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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-112566- -00003-0000

Fecha: 2008-05-19 16:54:34 Dep. 2020 NUECREACION
Tra. 11 PATENTEIYI Eve: 378 FASENACIONAL
Act. 538 PETICION Folios: 2

Señora Jefe de la
DIVISION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

Trámite : 011 Evento : 378 Actuación : 538

Referencia : Expediente No. 06.112.566
Asunto : Solicitud de patente para **METODO Y APARATO
PARA LA INYECCIÓN A CHORRO DE HUEVOS DE AVES**
Solicitante : MERAL LIMITED
Publicada en : La Gaceta No. 583 del 18 de diciembre de 2007

SOLICITUD EXAMEN DE PATENTABILIDAD

1. Yo, Emilio FERRERO, identificado como aparece al pie de mi firma, actuando como apoderado de la sociedad MERAL LIMITED, atentamente solicito se efectúe el examen de patentabilidad de la solicitud en referencia presentada de acuerdo con las reglas del Capítulo I del PCT y según lo establecido en el artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina.

Para tal efecto presento junto con este escrito el recibo por el valor de la tasa legal fijada por este concepto, según lo dispuesto en la Resolución No. 44372 del 26 de diciembre de 2007.

2. Por lo anterior, comedidamente solicito se prosiga con el trámite de este asunto.

Señora Jefe,

EMILIO FERRERO

T.P.A. No. 31.929

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 06-112566- -00003-0000

Fecha: 2008-05-19 16:54:34 Dep. 2020 NUECREACION
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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 08 - 34,058
FECHA : ABRIL 28 DE 2008

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO DE BOGOTA	062754387	2677849	28/04/2008	38,579,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01 SOLICITUDES	112 PTC CAP-I EXAMEN DE PATENTIBILIDA	420,000.00
		TOTAL :	\$ 420,000.00

SON: CUATROCIENTOS VEINTE MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Colo 14306- 841-008-1

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 06-112566

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCION**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **583** DE

FECHA **18 DE DICIEMBRE DE 2007** EL TÉRMINO HÁBIL SEÑALADO POR LA

LEY EXPIRA EL **14 DE MARZO DE 2008**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____

NO X



US006032612A

United States Patent [19]
Williams

[11] **Patent Number:** **6,032,612**
[45] **Date of Patent:** **Mar. 7, 2000**

- [54] **AUTOMATED IN OVO INJECTION APPARATUS**
- [75] **Inventor:** Christopher J. Williams, Apex, N.C.
- [73] **Assignee:** Embrex, Inc., Research Triangle Park, N.C.
- [21] **Appl. No.:** 09/225,933
- [22] **Filed:** Jan. 6, 1999
- Related U.S. Application Data**
- [60] Provisional application No. 60/071,211, Jan. 12, 1998.
- [51] **Int. Cl.⁷** A01K 45/00
- [52] **U.S. Cl.** 119/6.8
- [58] **Field of Search** 119/6.5-6.8

4,681,063	7/1987	Hebrank	119/6.8
4,903,635	2/1990	Hebrank	119/6.8
5,056,464	10/1991	Lewis	119/6.8
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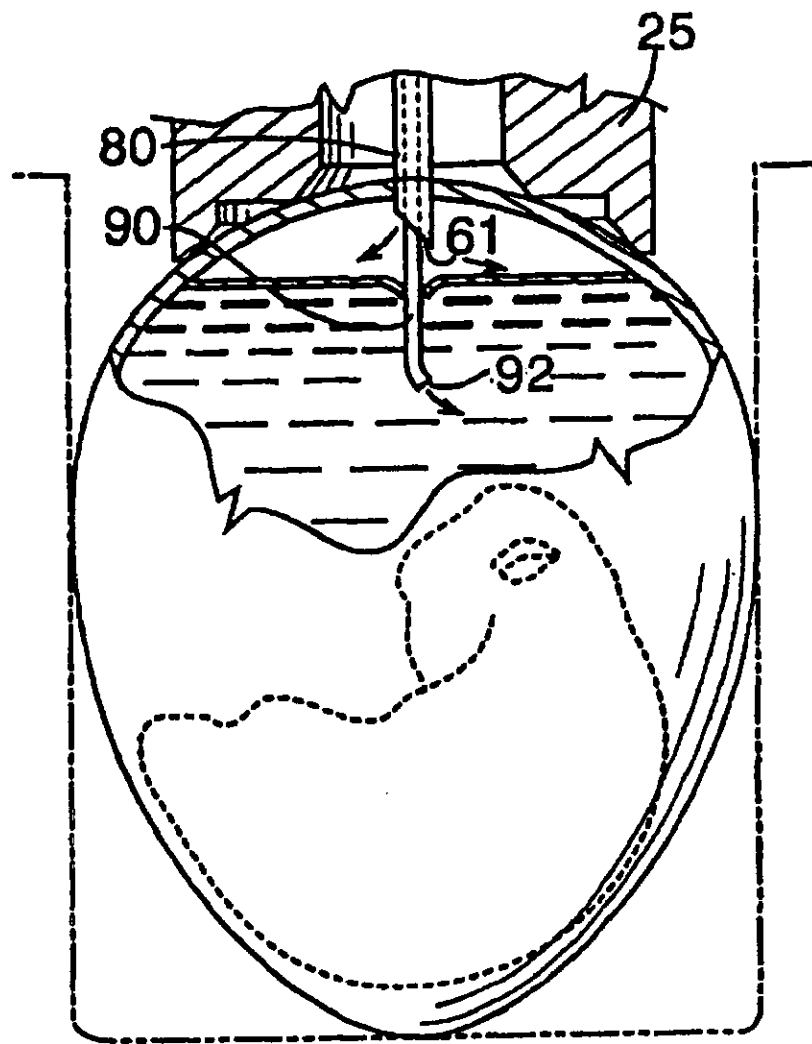
Primary Examiner—Thomas Price
Attorney, Agent, or Firm—Myers Bigel Sibley & Sajovec, P.A.

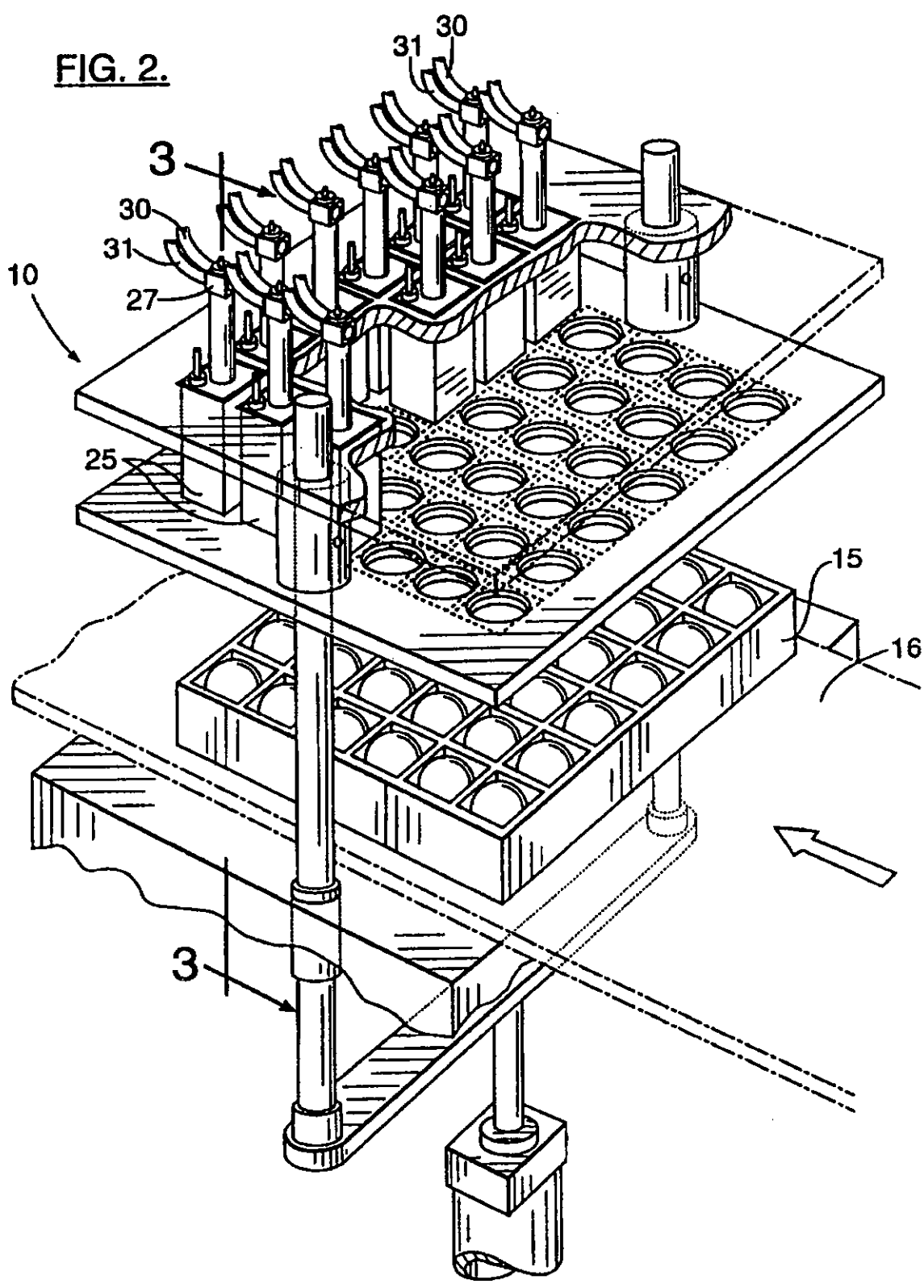
[57] **ABSTRACT**

A multi-site in ovo injection apparatus and related methods for treating live eggs is disclosed. The multi-site injection apparatus includes one or more injection delivery devices which are configured to deliver multiple treatment substances to predetermined areas of eggs. The treatment substances can be provided so that they are spatially and/or temporally separate. The devices and methods enable the effective use of a plurality of treatment substances even those that are effective when used alone but can be noxious if mixed.

- [56] **References Cited**
- U.S. PATENT DOCUMENTS**
- 2,477,752 8/1949 Kiss 119/6.8

41 Claims, 6 Drawing Sheets





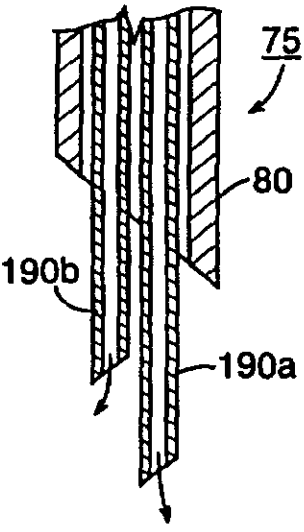


FIG. 7.

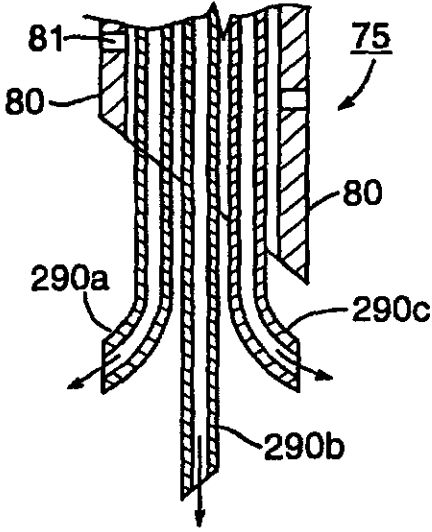


FIG. 8.

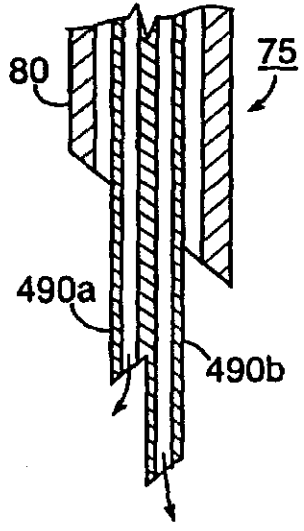


FIG. 9.

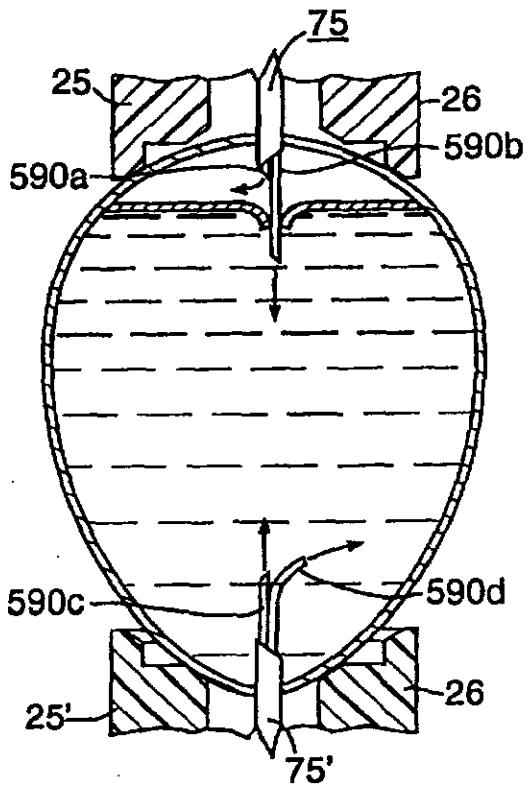
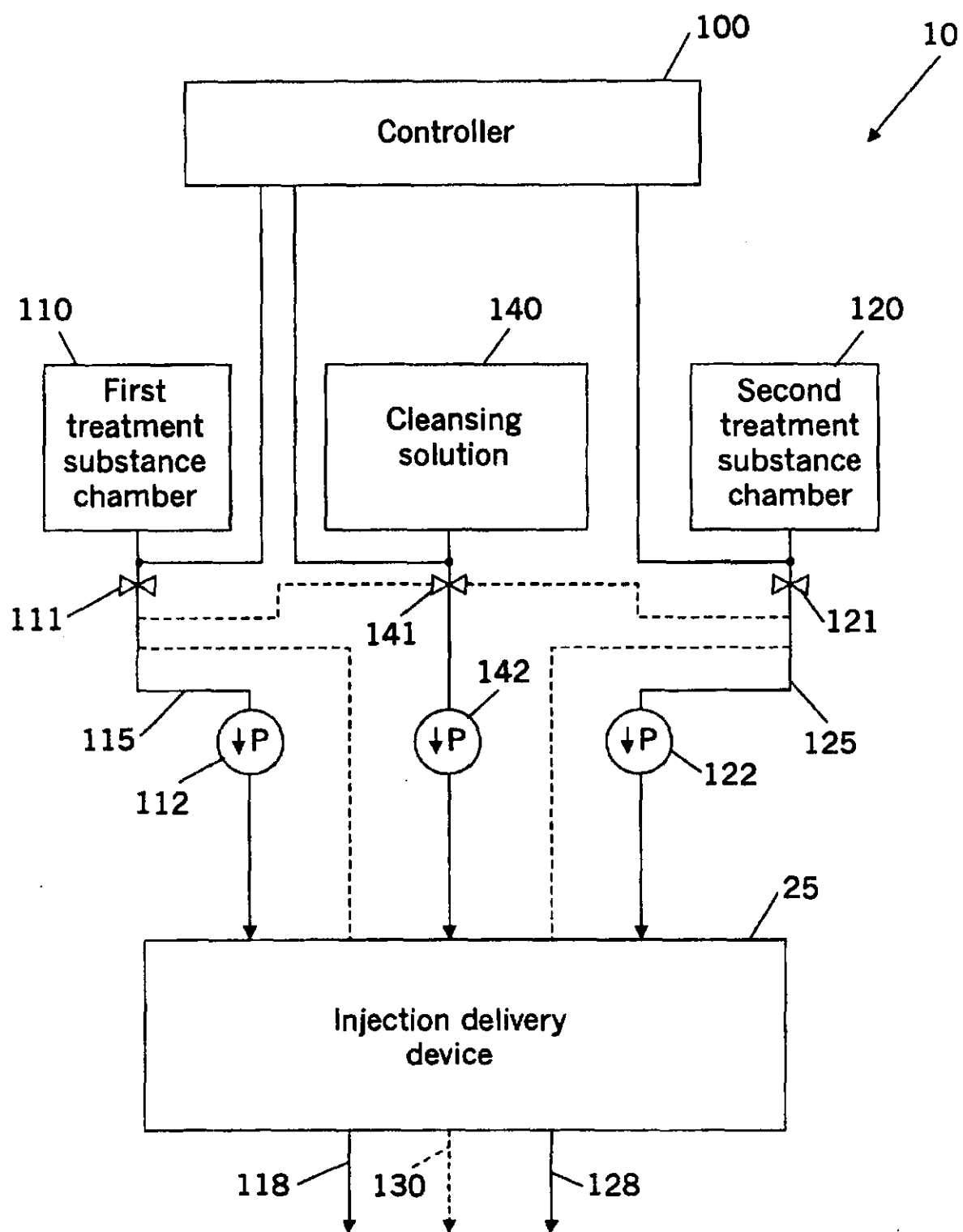


FIG. 10.

FIG. 13



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chamber, or by introducing them into a common delivery path, prior to delivery into the egg.

An additional aspect of the present invention is directed towards an automated in ovo injection apparatus. The apparatus comprises a fixture for holding a plurality of eggs in a substantially upright and aligned position. The fixture is configured to provide external access to predetermined areas of the eggs. The apparatus also includes a plurality of injection delivery devices configured to contact predetermined areas of the egg; at least one of the injection devices corresponds to each egg in the fixture. Each of the delivery devices comprises a first and second lumen that is adapted to be received into the egg. The apparatus further comprises a first treatment substance container for holding a first treatment substance. The first container is in fluid communication with each of the plurality of injection delivery devices. The apparatus also includes a second treatment substance container for holding a second treatment substance. The second container is in fluid communication with each of the plurality of injection devices. The first container and each of the plurality of injection devices defines a first fluid pathway therebetween. Similarly, the second container and each of the plurality of injection devices define a second fluid pathway therebetween. A pump is operably associated with the first and second containers and the injection units for delivering a predetermined dosage of each of the first and second treatment substances to each of the injection devices. Alternatively, the delivery devices can be adapted to withdraw a sample of material from the egg, where the samples are maintained in separate fluid pathways.

Advantageously, various alternative embodiments of the injection and sampling delivery devices allow for a multiplicity of convenient and useful configurations. For example, the double lumens can be concentrically configured to be telescopically extended at different positions into the egg. Alternatively, the first and second lumens can be provided by a plurality of needles of differing configurations, such as length, port position, and the like.

Another aspect of the present invention is also directed to an automated in ovo injection or sampling apparatus. The apparatus comprises a fixture for holding a plurality of eggs in an aligned position, such that the fixture is configured to provide external access to predetermined areas of the eggs. The apparatus includes a plurality of first injection delivery (or sampling) devices and a plurality of second injection delivery (or sampling) devices, each configured to contact predetermined areas of the egg, a respective one of each of the first and second injection delivery (or sampling) devices corresponding to one egg in the fixture. The device also includes first and second treatment substance containers for holding respective ones of first and second treatment substances (or first and second sample substance containers for holding respective ones of first and second samples withdrawn from the egg). The first container is in fluid communication with each of the first injection delivery devices and the second container is in fluid communication with each of the second injection delivery devices. Thus, the first container and each of the first delivery devices define a first fluid pathway therebetween and the second container and each of the second injection delivery devices define a second fluid pathway therebetween such that the first pathway is separate from the second pathway. A pump is operably associated with the first and second containers for delivering a predetermined dosage of each of the first and second treatment substances to each of the respective first and second injection devices. Similar to the apparatus above, this device can be alternatively configured to deliver different treatment

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substances to (or withdraw different samples from) different treatment sites within the egg.

Eggs treated by the method of the present invention are preferably incubated to hatch after the treatment substances are administered.

The foregoing and other objects and aspects of the present invention are explained in detail in the specification set forth below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial front view of a multi-site injection apparatus according to the present invention.

FIG. 2 is side perspective view of a multi-site injection apparatus shown in FIG. 1.

FIG. 3 is an enlarged section view taken along line 3—3 in FIG. 2 illustrating one embodiment of a multi-site injection head according to the present invention.

FIG. 4 is an enlarged view of the injection head in FIG. 3 with lumens shown downwardly extended and delivering substances into an egg, according to one embodiment of the present invention.

FIG. 5 is an enlarged sectional view of the lumens shown in FIG. 4.

FIG. 6 is an end view taken along lines 6—6 in FIG. 5.

FIG. 7 is an enlarged partial sectional view of an alternative embodiment of a multi-site injection device via two separate needles according to the present invention.

FIG. 8 is an enlarged partial sectional view of another embodiment of a multi-site injection device via three separate needles.

FIG. 9 is an enlarged partial sectional view of another embodiment of a multi-site injection device via two joined needles.

FIG. 10 is an enlarged partial sectional view of dual injection head multi-site injection device and another embodiment of treatment delivery needles and associated delivery paths into an egg.

FIG. 11 is an enlarged partial sectional view of an alternative embodiment of a dual injection head multi-site injection device and further illustrating alternative substance delivery paths into an egg.

FIG. 12 is a partial exploded view of a needle hub configured to be interchangeably and alignably assembled to the multi-site injection head.

FIG. 13 is a block diagram of an apparatus according to the present invention showing two separate treatment chambers, a separate cleaning solution chamber, and a controller, along with corresponding pumps and valves and separate injection paths; further, and optionally, the dotted lines illustrate the delivery of the separate treatment substances along a common delivery path.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is practiced with eggs, particularly bird or avian eggs such as chicken, turkey, duck, geese, quail, pheasant, or ostrich eggs. The eggs are viable eggs; that is, eggs containing a live avian embryo. The eggs may be in any stage of embryonic development, including both early embryonic development and late embryonic development.

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in

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configured to deliver substances through the lumens thereof to spatially separate locations within an egg to be injected. The device includes an egg locating member, or egg engaging member 26, connected to the body member bottom end portion, which as illustrated is slidably connected to the body member and includes a spring 42 to both cushion the engagement, and hold the egg in place during the downstroke of the injection head. As illustrated, an outer guide 80 is provided to pierce the egg shell, and the needle 60 then extends beyond the outer guide and into the desired compartments of the egg (see FIG. 4). The device illustrated in FIG. 3 is commercially available from Embrex Inc. in a single needle embodiment (where a chlorine cleansing solution only passes through the outer lumen), but not as a dual needle embodiment as illustrated in FIG. 7.

The dual needle embodiment of FIG. 7 is currently preferred because the outer lumen 61 (see FIGS. 5 and 6) then remains available for a sanitizing or disinfecting solution. Where a dual needle embodiment is used, the inlet head 43 is modified to incorporate additional ports for introduction of additional compounds.

As shown by the block diagram in FIG. 13, the apparatus 10 preferably includes a main controller 100, first and second treatment substance chambers 110, 120, associated valves 111, 121 and one or more drive means such as pumps 112, 122 operably associated with the substance chambers for delivering the appropriate amounts of treatment substances to the injection delivery device 25. Although the apparatus 10 is illustrated as having a separate drive means for each fluid or treatment chamber 110, 120, it will be appreciated by one of skill in the art that the invention is not limited thereto. Indeed, a single electric or pneumatic pump can be connected to each substance chamber to deliver each treatment substance to the inlet ports 30, 31 in the injection device. Preferably, the apparatus 10 incorporates one or more high speed peristaltic pumps or solenoid activated pumps, actuated to deliver precise dosages of treatment substances to the injection devices and ultimately to the egg. One such peristaltic pump is described in U.S. patent application Ser. No. 08/926,160 of Fenstermacher and Hall, filed Sep. 9, 1997, the contents of which is incorporated herein as if recited in its entirety.

Optionally, as illustrated by the dotted line paths in FIG. 13, the apparatus 10 can be configured to separately store the treatment substances in the respective chambers 110, 120 and then channel them through a single lumen for delivery into the egg. A valve, controlled by the controller, is required to alternately switch from one treatment fluid source to the other. Switching is timed with positioning of the needle so that different fluids are injected in different compartments within the egg. The different treatment substances can each be provided in liquid, solid, gas or aerosol form, or any other suitable form, so long as the substances are substantially separated from one another (e.g., liquid treatment substances separated by an intervening gas bubble) so that different treatment substances are placed in different compartments.

Also preferably, as also shown in FIG. 13, the apparatus 10 includes a cleaning solution chamber 140 operably associated with the controller 100 and plumbed to be in fluid communication with each of the separate substance delivery channels 115, 125 upstream of the injection delivery device 25 as well as the one or more fluid or substance delivery paths 118, 128 (130) in the injection device itself 25. This will allow the delivery paths 118, 128 (130) to be flushed with a decontamination fluid to maintain a preferred level of sterility in the apparatus so as to reduce the likelihood of cross-contamination between eggs or the growth of undes-

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ired contaminants in the delivery paths to help maintain the apparatus in optimum performance condition. Any conventional cleansing solution may be used, with chlorine cleansing solutions preferred.

In operation, in one embodiment of the present invention, a controller 100 directs the opening of the valves 111, 121 to release predetermined dosages of treatment substance into first and second tubes 30, 31. The associated drive means or pumps 112, 122 forces the substances into delivery paths 115, 125 (such as through tubing 30, 31) in fluid communication with each of the injection delivery devices 25 via inlet ports thereon 28a, 28b.

In order to inject the shell with the desired treatment substances, as illustrated by FIGS. 3 and 4, the apparatus 10 preferably includes a shell piercing means such as an outer guide punch 80 which punctures at least one small opening into the outer shell of an egg. Alternatively, a high pressure water jet can also be employed. The outer guide punch 80 is preferably formed from a durable and rigid material, or the needle or injection device itself can serve as the shell piercing means. Advantageously, configuring the outer guide punch 80 to pierce the shell of the egg will help preserve the life of the needle(s) 90 as the needle(s) 90 can be inserted into the opening formed by the punch 80 and will not have to pierce the shell before entry into the egg.

Also, as shown in FIG. 4, the outer guide punch 80 preferably does not advance into the inner shell membrane. The needle(s) can be formed of any suitable material such as but not limited to stainless steel or plastic. If formed of plastic, a compatible epoxy can be employed to assemble in position in the hub assembly 40. The egg inserting ends of the needle(s) 90 are preferably sufficiently sharp to be able to pierce the inner shell membrane or chorioallantois with minimum tearing attributed thereto. Alternatively, blunt, dull, or side-port needles can be employed, particularly where it is desired that the needle avoid piercing a particular underlying membrane or the embryo proper.

In operation, the outer guide 80 preferably advances a predetermined short distance into the egg. The injection device 25 then extends the lumens or needle(s) 90 into the egg through the preformed opening. The needles 90 are configured to release (preferably simultaneously) a predetermined dosage of the substances into predetermined sites, such as above or below the air cell and into the amnion of the avian embryo (as will be discussed in more detail hereinbelow). The needle(s) 90 are then retracted into the outer guide punch 80 and the guide punch 80 is returned to the stationary storage position within the bottom portion of the injection device 26 and, as described above, the entire injection unit is then retracted and preferably flushed before the next flat of eggs are advanced. Preferably, the exterior surface of the needles and/or lumens are then flushed to disinfect or clean the injection device 25 such that remnants of the injected egg or other contaminants are flushed out of the delivery paths 60, 61 and the exterior portion of the needle tip(s) are sanitized. In a preferred embodiment, as illustrated in FIG. 8, the outer guide punch 80 includes a plurality of apertures 81 formed therearound to allow the cleaning solution to flush the exterior surface as well as the interior lumens.

Turning back to FIG. 4, the injection delivery device 25 is shown in a preferred position in the egg, i.e., one lumen 61 delivering a first substance in the air cell and the other lumen 60 extending farther down to deliver a second substance below the chorioallantois membrane. As shown in FIG. 5, the outer guide punch 80 defines the second delivery

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wherein the first delivery needle extends longitudinally farther into said egg than the second drug delivery needle.

3. A method according to claim 1, wherein the first and second substances are released in different compartments of said egg.

4. A method according to claim 1, further comprising the steps of introducing a second opening into the egg shell separate from the first opening and extending a second delivery device therethrough.

5. A method according to claim 4, wherein at least one substance is introduced via the first delivery device above the air cell and another substance is introduced via the second delivery device into the yolk sac, allantois, amnion or embryo.

6. A method according to claim 1, wherein said delivery device has a first lumen formed therein, and said first and second substances are both delivered through a said first lumen.

7. A method according to claim 1, wherein the opening is introduced by piercing the shell with a guide.

8. A method according to claim 1, further comprising the step of flushing the delivery device with a cleansing solution after delivery of the first and second substances into the egg.

9. A method according to claim 1, wherein the first and second substances are delivered into the egg substantially simultaneously in time.

10. A method according to claim 1, wherein the first and second substances are delivered into the egg sequentially in time.

11. A multi-injection method for treating avian embryos in ovo, comprising the steps of:

orienting an avian egg into a predetermined position; introducing a small first opening into the shell of an avian egg;

introducing a small second opening into the shell of an avian egg, the second opening being spaced apart from the first opening;

extending a first delivery device through said first opening into the egg a predetermined depth and to a first location within said egg;

extending a second delivery device through said second opening into the egg a predetermined depth and to a second location within said egg different from said first location;

releasing a predetermined dosage of a first substance from said first delivery device into said egg;

releasing a predetermined dosage of a second substance from said second delivery device into said egg; and retracting the first and second delivery devices from said egg, thereby treating the avian embryo.

12. A method according to claim 11, wherein the first delivery device comprises an outer guide member and a plurality of needles enclosed therein, said method further comprising the step of downwardly extending the needles thereby puncturing the membrane of the egg before releasing the first treatment substance thereto.

13. A method according to claim 12, wherein the second delivery device is upwardly extended to release the second treatment substance within or adjacent the albumen, the yolk sac, embryo, allantois, or amnion.

14. A method according to claim 13, wherein the first and second substances are released substantially simultaneously in time.

15. An automated in ovo injection apparatus, comprising: a flat for holding a plurality of eggs in a substantially upright and aligned position, wherein said flat is con-

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figured to provide external access to predetermined areas of the eggs;

a plurality of injection delivery devices configured to contact predetermined areas of said egg, at least one of said injection devices corresponding to each egg in said flat, each of said delivery devices including first and second lumens adapted to be received into said egg;

a first treatment substance container for holding a first treatment substance, said first container in fluid communication with each of said first lumens;

a second treatment substance container for holding a second treatment substance, said second container in fluid communication with each of said second lumens;

at least one pump operably associated with said first and second containers and said injection devices and configured for delivering a predetermined dosage of each of said first and second treatment substances to each of said injection devices.

16. An automated injection apparatus according to claim 15, wherein said first and second lumens are defined by first and second needles concentrically disposed with respect to each other.

17. An automated injection apparatus according to claim 16, wherein one of said first and second needles is telescopically extendable a further distance than the other.

18. An automated injection apparatus according to claim 15, wherein said first and second lumens are defined by first and second needles adjacently disposed with respect to each other and wherein said second needle is longitudinally extendable a further distance relative to said first needle.

19. An automated injection apparatus according to claim 18, wherein said first needle includes a side port therein.

20. An automated injection apparatus according to claim 15, wherein each of said injection delivery devices further comprise:

an outer guide punch having opposing first and second ends and defining a cylindrical passage therebetween;

a plurality of needles contained within said outer guide passage and extendable in a longitudinal direction from said outer guide first end, said needles having a retracted position and an extended position, wherein in said retracted position said needles are contained within the second end of said outer guide, and in said extended position at least one of said plurality of needles extends beyond said outer guide second end.

21. An automated injection apparatus according to claim 20, wherein said plurality of needles includes a first and second needle positioned within said outer guide, and wherein said first needle is longitudinally extendable a greater distance into said egg relative to said second needle.

22. An automated injection apparatus according to claim 21, wherein said second needle has a side port opening.

23. An automated injection apparatus according to claim 20, wherein said outer guide includes a plurality of apertures thereon, thereby allowing cleaning substances to be flushed therethrough.

24. An automated injection apparatus according to claim 15, wherein said injection devices are configured to deliver first and second treatment substances via at least one of spatially and temporally sequentially separated injections into said eggs in said flat.

25. An automated injection apparatus according to claim 15, wherein said first and second lumens have proximate and distal ends and each of said lumens terminates to form a single lumen at the distal ends thereof, thereby temporally mixing first and second substances at the site of injection.

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCION DE NUEVAS CREACIONES**

2020
Bogotá, D.C.,

Abogado
Dr. EMILIO FERRERO.

ASUNTO	Radicación	06 - 112566
	Trámite	011
	Evento	379
	Actuación	430
	Oficio	
	Folios	13 07229

Patente de Invención ☒ Patente de Modelo de Utilidad ☐

Vía Nacional ☐

Vía PCT (fase nacional) ☒ Cap. I ☒ Cap. II ☐

No. Sol. Internacional PCT/US2005/011194
Fecha de Presentación Internal. 2005/04/01

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

1. Documentos estudiados

<u>Descripción:</u>	Folios: 66 a 141	Como se radico inicialmente.
<u>Reivindicaciones:</u>	Folios: 142 a 154	Como se radico inicialmente.
<u>Dibujos:</u>	Folios: 156 a 167	Como se radico inicialmente.
<u>Prioridad:</u>	Folios: 1	(US) 2004-60/559.138 (2004/04/03). (US) 2004-60/624.970 (2004/11/04).

2. Objeto de la invención

Titulo de la invención: **"METODO Y APARATO PARA LA INYECCION A CHORRO DE HUEVOS DE AVES". (Folio 1).**

Problema Técnico Planteado:

- Proporcionar un método y un aparato para la inyección de sustancias dentro de polluelos embrionicos, reduciendo considerablemente el riesgo de daños mecánico a los embriones en desarrollo, evitando medios mecánicos, como agujas para poder llevar acabo este procedimiento o método.
- Evitar el empleo de agujas de inyección para la vacunación o inserción de sustancias para el desarrollo de un embrión dentro de un huevo, evitando provocar daños mecánicos sobre este embrión en desarrollo, evitando resultados fatales para este, e igualmente evitar la

- No.4. "Dispositivo de inyección", "Dispositivo seleccionado".
- No.5. "Broca tubular", "Broca molienda", "Broca espiral".
- No.5. "Dispositivo de inyección a chorro", "Punzón tubular".
- No.14. "Superficie plana", "Áreas predeterminadas de los huevos".
- No.14. "Pluralidad de dispositivos de suministro de inyección".
- No.14. "Primer recipiente de sustancia de tratamiento".
- No.14. "Dispositivos de suministro de inyección a chorro".
- No.15. "Medio de perforar el cascara de un huevo".
- No.16. "Dispositivo de suministro de inyección a chorro", "Medio".
- No.16. "Abertura".
- No.17 y 18. "Punzón tubular", "Broca espiral", "Broca tubular".
- No.18. "Dispositivo de suministro de inyección a chorro".
- No.20. "Medio".
- No.21. "Dispositivo de inyección de chorro".
- No.21. "Primeros y segundos dispositivos de inyección".
- No.21. "Superficie plana".
- No.22. "Primer dispositivo de inyección".
- No.22. "Segundo dispositivo de inyección".
- No.24. "Medio para abrir un huevo es integral al dispositivo de suministro de chorro".
- No.25 y 27. "Primer recipiente", "Segundo recipiente".
- No.25 y 27. "Primer dispositivo", "Segundo dispositivo".
- No.26. "Primera trayectoria", "Segunda Trayectoria".
- No.27. "Primera sustancia", "segunda sustancia".
- No.28. "Cámara de mezclado en comunicación fluida", "Recipientes".
- No.28. "Dispositivos de inyección".
- No.29. "Primer recipiente", "segundo recipiente".
- No.29. "Primeras y segundas sustancias".
- No.30. "Tercer recipiente", "Bomba", "Dispositivo de inyección".

Se le sugiere al solicitante que coloque de manera específica y concreta a que elementos, características, componentes o términos, se esta refiriendo, colocando al frente de la característica o del elemento, el numero de referencia guardando correspondencia con el capítulo descriptivo, las graficas o dibujos y dicho capítulo reivindicatorio, con el objetivo de comprender mejor la invención al momento de hacer el análisis y distinguir los elementos de dicha invención.

- En la reivindicación independiente No.8, se evidencia que es una compilación de las reivindicaciones No.1 y la No.7.

Se le sugiere al solicitante que suprima o elimine esta reivindicación.

- En la reivindicación independiente No.9, se evidencia que es una compilación de las reivindicaciones No.1, 8 y la No.7.

Se le sugiere al solicitante que suprima o elimine esta reivindicación.

- En la reivindicación independiente No.10, se evidencia que es una compilación de las reivindicaciones No.1, 8, 7 y la No.9.

Se le sugiere al solicitante que suprima o elimine esta reivindicación.

- (b) Introducir una primera abertura dentro del cascaron del huevo;
- (c) Colocar un dispositivo de suministro de inyección a chorro con relación a la primer abertura por lo que el dispositivo de suministro de inyección a chorro a través de la primera abertura y dentro del huevo;
- (d) Liberar una dosis predeterminada de una primera sustancia de tratamiento por inyección a chorro dentro del huevo; y
- (e) Retraer el dispositivo de suministro de inyección a chorro, por lo que se trata el embrión aviar". (Ver folio 142).

La reivindicación No.8 dice: "Un método de inyección a chorro para tratar un embriones aviares in ovo, **caracterizado porque comprende** las etapas de:

- (a) Orientar un huevo de ave dentro de una posición predeterminada;
- (b) Colocar un medio de perforación del cascaron a una posición predeterminada en la superficie del cascaron;
- (c) Perforar el cascaron del huevo de ave;
- (d) Colocar un dispositivo de suministro de inyección a chorro con relación a la abertura, por lo que el dispositivo de suministro de inyección a chorro puede dirigir una corriente de inyección a chorro a través de la abertura y dentro del huevo;
- (e) Retraer los dispositivos de suministro de inyección a chorro, por lo que se trata el embrión aviar"; y
- (f) Resellar el huevo. (Ver folio 144).

La reivindicación No.9 dice: "Un método de inyección a chorro para tratar embriones aviar in ovo, **caracterizado porque comprende** las etapas de:

- (a) Orientar un huevo de ave dentro de una posición predeterminada;
- (b) Colocar un medio de perforación del cascaron a una posición predeterminada en la superficie del cascaron;
- (c) Introducir una primera abertura dentro del cascaron de un huevo de ave;
- (d) Introducir una segunda abertura dentro del cascaron de un huevo de ave, la segunda abertura se separa de la primera abertura;
- (e) Perforar el cascaron del huevo de ave;
- (f) Colocar un primer dispositivo de suministro de inyección a chorro con relación a la primera abertura, por lo que el primer dispositivo de suministro de inyección a chorro puede dirigir una primera corriente a chorro a través de la primera abertura y dentro del huevo;
- (g) Colocar un segundo dispositivo de suministro de inyección a chorro con relación a la segunda abertura, por lo que el segundo dispositivo de suministro de inyección a chorro puede dirigir una segundo corriente a chorro a través de la segunda abertura y dentro del huevo;
- (h) Liberar una dosis predeterminada de una primera sustancia de tratamiento a partir del primer dispositivo de suministro de inyección a chorro dentro del huevo;
- (i) Liberar una dosis predeterminada de una segunda sustancia de tratamiento a partir del segundo dispositivo de suministro de inyección a chorro dentro del huevo;
- (j) Retraer el primero y segundo dispositivos de suministro de inyección a chorro a partir del huevo, por lo que se trata el embrión aviar"; y
- (k) Liberar el cascaron de huevo;". (Ver folio 146).

son efectivos cuando son empleados solamente pero pueden ser nocivos si se mezclan. (Ver "Abstract, Columnas 1 a 14" y las "figuras No.1 a 13").

3. Análisis de las diferencias con respecto al estado de la técnica:

En la tabla No.1, 2, 3, 4 y 5, se ilustran en las casillas de comparación, la explicación de Afirmativa si las reivindicaciones están comprendidas dentro del estado de la técnica (documento D1), en caso contrario se enunciará como No es Afirmativa.

Tabla No.1.

ESTUDIO DE NOVEDAD	
Características esenciales de la Solicitud en estudio	Estado de la Tecnica
	Documento D1
(a) Orientar un huevo de ave dentro de una posición predeterminada;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 50), figura 1 a 10).
(b) Introducir una primera abertura dentro del cascaron del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 50), figura 1 a 10).
(c) Colocar un dispositivo de suministro de inyección a chorro con relación a la primer abertura por lo que el dispositivo de suministro de inyección a chorro a través de la primera abertura y dentro del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 50), figura 1 a 10).
(d) Liberar una dosis predeterminada de una primera sustancia de tratamiento por inyección a chorro dentro del huevo; y	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 50), figura 1 a 10).
(e) Retraer el dispositivo de suministro de inyección a chorro, por lo que se trata el embrión aviar"	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 50), figura 1 a 10).

Tabla No.3.

ESTUDIO DE NOVEDAD	
Características esenciales de la Solicitud en estudio	Estado de la Técnica
	Documento D1
(a) Orientar un huevo de ave dentro de una posición predeterminada;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(b) Colocar un medio de perforación del cascaron a una posición predeterminada en la superficie del cascaron;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(c) Introducir una primera abertura dentro del cascaron de un huevo de ave;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(d) Introducir una segunda abertura dentro del cascaron de un huevo de ave, la segunda abertura se sopara de la primera abertura;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(e) Perforar el cascaron del huevo de ave;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18)
(f) Colocar un primer dispositivo de suministro de inyección a chorro con relación a la primera abertura, por lo que el primer dispositivo de suministro de inyección a chorro puede dirigir una primera corriente a chorro a través de la primera abertura y dentro del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(g) Colocar un segundo dispositivo de suministro de inyección a chorro con relación a la segunda abertura, por lo que el segundo dispositivo de suministro de inyección a chorro puede dirigir una segundo corriente a chorro a través de la segunda abertura y dentro del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(h) Liberar una dosis predeterminada de una primera sustancia de tratamiento a partir del primer dispositivo de suministro de inyección a chorro dentro del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(i) Liberar una dosis predeterminada de una segunda sustancia de tratamiento a partir del segundo dispositivo de suministro de inyección a chorro dentro del huevo;	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(j) Retraer el primero y segundo dispositivos de suministro de inyección a chorro a partir del huevo, por lo que se trata el embrión aviar"; y	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).
(k) Liberar el cascaron do huevo;".	Afirmativa (Ver "Abstract" columna 10 (lin 56 a 67), columna 11 (lin 1 a 25), columna 11 (lin 30 a 68), columna 12 (lin 1 a 18) figura 1 a 10).

Tabla No.5.

ESTUDIO DE NOVEDAD	
Características esenciales de la Solicitud en estudio	Estado de la Técnica
	Documento D1
Una superficie plana para mantener una pluralidad de huevos en una superficie posición vertical y alineada sustancialmente, en donde la superficie plana se configura para proporcionar acceso externo en áreas predeterminadas de los huevos;	Afirmativa (Ver "Abstract" columna 5 (lin 53 a 68), columna 6 (lin 38 a 67), columna 7 (lin 1 a 21), columna 7 (lin 43 a 56), columna 11 (lin 65 a 68), columna 12 (lin 1 a 67), columna 13 (lin 23 a 48), figuras 1 a 10).
Una pluralidad de dispositivos de suministro de inyección a chorro configurados para poner en contacto áreas predeterminadas del huevo, al menos uno de los dispositivos de inyección a chorro que corresponden a cada huevo en la superficie plana;	Afirmativa (Ver "Abstract" columna 5 (lin 53 a 68), columna 6 (lin 38 a 67), columna 7 (lin 1 a 21), columna 7 (lin 43 a 56), columna 11 (lin 65 a 68), columna 12 (lin 1 a 67), columna 13 (lin 23 a 48), figuras 1 a 10).
Un primer recipiente de sustancia de tratamiento para mantener una primera sustancia de tratamiento, el primer recipiente en comunicación fluida con cada uno de los dispositivos de suministro de inyección a chorro, y opcionalmente, un segundo recipiente de sustancia de tratamiento para mantener una sustancia de tratamiento, el segundo recipiente en comunicación fluida con cada uno de los dispositivos de suministro de inyección a chorro".	Afirmativa (Ver "Abstract" columna 5 (lin 53 a 68), columna 6 (lin 38 a 67), columna 7 (lin 1 a 21), columna 7 (lin 43 a 56), columna 11 (lin 65 a 68), columna 12 (lin 1 a 67), columna 13 (lin 23 a 48), figuras 1 a 10).

4. Realizada la comparación y el análisis del documento D1, mediante las tablas No.1, 2, 3, 4 y 5 con respecto a la solicitud en estudio donde se presentan las reivindicaciones No.1, 8, 9, 10 y 14, se evidencia que D1 contiene todas las características esenciales de las reivindicaciones No.1, 8, 9, 10 y 14. Por lo que se concluiría que las reivindicaciones No.1, 8, 9, 10 y 14 de la solicitud en estudio no son nuevas y no cumplirían con lo estipulado en el artículo 16 de la decisión 486.

Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento N°	Reivindicaciones Afectadas	Requisito que Afecta
D1	US6032612	1 a 30	Novedad