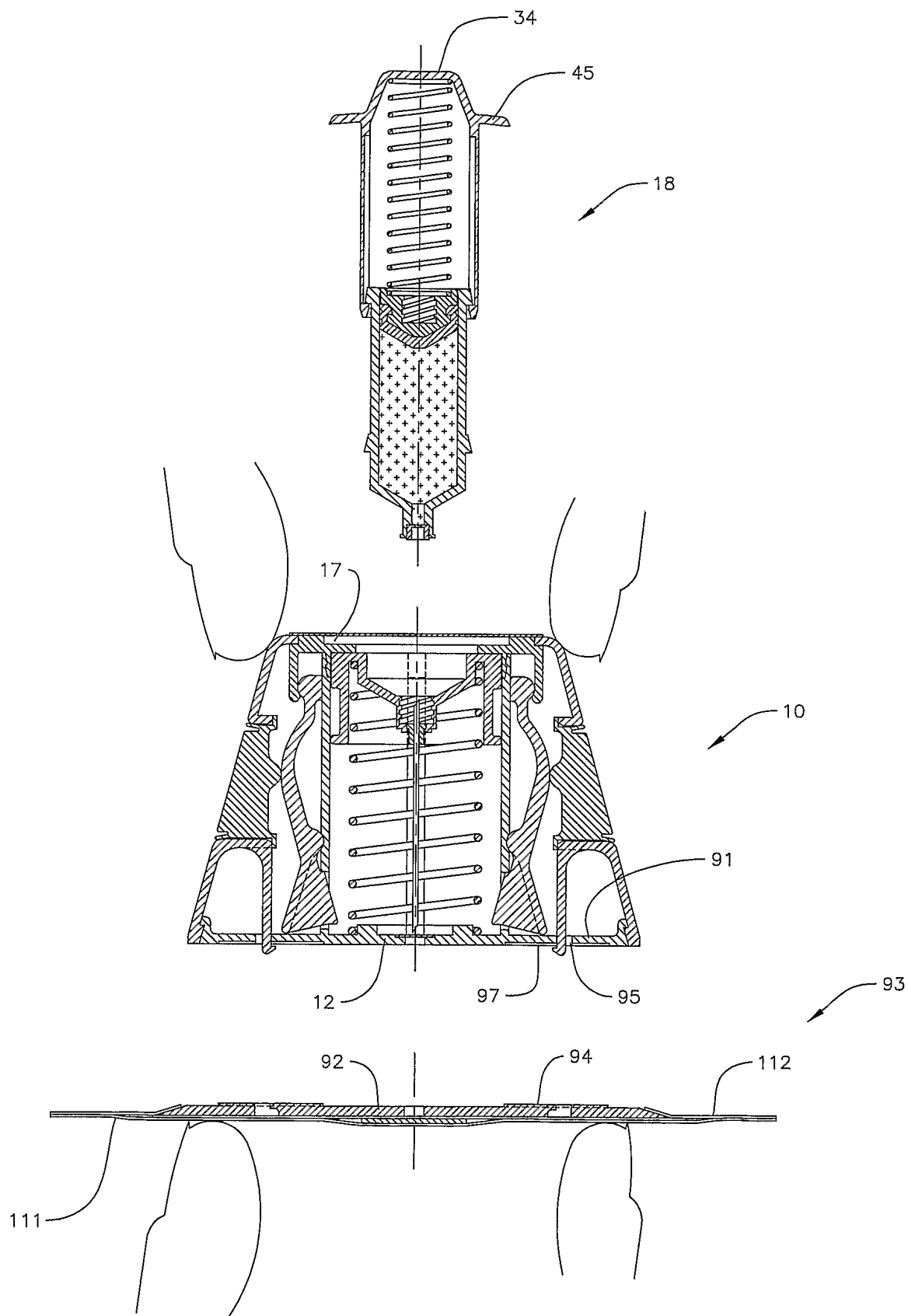


15 Documents

Publication numbers	Title	Current assignees
WO200579440 A2	Injection device for administering a vaccine	CHILDRENS HOSPITAL MEDICAL CENTER
FR2511596 A1	Pneumatically actuated syringe assembly for veterinary injections - safeguards animal with one shot limit valve and spring retraction of needle	VINELAND LAB
WO2004101025 A2	Needle free hypodermic injector and ampule for intradermal, subcutaneous and intramuscular injection	INTRAVACC
FR2276839 A1	Automatic injection appts. for small animals - with pneumatic jack to move syringe body once needle has penetrated skin	LISSOT JEAN
FR2690839 A1	Appts. for vaccinating rabbits against entero-oxaemia - comprises jet injection device connected to vaccine reservoir	RHONE MERIEUX
KR101200374 B1	Automatic continuous injection device for fishes capable of automatically and accurately controlling vaccination time and amount	REPUBLIC OF KOREA
EP2489385 A1	Auto-injector	SANOFI AVENTIS
EP2489384 A1	Auto-injector	SANOFI AVENTIS
EP2489387 A1	Auto-injector	SANOFI AVENTIS
EP2489386 A1	Auto-injector	SANOFI AVENTIS
US20030088207 A1	Jet injector with hand piece	PULSE NEEDLEFREE SYSTEMS
EP3532134 A1	Safety-enhanced needle -free injector	MIRACLE MAN PTE
CN201105061U Y	Non needle head injection syringe for animals	SHENYANG AEROSPACE XINGUANG CRYOGENIC VESSEL MANUFACTURE
EP-710130 A1	Needle -less injector	ZOGENIX
EP1139728 A1	Concurrent in ovo injection and detection method and apparatus	EMBREX, ...

Images



B2 2010-03-02 US7670314



US20070293826	A1	2007-12-20	US20070293826				
US20070276320	A1	2007-11-29	US20070276320				
US20070230901	A1	2007-10-04	US20070230901				
WO2005/079440	A3	2005-11-17	WO200579440				
WO2005/079441	A3	2005-10-20	WO200579441				
WO2005/079440	A2	2005-09-01	WO200579440				
WO2005/079441	A2	2005-09-01	WO200579441				

Abstract

(WO2005/079441)

A manually-powered **injection** device (10) that self-administers a painless **injection**. The **injection** device provides a method for substantially painless injections of **vaccine** and other medication into a patient that does not require the use of an anesthetic, that does not require the medical personnel to spend a substantial amount of time performing the **injection** procedure, that is relatively simple and inexpensive to perform and operate, and that provides a relatively high degree of safety for both the medical personnel and for the patient. The **injection needle** (40) can have an outside diameter greater than 0.10 mm and less than about 0.38 mm. The **vaccine** or other medicament can be injected painlessly through the **needle** and into the patient at a substantially constant volumetric flow rate of about 0.05 $\mu\text{L/s}$ to about 50 $\mu\text{L/s}$, typically over a 3- to 5-minute period of time. The **injection** device is configured for easy handling, and is manually-powered by the use of the hand or fingers of the medical technician, patient or other person.

Inventors

WALL ERIC JAMES

WARD JARVIS

NESBITT CHRISTOPHER J

NESBITT DANIEL FREDERICK

Latest standardized assignees - inventors removed

CHILDRENS HOSPITAL MEDICAL CENTER

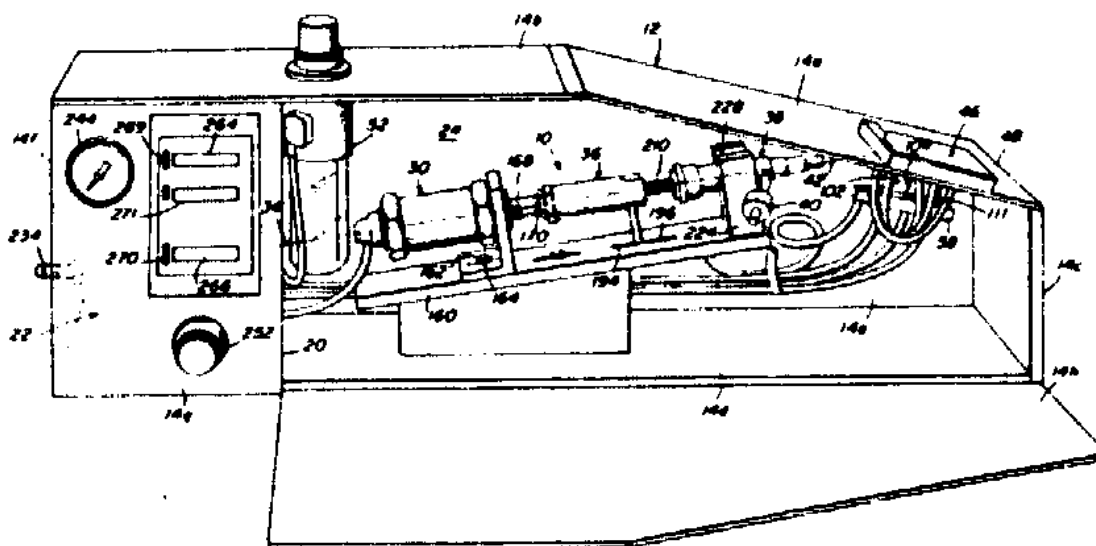
Family 2/15 - FAMPAT - ©Questel

Title

(FR2511596)

Pneumatically actuated syringe assembly for veterinary injections - safeguards animal with one shot limit valve and **spring** retraction of **needle**

Images



Publication numbers with kind code & date

FR2511596

A1 1983-02-25 FR2511596



Abstract

(FR2511596)

A pneumatically actuated veterinary syringe for injecting a dose of liq. into the body of an animal. The syringe is part of a portable assembly comprising a syringe with hollow **injection needle** from a chamber supplied with **injection** liq. when a syringe valve rod is displaced by its coupling to a **pneumatic** cylinder. The cylinder contains a **piston** with automatic **spring** reset following displacement by compressed air. The assembly comprises a **pneumatic** switch which is **trigger**-operated when the **needle** aperture housing is pressed against the animal. The **trigger** switch puts regulated air supply **pressure** on to the entry port of a 'one-shot' metering valve. This is a **pneumatic** operated valve which delivers a dose of compressed air which is sufficient to displace the **piston** one only. The air line between **trigger** switch and one-shot valve pref. branches into a counter which registers batch count and overall period count. Pref. the one-shot valve can be by-passed by a test line incorporating a **pneumatic** on-off switch. The assembly is compact and can be hand-held. Automatic retraction of the syringe ensures that the **needle** does not remain in the animal if pneumatics fail. The 'one-shot' device prevents inadvertent double-dosing. The assembly is inexpensive to make and easy to use.

Inventors

MATHESON DONALD DEE

SANDERS WILEY ADAMS

Latest standardized assignees - inventors removed

VINELAND LAB

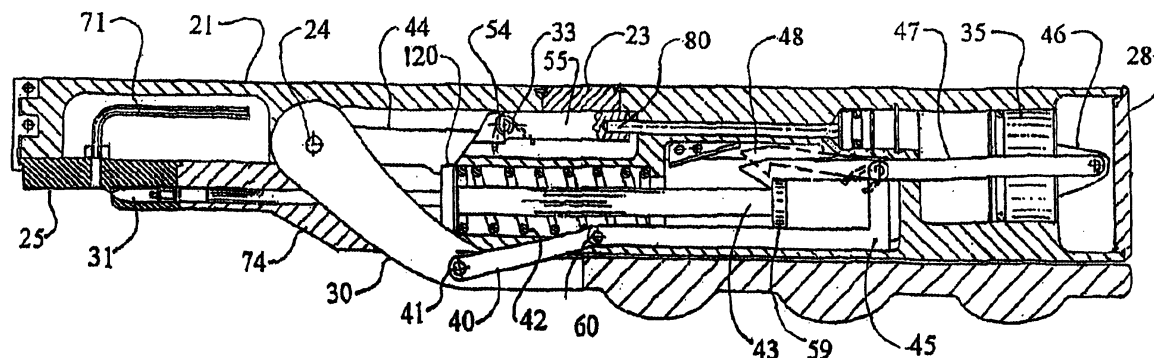
Family 3/15 - FAMPAT - ©Questel

Title

(WO2004101025)

Needle free hypodermic injector and ampule for intradermal, subcutaneous and intramuscular **injection**

Images



Publication numbers with kind code & date

US20070167907	A1	2007-07-19	US20070167907
JP2007518460	A	2007-07-12	JP2007518460
US6939319	B1	2005-09-06	US6939319
WO2004/101025	A3	2005-06-09	WO2004101025
WO2004/101025	A2	2004-11-25	WO2004101025



Abstract

(WO2004/101025)

A **needle** free hypodermic injector (20) comprising a hand manipulatable elongate housing (21), an impact impulse **injection** mechanism (30) within the housing, a suction generating means (35) within the housing and cooperable with the impact impulse **injection** mechanism (30), a safety interlock mechanism (36), at least one medicament containing ampule (25) cooperable with the impact impulse **injection** mechanism and the suction generating means and having a jet orifice (66) through which medicament is injectable through a skin surface in response to an impulse placed on the medicament by the impact impulse **injection** mechanism, and means to receive and hold the ampule on the injector in registration with the impact impulse **injection** mechanism and in communication with the suction generating means; whereby the injector is adapted to expel the medicament from the ampule in a jet stream of sufficient velocity to penetrate skin tissue held against the orifice by the suction generating means and to deposit the medicament intradermally, subcutaneously or intramuscularly based on the position and angle of the jet orifice.

Inventors

DESLIERRES JOHN
ANSTEAD CONRAD
BRANT ROBERT W

Latest standardized assignees - inventors removed

INTRAVACC

Family 4/15 - FAMPAT - ©Questel

Title

(FR2276839)

Automatic **injection** appts. for small animals - with **pneumatic** jack to move syringe body once **needle** has penetrated skin

Publication numbers with kind code & date

FR2276839	B1	1978-10-27	FR2276839
FR2276839	A1	1976-01-30	FR2276839



Abstract

(FR2276839)

Automatic appts. for making injections, partic. into small animals, comprises a rigid frame with a support for a compressed air jack; this moves an arm which carries two syringe bodies. The front end of the jack has a rod fixed in the part of the frame; it carries a return **spring**; a screw, at the other end, adjusts a movable stop inside the jack to limit its course. The syringe support has a bent arm which holds the rod of the **piston**; the **piston** rod screws into the part so that the posn. of the **piston** in the syringe can be adjusted. The rod is provided with a return **spring**. The front of the frame ahas an inclined

surface with two identical stages; these are shaped to suit the structure of the animal to be treated. In the case of chickens a groove is provided to receive the neck with transverse hollows to take the fingers of the operator while he immobilises the chicken in the desired posn. The stages pivot around a horizontal axis and the lower ends come into contact with a detector when the animal is in posn. and set off the **injection** process cycle; the stages are traversed by holes for the passage of the needles. The **piston** remains immobile with respect to the frame during the whole of the **injection** while the body of the syringe is immobile during the approach when the **needle** penetrates the skin of the animal being treated; the body of the syringe then moves a distance corresp. to the quantity of liq. to be injected. As the syringe only moves a short distance, it is easy to prevent any vibrations by means of a short slide bar.

Inventors

KANIECKI JANECK

Latest standardized assignees - inventors removed

LISSOT JEAN

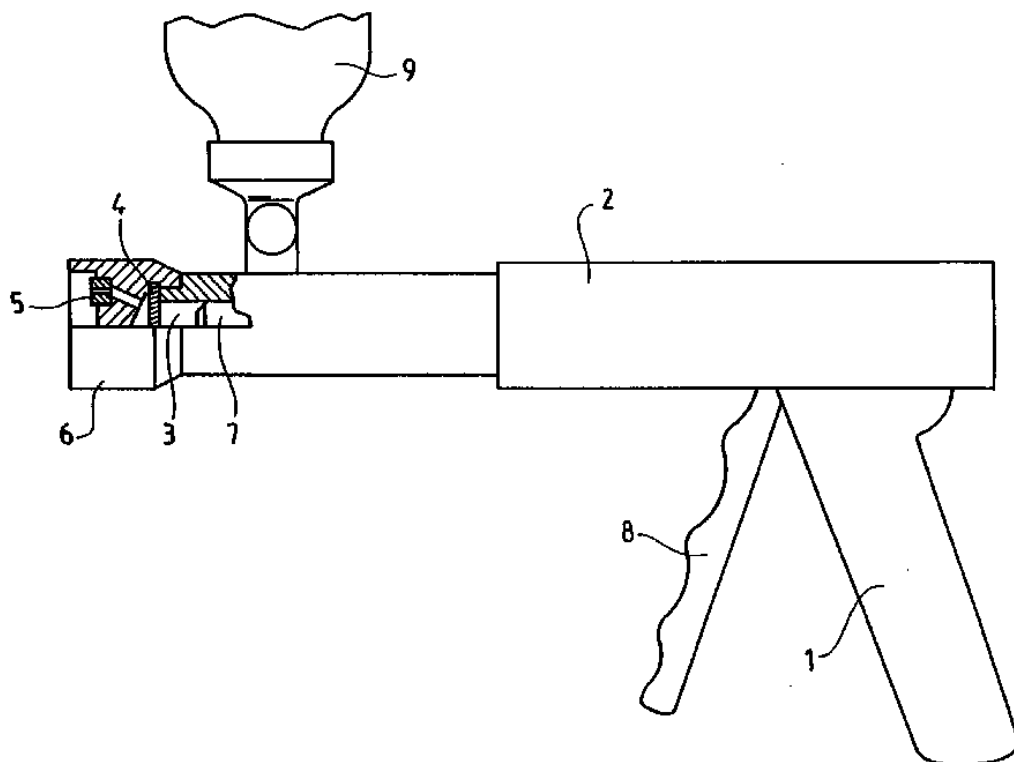
Family 5/15 - FAMPAT - ©Questel

Title

(FR2690839)

Appts. for vaccinating rabbits against entero-oxaemia - comprises jet **injection** device connected to **vaccine** reservoir

Images



Publication numbers with kind code & date

PT101264	B	1999-10-29	PT-101264
ES2104490	B1	1998-03-01	ES2104490
ES2104490	A1	1997-10-01	ES2104490
IT1271446	B	1997-05-28	IT1271446
FR2690839	B1	1996-07-12	FR2690839
PT101264	A	1994-06-30	PT-101264
FR2690839	A1	1993-11-12	FR2690839
ITMI930826	A1	1993-11-07	IT93MI0826
ITMI930826	D0	1993-04-27	IT93MI0826



Abstract

(FR2690839)

Assembly for parenteral vaccination of rabbit against enterotoxaemia (using a **vaccine** based on Clostridium spiroforme anatoxin) comprises an apparatus for jet admin., arranged for intradermal distribution, at one or more times, of individual doses of 0.2 ml **vaccine**. The appts. is connected to a feed system contg. the **vaccine** which (aa) includes an oily adjuvant and (b) provides a protective titre in the specified dose. Also new is a **vaccine** contg. the specified anatoxin in an oil adjuvant and having a protective titre in a 0.2ml dose. Pref. the appts. for admin. has a head with multiple ducts for simultaneous delivery of many jets which operate at a **pressure** of 90-100 bars. USE/ADVANTAGE - The method is used to deliver **vaccine** across the pinna of the ear. It makes possible effective and economical vaccination of rabbits on a large scale (300 animals can be vaccinated per hr.) with a very high probability of imparting protection.

Inventors

BANCILLON BERNARD

FOURNIER DOMINIQUE-FRANCOIS-ED

MILWARD FRANCIS WILLIAM

Latest standardized assignees - inventors removed

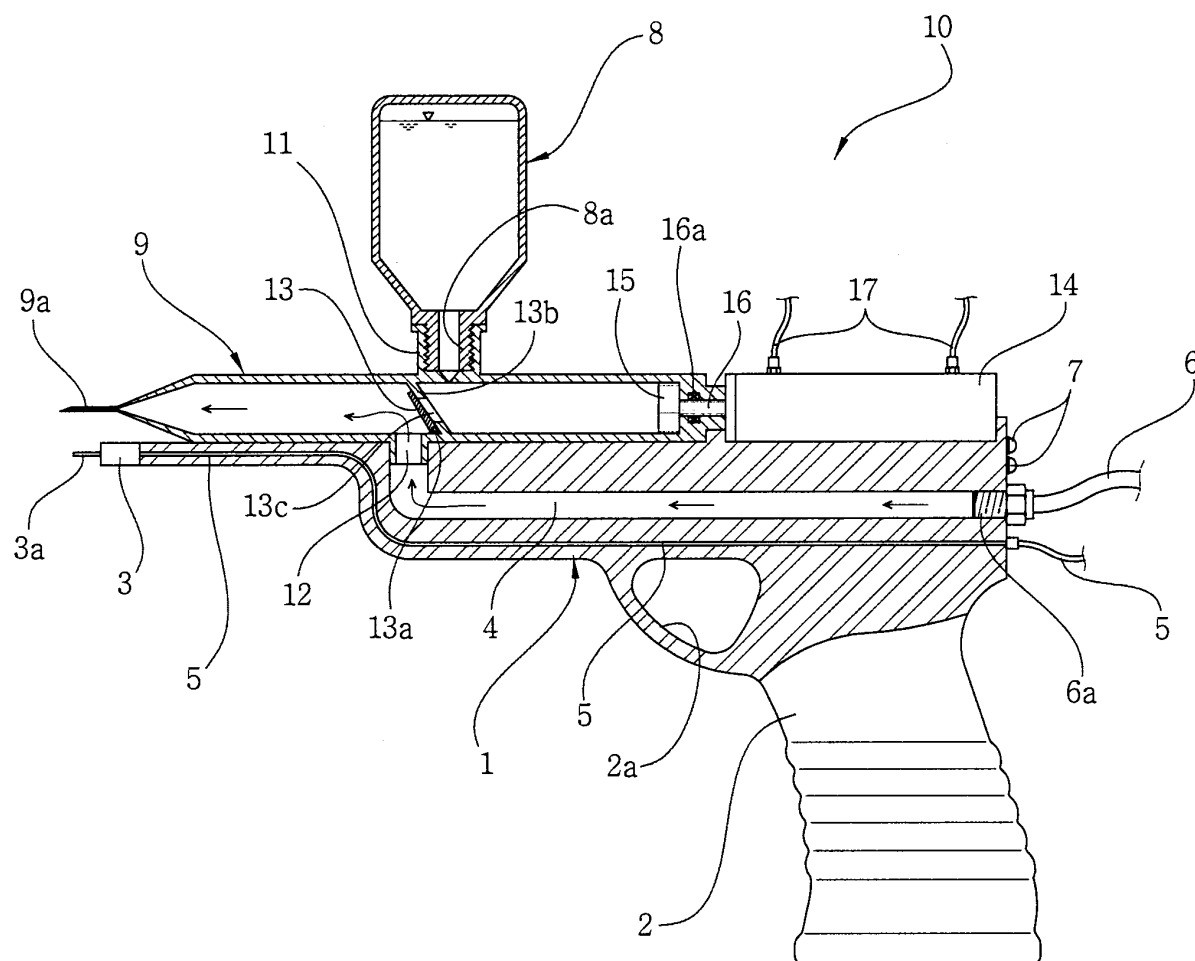
RHONE MERIEUX

Family 6/15 - FAMPAT - ©Questel

Title

(KR101200374)

Automatic continuous **injection** device for fishes capable of automatically and accurately controlling vaccination time and amount

Images**Publication numbers with kind code & date**

KR101200374

B1 2012-11-14 KR101200374



Abstract

(KR101200374)

PURPOSE: An automatic continuous **injection** device for fishes is provided to minimize the waste of unnecessary **vaccine** and to efficiently perform vaccination of fishes.

CONSTITUTION: An automatic continuous **injection** device for fishes comprises a gun type device body(1) with a **handle**, a syringe body(9) which is mounted on the top surface of the device body, and a **pneumatic** cylinder(14) which is mounted on the top surface of the device body in the rear side of the syringe body. A **vaccine** inflow port(12) is formed in the bottom of the syringe body. A container mounting port(11) is formed in the upper part of the syringe body. The **vaccine** inflow port is connected to the exit of a **vaccine injection** path. The entrance of the **vaccine injection** path is connected to a **vaccine injection** hose.

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Inventors

KWON, MOON KYEONG

PARK MYUNG AE

SA, JUNG-SU

LEE, DONG-KIL

AHN HUI CHUN

IM HAN GU

Latest standardized assignees - inventors removed

REPUBLIC OF KOREA

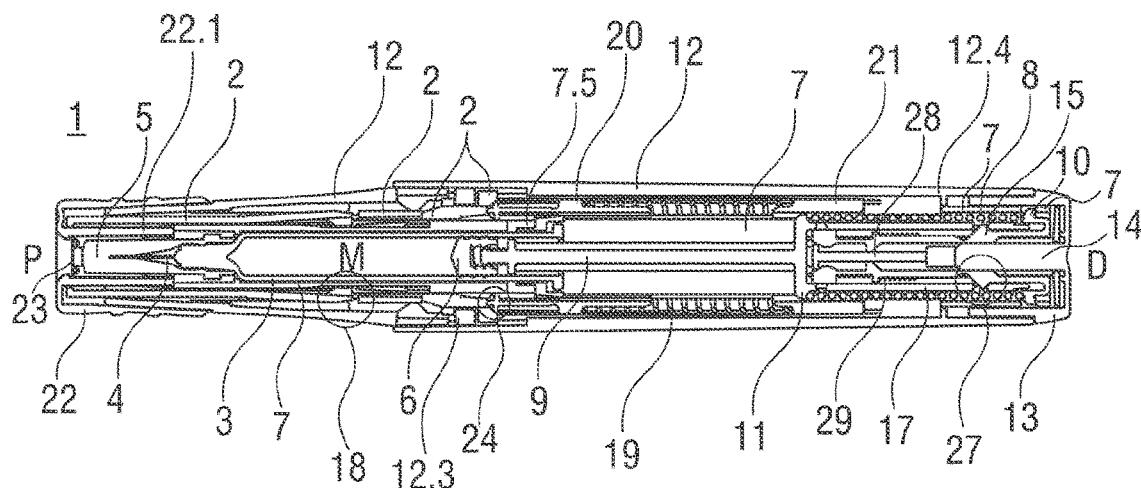
Family 7/15 - FAMPAT - ©Questel

Title

(EP2489385)

Auto-injector

Images



Publication numbers with kind code & date

US20180169352	A1	2018-06-21	US20180169352
US9925344	B2	2018-03-27	US9925344
TWI597084	B	2017-09-01	TWI597084
IL227759	B	2017-06-29	IL-227759
RU2607926	C2	2017-01-11	RU2607926
JP6054312	B2	2016-12-09	JP6054312
BR112013020665	A2	2016-10-18	BR112013020665
MX338740	B	2016-04-29	MX-338740



AU2012217082	B2	2016-04-28	AU2012217082				
CN103492002	B	2016-04-06	CN103492002B				
HUE024991	T2	2016-01-28	HUE024991				
IN6209/CHENP/2013	A	2015-11-20	IN2013CN06209				
HK1188162	A1	2015-10-09	HK1188162				
DK2675505	T3	2015-07-06	DK2675505T				
EP2675505	B1	2015-04-01	EP2675505				
RU2013142356	A	2015-03-27	RU2013142356				
NZ614211	A	2014-12-24	NZ-614211				
ZA201305868	B	2014-04-30	ZA201305868				
JP2014508000	A	2014-04-03	JP2014508000				
KR20140015382	A	2014-02-06	KR20140015382				
BR112013020665	A1	2014-01-07	BR112013020665				
CN103492002	A	2014-01-01	CN103492002				
EP2675505	A1	2013-12-25	EP2675505				
US20130317430	A1	2013-11-28	US20130317430				
IL227759	A	2013-09-30	IL-227759				
SG192636	A1	2013-09-30	SG-192636				
AR085260	A1	2013-09-18	AR--85260				
AU2012217082	A1	2013-09-05	AU2012217082				
MX2013009167	A	2013-08-29	MX2013009167				
TW201247269	A	2012-12-01	TW201247269				
CA2826331	A1	2012-08-23	CA2826331				
WO2012/110578	A1	2012-08-23	WO2012/110578				
EP2489385	A1	2012-08-22	EP2489385				

Abstract

(EP2489385)

The invention refers to an auto-injector (1) for administering a dose of a liquid medicament (M), comprising: - a tubular chassis (2) telescopic in a tubular case (12), - a carrier subassembly comprising a tubular carrier (7) slidably arranged relative to the chassis (2) inside the case (12), the carrier (7) adapted to contain a syringe (3) with a hollow **injection needle** (4), a drive **spring** (8) and a plunger (9) for forwarding load of the drive **spring** (8) to a stopper (6) of the syringe (3), wherein the syringe (3) is lockable for joint axial translation with the carrier (7), - a control **spring** (19) arranged around the carrier (7) for translating the carrier (7) in a proximal direction (P) for insertion of the **needle** (4) through the chassis (2) into an **injection** site, wherein the control **spring** (19) is arranged to bias the case (12) against the chassis (2) in a distal direction (D) so as to extend the chassis (2) out of a proximal end (P) of the case (12), wherein an insertion depth of the **needle** (4) is defined by the carrier (7) abutting the chassis (2) in a predefined position, wherein the case (12) is arranged to release or allow release of the control **spring** (19) for **needle** insertion on translation of the case (12) in the proximal direction (P) relative to the chassis (2) against the bias into an advanced position.

Inventors

BRERETON SIMON FRANCIS

KEMP THOMAS

BURNELL ROSIE

EKMAN MATTHEW

Latest standardized assignees - inventors removed

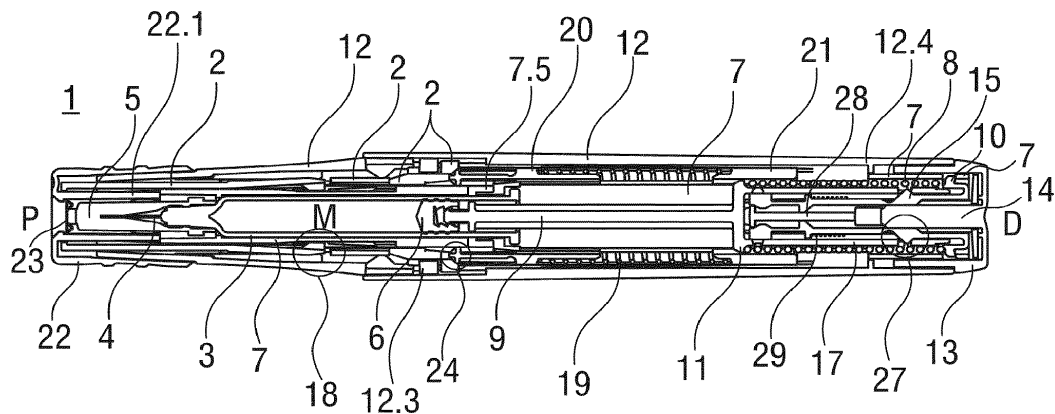
SANOFI AVENTIS

Family 8/15 - FAMPAT - ©Questel

Title

(EP2489384)

Images



US10413668	B2	2019-09-17	US10413668
US20170216526	A1	2017-08-03	US20170216526
US9604003	B2	2017-03-28	US9604003
RU2607529	C2	2017-01-10	RU2607529
IL227761	B	2016-12-29	IL-227761
JP6054311	B2	2016-12-09	JP6054311
BR112013020613	A2	2016-10-25	BR112013020613
TWI544940	B	2016-08-11	TWI544940
AU2012217081	B2	2016-03-03	AU2012217081
HK1188157	A1	2016-01-22	HK1188157
CN103476442	B	2015-08-19	CN103476442B
DK2675502	T3	2015-07-13	DK2675502T
EP2675502	B1	2015-04-08	EP2675502
RU2013142343	A	2015-03-27	RU2013142343
NZ614084	A	2014-12-24	NZ-614084
IN6207/CHENP/2013	A	2014-07-18	IN2013CN06207
BR112013020613	A1	2014-05-13	BR112013020613
ZA201305867	B	2014-04-30	ZA201305867
JP2014507999	A	2014-04-03	JP2014507999
KR20140015380	A	2014-02-06	KR20140015380
CN103476442	A	2013-12-25	CN103476442
EP2675502	A1	2013-12-25	EP2675502
US20130324924	A1	2013-12-05	US20130324924
IL227761	A	2013-09-30	IL-227761
SG192635	A1	2013-09-30	SG-192635
AR085259	A1	2013-09-18	AR--85259
AU2012217081	A1	2013-09-05	AU2012217081
MX2013009168	A	2013-08-29	MX2013009168
TW201247268	A	2012-12-01	TW201247268
CA2826327	A1	2012-08-23	CA2826327
WO2012/110577	A1	2012-08-23	WO2012110577



EP2489384

A1 2012-08-22 EP2489384

Abstract

(EP2489384)

The invention relates to an auto-injector (1) for administering a dose of a liquid medicament (M), comprising: - an elongate case (12) arranged to be held by a user, - a tubular chassis (2) telescopic in the case (12) and biased against the case (12) so as to protrude from the case (12), - a syringe (3) with a hollow **injection needle** (4), a drive **spring** (8) and a plunger (9) for forwarding load of the drive **spring** (8) to a stopper (6) of the syringe (3), - a **trigger** button (13) which is initially abutted against the case (12) thus preventing actuation, wherein the chassis (2) is arranged to translate into the case (12) against the bias when pressed against an **injection** site, wherein the **trigger** button (13) is at least initially coupled to the chassis (2) in such a manner that the **trigger** button (13) emerges from the case (12) when the chassis (2) is being pressed against the **injection** site so as to allow actuation by being translated towards the case (12) for starting an **injection** cycle.

Inventors

BRERETON SIMON FRANCIS

KEMP THOMAS

BURNELL ROSIE

EKMAN MATTHEW

Latest standardized assignees - inventors removed

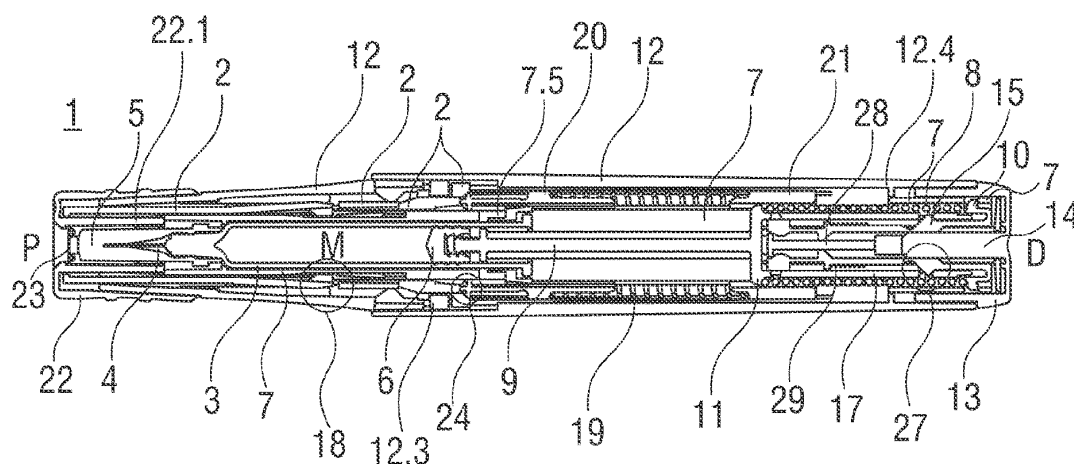
SANOFI AVENTIS

Family 9/15 - FAMPAT - ©Questel

Title

(EP2489387)

Auto-injector

Images**Publication numbers with kind code & date**

US10376642	B2	2019-08-13	US10376642
US20180001026	A1	2018-01-04	US20180001026
US9789255	B2	2017-10-17	US9789255
JP6081927	B2	2017-01-27	JP6081927
TWI566799	B	2017-01-21	TWI566799
RU2607939	C2	2017-01-11	RU2607939
BR112013020670	A2	2016-10-18	BR112013020670
AU2012217084	B2	2016-10-13	AU2012217084
MX338986	B	2016-05-09	MX-338986



HK1188159	A1	2016-02-19	HK1188159				
CN103476444	B	2016-01-20	CN103476444B				
NZ614208	A	2015-07-31	NZ-614208				
DK2675503	T3	2015-07-20	DK2675503T				
EP2675503	B1	2015-04-15	EP2675503				
RU2013142353	A	2015-03-27	RU2013142353				
IN6461/CHENP/2013	A	2014-08-01	IN2013CN06461				
ZA201305933	B	2014-04-30	ZA201305933				
JP2014508002	A	2014-04-03	JP2014508002				
KR20140008402	A	2014-01-21	KR20140008402				
BR112013020670	A1	2014-01-07	BR112013020670				
CN103476444	A	2013-12-25	CN103476444				
EP2675503	A1	2013-12-25	EP2675503				
US20130317427	A1	2013-11-28	US20130317427				
IL227787	A	2013-09-30	IL-227787				
SG192638	A1	2013-09-30	SG-192638				
AR085262	A1	2013-09-18	AR--85262				
AU2012217084	A1	2013-09-05	AU2012217084				
MX2013009165	A	2013-08-29	MX2013009165				
TW201247271	A	2012-12-01	TW201247271				
CA2826335	A1	2012-08-23	CA2826335				
WO2012/110580	A1	2012-08-23	WO2012110580				
EP2489387	A1	2012-08-22	EP2489387				

Abstract

(EP2489387)

The invention relates to an auto-injector (1) for administering a dose of a liquid medicament (M), comprising: - an elongate case (12) arranged to be held by a user, - a tubular chassis (2) telescoped in the case (12) and biased against the case (12) so as to protrude from the case (12), - a syringe (3) with a hollow **injection needle** (4), a drive **spring** (8) and a plunger (9) for forwarding load of the drive **spring** (8) to a stopper (6) of the syringe (3), - a **trigger** button (13) distally arranged in or on the case (12), wherein the **trigger** button (13) is initially coupled to the case (12) in a manner to protrude distally from the case (12) and interlocked to the chassis (2) in a manner preventing the **trigger** button (13) from disengaging the case (12) and thus preventing actuation of the **trigger** button (13) in an initial position, wherein the case (12) is arranged to translate in the proximal direction (P) against the bias relative to the chassis (2) when the chassis (2) is pressed against an **injection** site thereby also translating the **trigger** button (13) releasing the interlock to the chassis (2) so as to allow actuation of the **trigger** button (13), wherein the **trigger** button (13) is arranged to lock in a more proximal position on actuation.

Inventors

BRERETON SIMON FRANCIS

KEMP THOMAS

BURNELL ROSIE

EKMAT MATTHEW

Latest standardized assignees - inventors removed

SANOFI AVENTIS

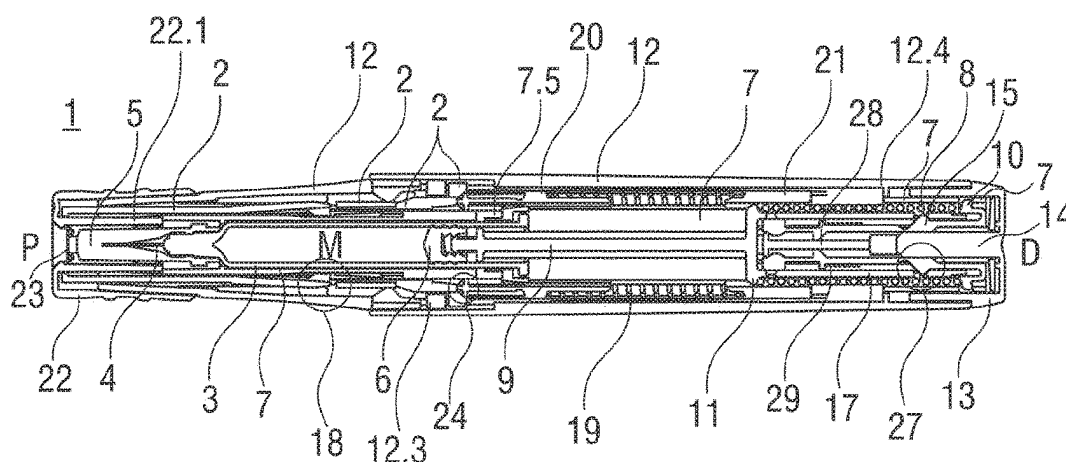
Family 10/15 - FAMPAT - ©Questel

Title

(EP2489386)

Auto-injector

Images



Publication numbers with kind code & date

US10471210	B2	2019-11-12	US10471210
TWI598120	B	2017-09-11	TWI598120
US20170246397	A1	2017-08-31	US20170246397
HK1188158	A1	2017-06-23	HK1188158
IL227760	B	2017-05-29	IL-227760
US9623181	B2	2017-04-18	US9623181
HUE029365	T2	2017-03-28	HUE029365
RU2607528	C2	2017-01-10	RU2607528
PL2675507	T3	2016-10-31	PL2675507
JP6018089	B2	2016-10-07	JP6018089
BR112013020907	A2	2016-10-04	BR112013020907
ES2581481	T3	2016-09-06	ES2581481
DK2675507	T3	2016-08-01	DK2675507T
MX338987	B	2016-05-09	MX-338987
AU2012217083	B2	2016-04-28	AU2012217083
EP2675507	B1	2016-04-06	EP2675507
CN103492003	B	2016-02-17	CN103492003B
RU2013142355	A	2015-03-27	RU2013142355
NZ614216	A	2014-11-28	NZ-614216
IN6639/CHENP/2013	A	2014-07-18	IN2013CN06639
ZA201305900	B	2014-04-30	ZA201305900
JP2014508001	A	2014-04-03	JP2014508001
KR20140015381	A	2014-02-06	KR20140015381
BR112013020907	A1	2014-01-07	BR112013020907
CN103492003	A	2014-01-01	CN103492003
EP2675507	A1	2013-12-25	EP2675507
US20130324925	A1	2013-12-05	US20130324925
IL227760	A	2013-09-30	IL-227760
SG192637	A1	2013-09-30	SG-192637
AR085261	A1	2013-09-18	AR--85261
AU2012217083	A1	2013-09-05	AU2012217083
MX2013009166	A	2013-08-29	MX2013009166
TW201247270	A	2012-12-01	TW201247270



[CA2826349](#)

A1 2012-08-23 CA2826349

[WO2012/110579](#)

A1 2012-08-23 WO2012110579

[EP2489386](#)

A1 2012-08-22 EP2489386

Abstract

(EP2489386)

The invention relates to an auto-injector (1) for administering a dose of a liquid medicament (M), comprising: - an elongate tubular case (12), - a carrier subassembly comprising a tubular carrier (7) slidably arranged inside the case (12), the carrier (7) adapted to contain a syringe (3) with a hollow **injection needle** (4), a drive **spring** (8) and a plunger (9) for forwarding load of the drive **spring** (8) to a stopper (6) of the syringe (3), wherein the syringe (3) is lockable for joint axial translation with the carrier (7), wherein the drive **spring** (8) acts between the carrier (7) and the plunger (9), wherein the plunger (9) in an initial state is locked to the carrier (7) by a ramped engagement to the carrier (7) and by being prevented from rotating out of this ramped engagement depending on a relative longitudinal position of the carrier (7) in the case (12), wherein the plunger (9) is arranged to be released for rotating out of the ramped engagement upon the **needle** (4) reaching at least nearly a predefined **injection** depth on translation of the carrier (7) in the proximal direction (P) for advancing the **needle** (4) beyond a proximal end of the auto-injector (1).

Inventors

BRERETON SIMON FRANCIS

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BURNELL ROSIE

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Latest standardized assignees - inventors removed

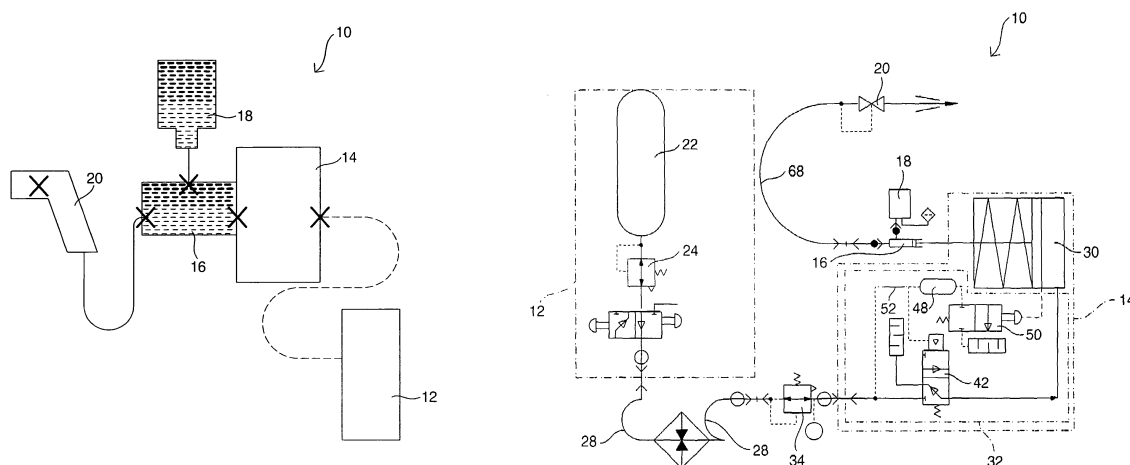
SANOFI AVENTIS

Family 11/15 - FAMPAT - ©Questel

Title

(US7029457)

Jet injector with hand piece

Images**Publication numbers with kind code & date**[CN100515509](#)

C 2009-07-22 CN100515509C

[CN1939547](#)

A 2007-04-04 CN1939547

[US7029457](#)

B2 2006-04-18 US7029457

[US20030088207](#)

A1 2003-05-08 US20030088207

[RU2155015](#)

C1 2000-08-27 RU2155015

**Abstract**

(US20030088207)

The present invention relates to a jet injector system with a hand piece. The present invention generally comprises a power unit, a medicine unit, an energy unit, a supply bottle, and a hand piece. The hand piece and power unit may be separate components connected to each other by a high **pressure** hose, which gives the user more flexibility. A valve assembly having a ball lock assembly and a **needle** assembly controls the release of medication from the high **pressure** hose into the hand piece and out a nozzle into the subject.

Inventors

ROGATCHEV VICTOR T

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Latest standardized assignees - inventors removed

PULSE NEEDLEFREE SYSTEMS

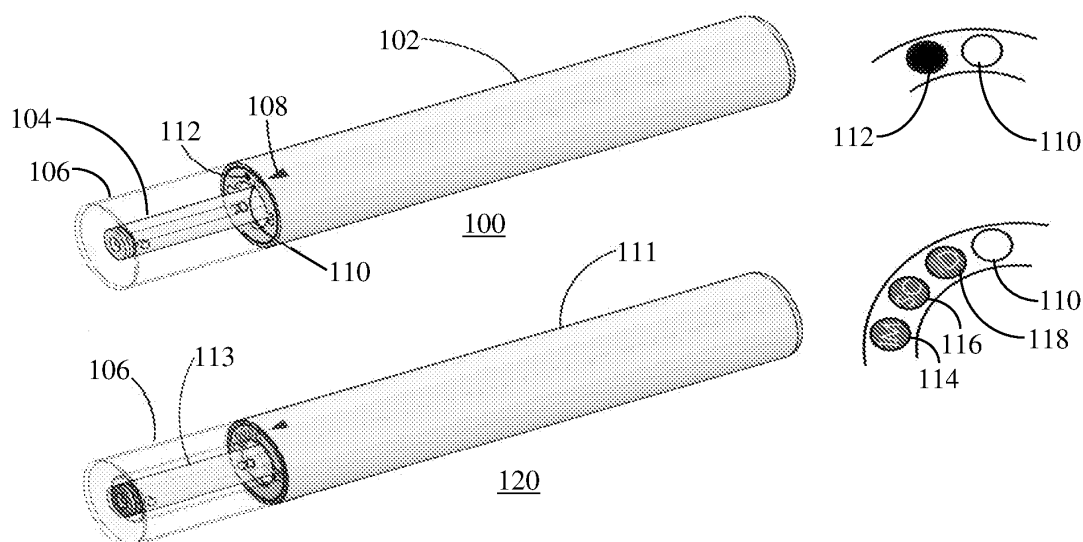
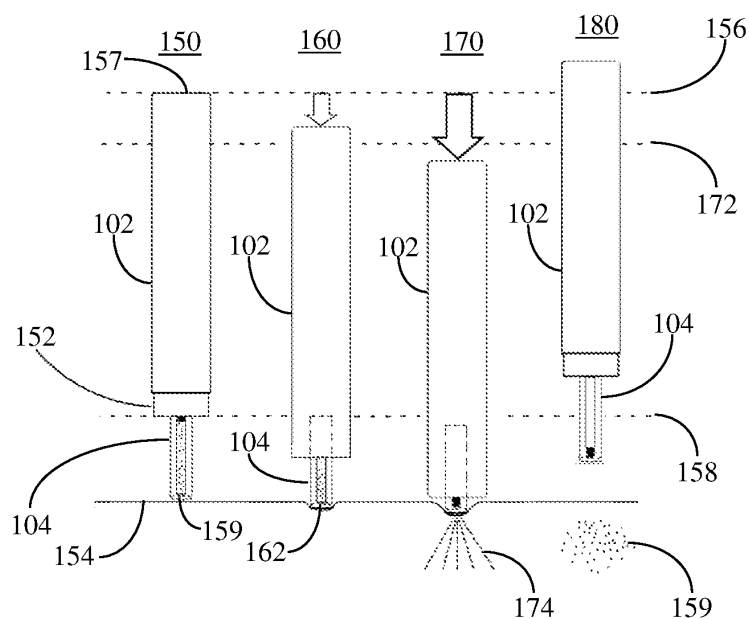
Family 12/15 - FAMPAT - ©Questel

Title

(EP3532134)

Safety-enhanced **needle**-free injector

Images

**FIG. 1A****FIG. 1B****Publication numbers with kind code & date**

EP3532134	A1	2019-09-04	EP3532134
IN201917021154	A	2019-08-30	IN201917021154
CN110167615	A	2019-08-23	CN110167615
SG11201903826V	A	2019-05-30	SG11201903826V
AU2017352017	A1	2019-05-23	AU2017352017
WO2018/080402	A9	2018-08-23	WO201880402
SG10201609111W	A	2018-05-30	SG10201609111W
WO2018/080402	A1	2018-05-03	WO201880402

**Abstract**

(EP3532134)

A method for **needle-free injection** and a **needle-free injector device** are provided. The method includes automatically

injecting an injectable into a surface in contact with the **needle**-free injector in response to a skin compression parameter of an end of the **needle**-free injector. A **needle**-free injector device (102) includes predefined structures formed on it to inject an injectable through a non-porous material. The predefined structures engage an airlock mechanism such that an airlock in the non-porous material and operably coupled to the airlock mechanism can only be opened and closed to enable **needle**-free **injection** through the non-porous material without disrupting an integrity of the non-porous material by the **needle**-free injector device. Other functions, embodiments and methods for using and programming the **needle**-free injector device are also provided.

Inventors

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Latest standardized assignees - inventors removed

MIRACLE MAN PTE

Family 13/15 - FAMPAT - ©Questel

Title

(CN201105061U)

Non **needle** head **injection** syringe for animals

Publication numbers with kind code & date

CN201105061 Y 2008-08-27 CN201105061U

**Abstract**

(CN201105061)

The utility model relates to a veterinary injector without **needle** head, comprising a medicine-containing tube component, an injector and a high-**pressure** gas source; the injector comprises a magnetic trust **piston** which is arranged inside an upper chamber of the casing, a pure iron limiting piece which is positioned relative to the magnetic thrust **piston** is arranged inside the upper chamber; the end of a tail rod extends out of the casing, the end of the magnetic thrust **piston** rod is movably connected with a **piston** rod of an **injection piston** in the **injection** tube which is arranged on the front end of the casing via a connecting sleeve, an **injection** head is arranged on the front end of the **injection** tube, a medicine feeding opening which is arranged on one lateral side of the **injection** tube is connected with an outlet of the medicine-containing tube component via pipe fittings; a switch plug is arranged at one end of the lower cavity of casing, the outer end is contacted with the lateral face of a **trigger**, a hollow air passage switch plug which is positioned relative to the switch plug is arranged on the other side of the cavity, a **spring** is arranged on the tail end and the hollow air passage switch plug is connected with a gas source via the pipe fittings. The veterinary injector without **needle** head has the advantages that the injector can inject consecutively, the dose can be accurately controlled and the **injection pressure** can be adjusted and controlled according to different animals, which effectively avoid cross infection and safe to use.

Inventors

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Latest standardized assignees - inventors removed

SHENYANG AEROSPACE XINGUANG CRYOGENIC VESSEL MANUFACTURE

Family 14/15 - FAMPAT - ©Questel

Title

(EP1020200)

Needle-less injector

Images

NO312011	B1	2002-03-04	NO-312011				
RU2179864	C2	2002-02-27	RU2179864				
EP1020200	A3	2001-12-05	EP1020200				
US20010039394	A1	2001-11-08	US20010039394				
NO20014862	D0	2001-10-05	NO20014862				
DE69426390	T2	2001-04-12	DE69426390				
HK1010697	A1	2001-03-23	HK1010697				
ES2152323	T3	2001-02-01	ES2152323				
DK710130	T3	2001-01-15	DK-710130T				
DE69426390	D1	2001-01-11	DE69426390				
AT197904	T	2000-12-15	ATE197904				
EP0710130	B1	2000-12-06	EP-710130				
EP1020200	A2	2000-07-19	EP1020200				
KR100233672	B1	2000-03-15	KR100233672				
JPH11514242	A	1999-12-07	JP11514242				
KR100223616	B1	1999-10-15	KR100223616				
US5891086	A	1999-04-06	US5891086				
EP0834330	A3	1998-04-15	EP-834330				
EP0834330	A2	1998-04-08	EP-834330				
BR9407156	A	1996-09-17	BR9407156				
KR19967003632	A	1996-08-31	KR19967003632				
EP0710130	A1	1996-05-08	EP-710130				
NO20014862	A	1996-03-27	NO20014862				
NO20014862	L	1996-03-27	NO20014862				
NO960395	A	1996-03-27	NO9600395				
NO960395	L	1996-03-27	NO-960395				
NO960395	D0	1996-01-30	NO9600395				
AU7233194	A	1995-02-28	AU9472331				
CA2167586	A1	1995-02-09	CA2167586				
WO95/03844	A1	1995-02-09	WO9503844				

Abstract

(EP1020200)

A **needle**-less injector comprises a cartridge (3) pre-filled with liquid (9), which cartridge contains a free sliding **piston** (32) and an **injection** orifice (10). A ram (22) is urged by a pre-loaded **spring** (24) for striking the said **piston** to cause the injections. Adjusting means (6) can be provided to vary the volume injected. A **trigger** device (26, 30) initiates **injection** only when the optimum contact **pressure** is reached between the discharge orifice (1) and epidermis of the subject. The initial loading of the power **spring** (24) is sufficient to dispense all of the contents of the medicament cartridge in one dose or multiple sequential doses. Disposable and reusable embodiments are described.

Inventors

WESTON TERENCE EDWARD

Latest standardized assignees - inventors removed

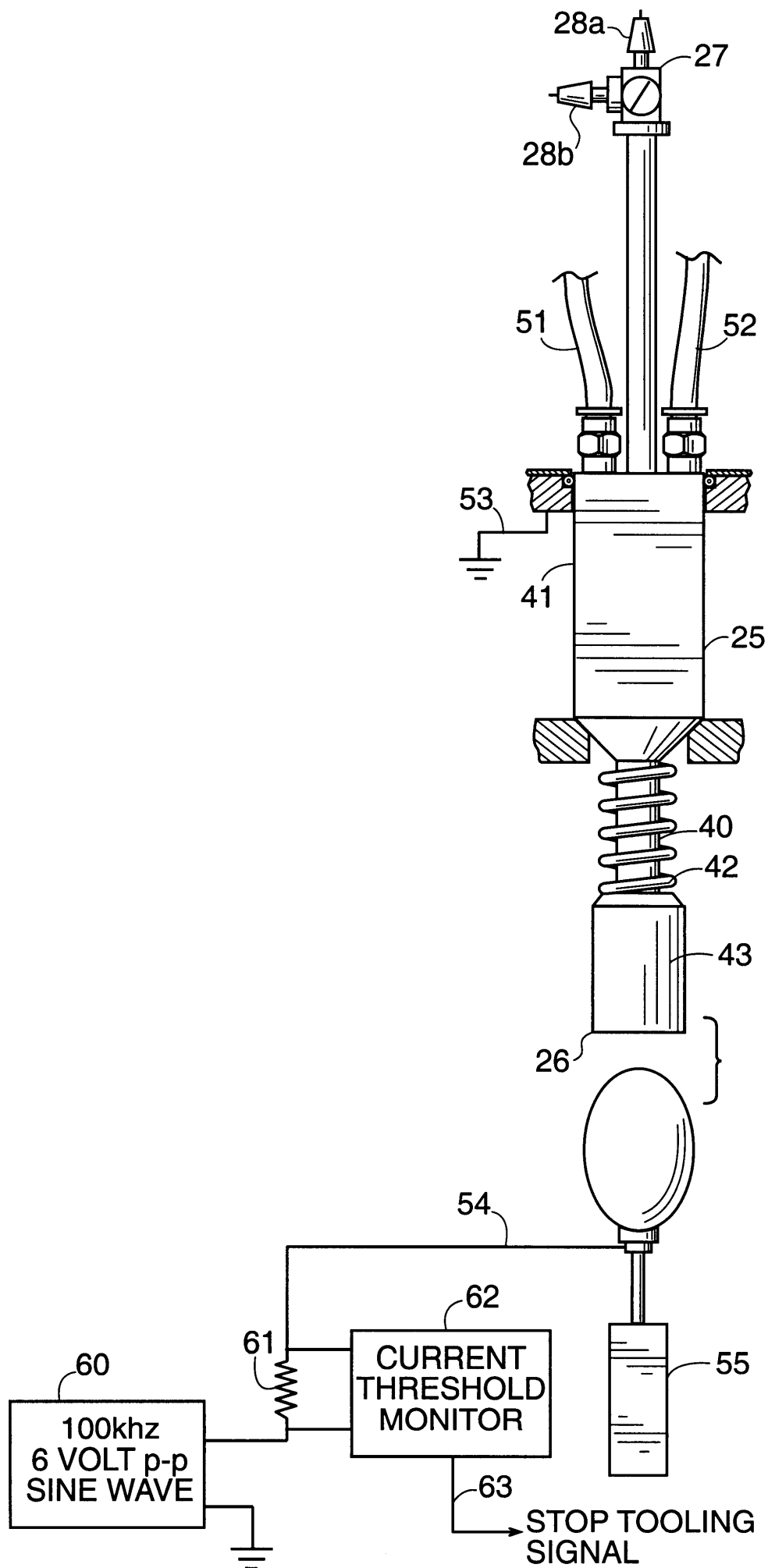
ZOGENIX

Family 15/15 - FAMPAT - ©Questel

Title

(EP1139728)

Concurrent in ovo **injection** and detection method and apparatus**Images**



Publication numbers with kind code & date

BRPI9916779	B1	2016-03-08	BR9916779				
CA2358208	C	2006-03-28	CA2358208				
JP3645815	B2	2005-02-10	JP3645815				
CN1155309	C	2004-06-30	CN1155309C				
DE69905493	T2	2003-12-18	DE69905493				
ES2196919	T3	2003-12-16	ES2196919				
PT1139728	E	2003-06-30	PT1139728				
DK1139728	T3	2003-06-16	DK1139728T				
DE69905493	D1	2003-03-27	DE69905493				
AT232681	T	2003-03-15	ATE232681				
EP1139728	B1	2003-02-19	EP1139728				
JP2002534066	A	2002-10-15	JP2002534066				
CN1332603	A	2002-01-23	CN1332603				
BR9916779	A	2001-12-04	BR9916779				
EP1139728	A1	2001-10-10	EP1139728				
US6244214	B1	2001-06-12	US6244214				
AU2386600	A	2000-07-24	AU200023866				
CA2358208	A1	2000-07-13	CA2358208				
WO00/40079	A1	2000-07-13	WO200040079				

Abstract

(EP1139728)

A method of injecting a plurality of bird eggs comprises: (a) orienting a plurality of avian eggs in a predetermined position; (b) forming an opening in the shell of each of the eggs; (c) extending an elongate delivery device through each of the openings and into the eggs, each of the delivery devices comprising a detector and an **injection needle**, with the **injection needle** having a lumen formed therein; (d) detecting with the detector information from the interior of each of the plurality of eggs; and (e) injecting a substance into each of the plurality of eggs through the lumen of said **injection needle**. The detected information can be used for a variety of purposes, including adjusting the depth of penetration of the **injection needle** to more precisely control the location of the **injection**, identifying the gender of the eggs for subsequent sorting of the eggs, distinguishing viable from non-viable eggs, etc. When used for controlling depth penetration, the method positions the **needle** tip for any purpose, including withdrawing biological material as well as injecting substances. Apparatus, particularly high-speed apparatus, for carrying out the method is also disclosed.

Inventors

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Latest standardized assignees - inventors removed

EMBEX

ZOETIS SERVICES