraphs [0037], [0046] - paragraph [0054]; figures 1,5-6	1-2
A	DE 10 2004 052219 A1 (TECPHARMA LICENSING AG [CH]) 4 May 2006 (2006-05-04) paragraphs [0007], [0026]; figures 1a-2d	1-12
X,P	WO 2008/083875 A1 (SHL MEDICAL AB [SE]; BARTHA ISTVAN [SE]; KRONESTEDT VICTOR [SE]) 17 July 2008 (2008-07-17) paragraph [0042] - paragraph [0044]; figures 1-4	1-5,9
X	US 3 880 163 A (RITTERSKAMP JACK H) 29 April 1975 (1975-04-29)	13
Y	figures 5-6 column 4, lines 31-37 column 6, lines 11-26	14-16
X	US 6 203 530 B1 (STEWART SR EDWARD [US]) 20 March 2001 (2001-03-20) column 6, lines 14-24; figures 1-4	13-16
X	WO 99/22792 A1 (GRECO ERMANNO [IT]) 14 May 1999 (1999-05-14) page 2, line 19 - page 3, line 18; figures 1-4	13-16
X	US 6 221 044 B1 (GRECO ERMANNO [IT]) 24 April 2001 (2001-04-24) column 3, lines 22-30; figures 9-12	13-16
X	WO 00/24441 A1 (PHARMACIA & UPJOHN AB [SE]; BERGENS THOMAS [SE]; AAMARK MIKAEL [SE]) 4 May 2000 (2000-05-04)	13
Y	page 15, lines 19-30; figures 1A-1D page 20, lines 8-11; figures 3A-3D	14-16

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2009/050542

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-12

The subject-matter of claims 1-12 essentially define an injection device with a housing, a syringe and a magnetically-operated indicator for generating an indication of a completed injection.

---

2. claims: 13-16

The subject-matter of claims 13-16 essentially define an injection device with a housing where a syringe is movable forward against spring bias prior to injection to cause a portion of a needle sheath to project from the housing.

---

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2009/050542

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006175427 A1	10-08-2006	WO 2005004956 A1 DE 10330984 A1 JP 2007506471 T	20-01-2005 03-02-2005 22-03-2007
WO 2006134153 A1	21-12-2006	JP 2008543402 T US 2009131875 A1	04-12-2008 21-05-2009
US 2005020983 A1	27-01-2005	DE 10326306 A1	30-12-2004
DE 102004052219 A1	04-05-2006	NONE	
WO 2008083875 A1	17-07-2008	NONE	
US 3880163 A	29-04-1975	NONE	
US 6203530 B1	20-03-2001	NONE	
WO 9922792 A1	14-05-1999	AU 4883797 A	24-05-1999
US 6221044 B1	24-04-2001	AT 213961 T AU 2403997 A DE 69710884 D1 DE 69710884 T2 EP 0901390 A2 WO 9741907 A2 IT RM960297 A1	15-03-2002 26-11-1997 11-04-2002 31-10-2002 17-03-1999 13-11-1997 03-11-1997
WO 0024441 A1	04-05-2000	AT 285805 T AU 1589300 A DE 69922992 D1 DE 69922992 T2 EP 1124601 A1 ES 2234321 T3 JP 2002528182 T TW 445156 B	15-01-2005 15-05-2000 03-02-2005 15-12-2005 22-08-2001 16-06-2005 03-09-2002 11-07-2001