



No. 05-123846- -00004-0000

Fecha: 2007-11-26 17:01:16 Dep. 2020 NUECREACION
Tra. 11 PATENTEIYII Eve: 379 FASENACIONALII
Act. 329 CTOINFORMACION Folios: 2**FORMULARIO UNICO DE CORRECCIONES Y MODIFICACIONES**

1	SOLICITUD DE: ☐ Corrección de Error Material ☒ Modificación a una solicitud	
2	SOLICITANTE Nombre: REXAM DISPENSING SYSTEMS Sociedad constituida y existente bajo las leyes de Francia Dirección: 15bis Route Nationale 76470 Le Treport, Francia Domicilio: Le Treport, Francia Teléfono: 546 09 70 Fax: 249 40 70 E-mail: clientes@cavelier.com	IDENTIFICACION C.C. ☐ NIT ☐ C.E. ☐ Otro ☐ Número: _____
3	REPRESENTANTE O APODERADO Nombre: Emilio FERRERO Dirección: Carrera 4ª No. 72-35 Teléfono: 347 36 11 Fax: 217 92 11 E-mail: cavelier@cavelier.com	IDENTIFICACION C.C. ☒ NIT ☐ C.E. ☐ Otro ☐ Número: <u>438.019 TP 31.929</u>
4	Número de expediente: <u>05.123.846</u>	
5	Descripción de la corrección o modificación solicitada: Atentamente solicito a Su Despacho tramitar la presente solicitud de Patente bajo las reglas del <u>Capítulo I del PCT</u> y no las del <u>Capítulo II</u> como se indicó en el Petitorio.	
6	Comprobante de pago No. <u>07-93.916</u> Fecha: <u>19 de noviembre de 2007</u>	
7	Anexos ☒ Comprobante de pago de la tasa ☐ Poderes, si fuere el caso ☐ Documento que acredita la existencia y representación legal de las partes, cuando sean personas jurídicas.	
8	NOMBRE: EMILIO FERRERO	FIRMA:  C.C. 438.019 de Usaquén T.P.A. 31.929

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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 07 - 93,916
FECHA : NOVIEMBRE 19 DE 2007

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	48825375	19/11/2007	49,592,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-03	CAMBIO DE MODALIDAD Y MODIFICA	
		12 MARCAS Y LENAS COMERCIALES	99,000.00
		TOTAL :	\$ 99,000.00

SON: NOVENTA Y NUEVE MIL PESOS

RESPONSABLE : _____

0020:15138-841-001-2.

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 05-123846

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

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **576** DE

FECHA **31 DE MAYO DE 2007** EL TÉRMINO HÁBIL SEÑALADO POR LA LEY

EXPIRA EL **31 DE AGOSTO DE 2007**

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

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Europäisches Patentamt
European Patent Office
Office européen des brevets



Publication number: **0 436 264 A1**

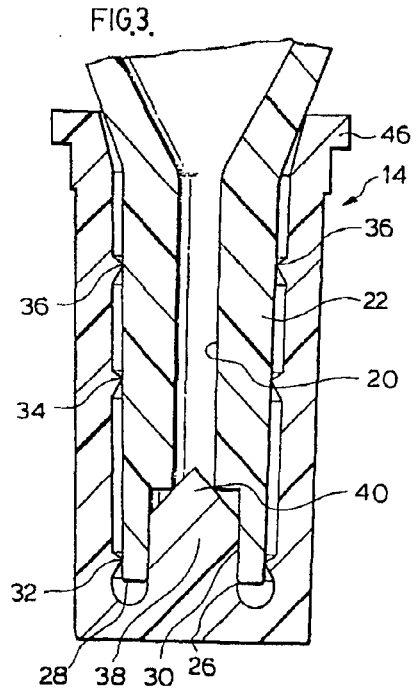
EUROPEAN PATENT APPLICATION

Application number: **90300015.6** Int. Cl.⁵: **B65D 47/18**
Date of filing: **02.01.90**

43 Date of publication of application: 10.07.91 Bulletin 91/28 64 Designated Contracting States: AT BE CH DE DK ES FR GB GR IT LI LU NL SE 71 Applicant: CONNAUGHT LABORATORIES LIMITED 1755 Steeles Avenue West Willowdale Ontario M2R 3T4(CA) 72 Inventor: Giummara, George	20 Ampringham Crescent Markham, Ontario, L3R 3G1(CA) Inventor: Gerson, Donald F. 208 Kennedy Street West Aurora, Ontario L4G 2L7(CA) 74 Representative: Burford, Anthony Frederick et al W.H. Beck, Greener & Co. 7 Stone Buildings Lincoln's Inn London WC2A 3SZ(GB)
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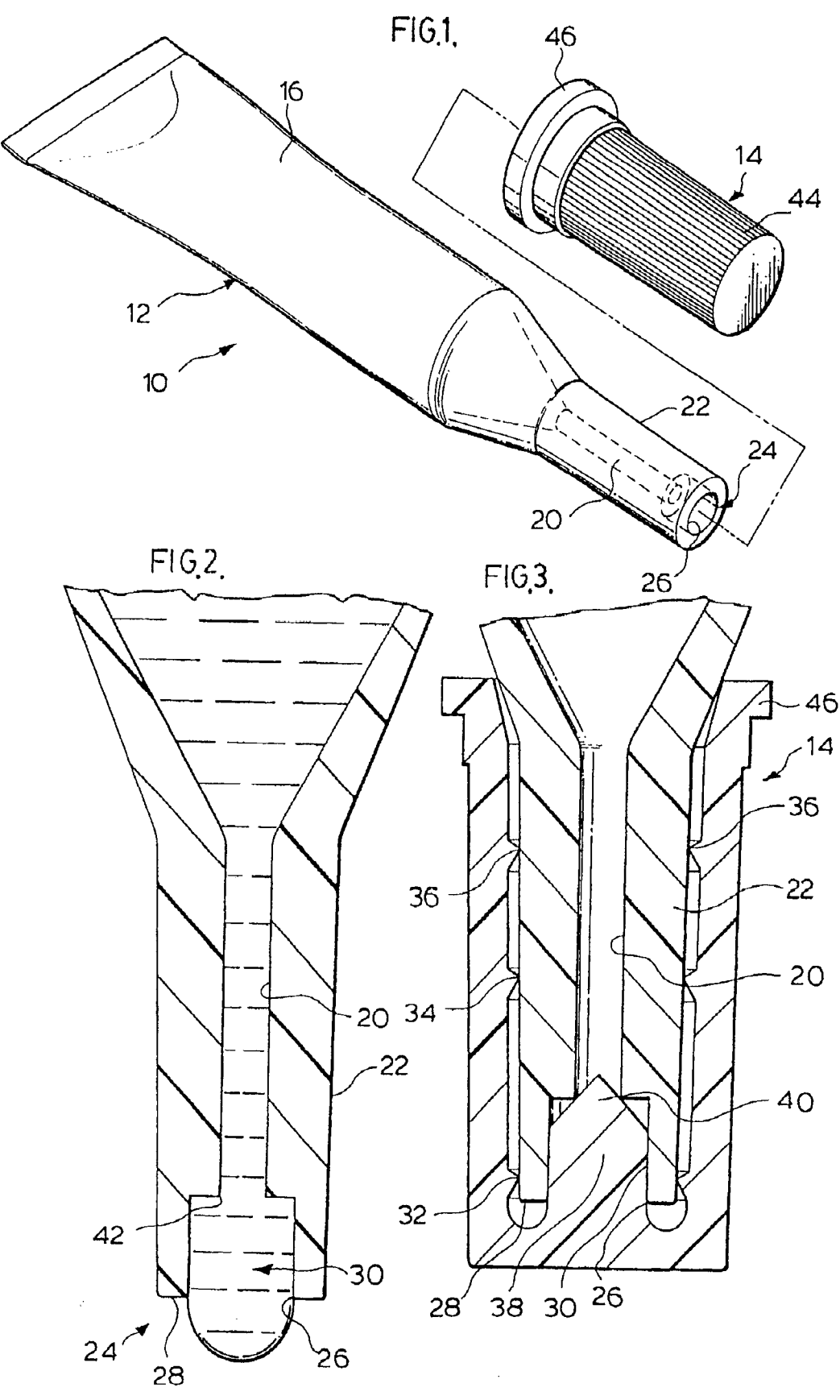
54 Dropper construction.

57 A dropper (10) for dispensing liquids in droplets of consistent size has a circular tip orifice (26) of predetermined diameter supplied with liquid via a capillary passage (20) of non-deformable diameter. Preferably, the dropper has a closure cap (14) of harder material than the tip (24) and is provided with an axially-directed projection (38) of complementary shape to a tip cavity (30) whereby upon closing the dropper the tip is remolded.

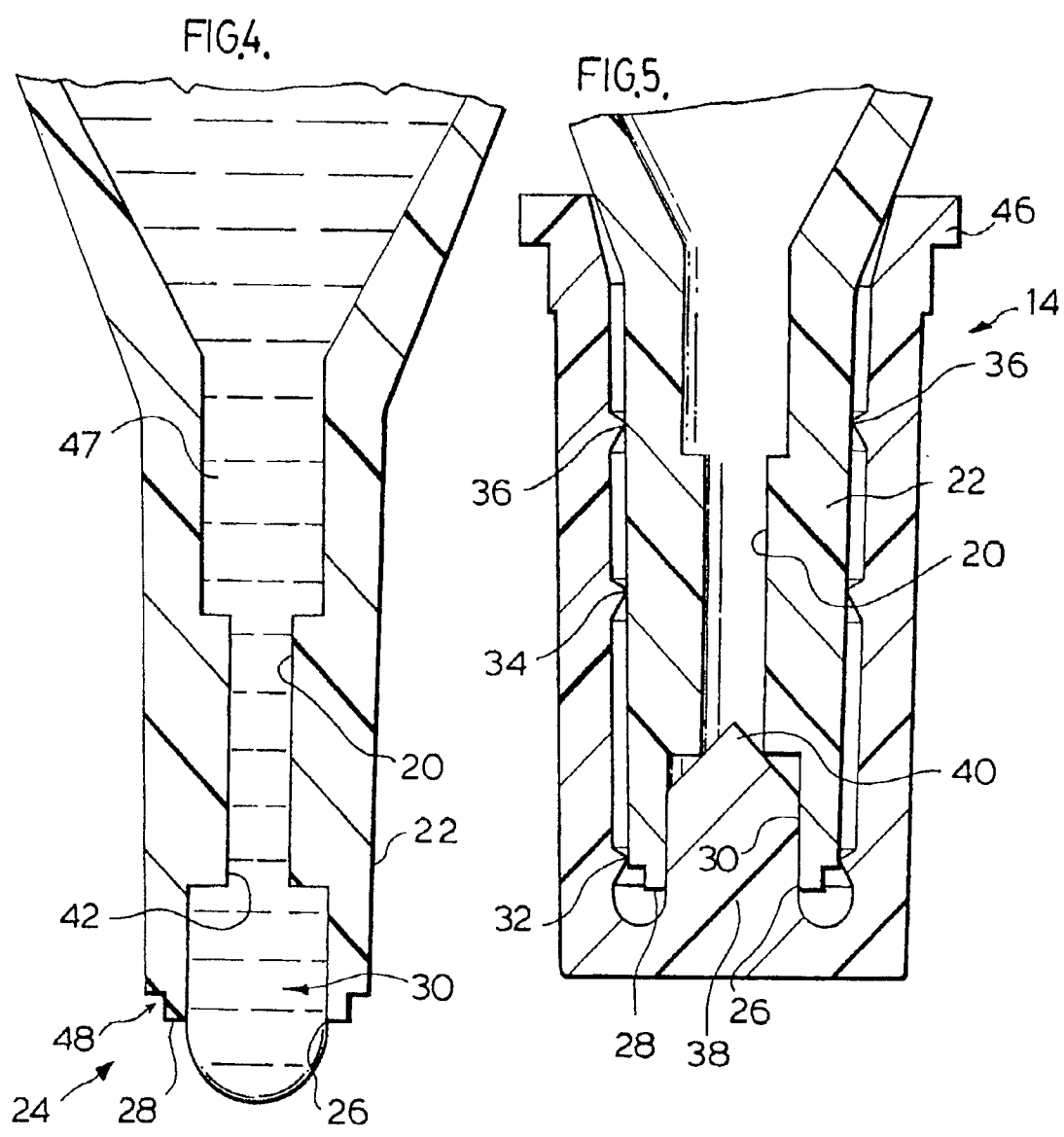


EP 0 436 264 A1

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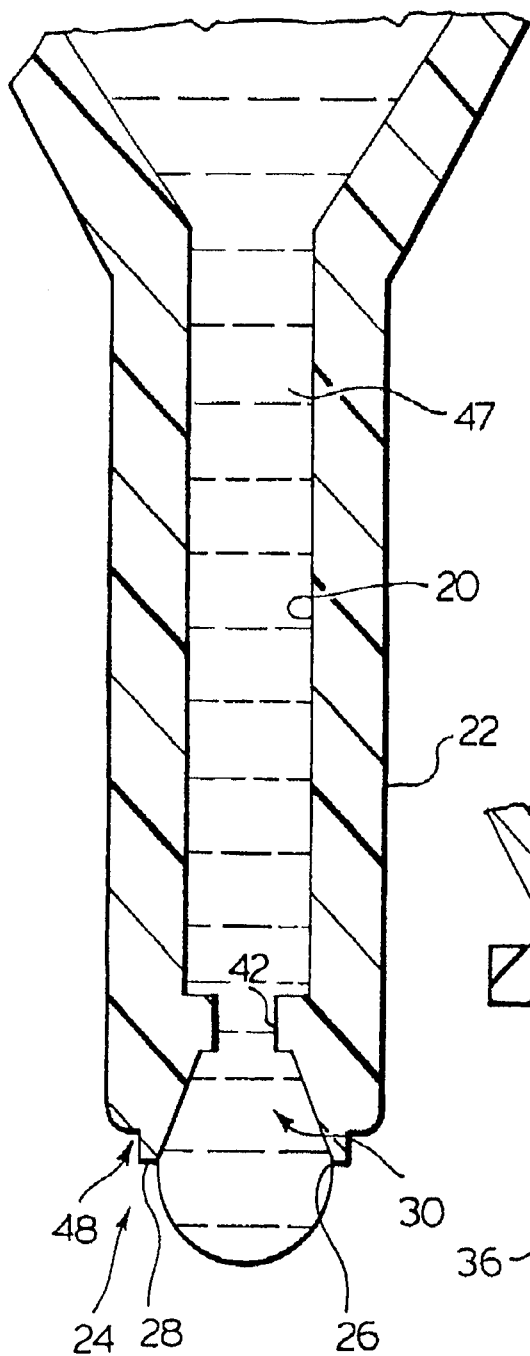


FIG. 9.

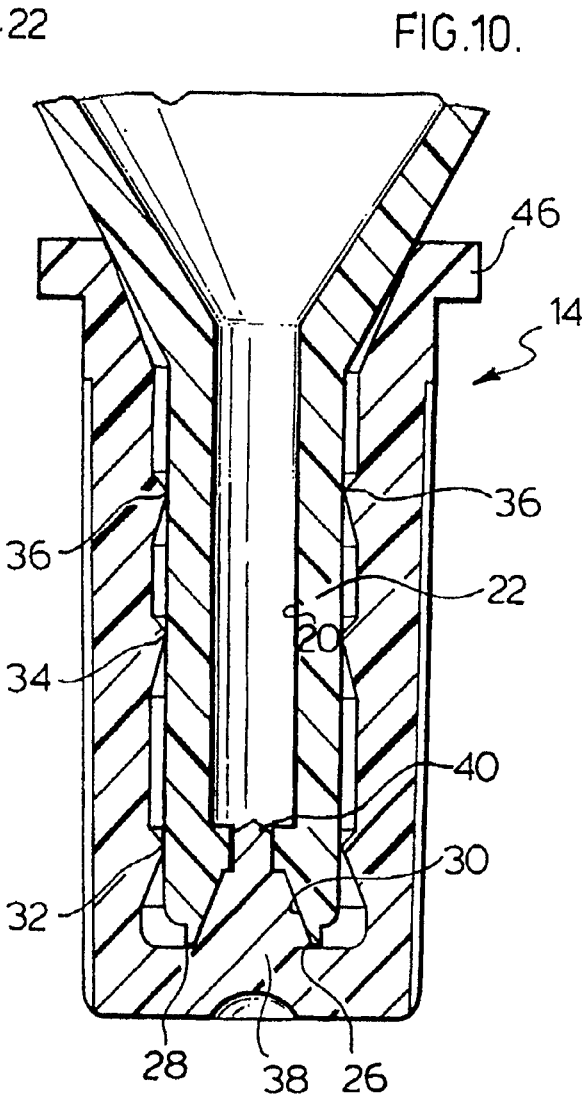


FIG. 10.

DROPPER CONSTRUCTION

The present invention relates to a dropper construction for the discharge of drops from a reservoir of liquid.

For the oral administration of certain vaccines, such as poliomyelitis vaccine, it is necessary for a reliable and accurate dosage to be provided. In this regard, the World Health Organization now requires polio vaccine to be administered as two drops each of 0.05 ml. Unfortunately, there does not exist a dropper able to function reproducibly and accurately in this manner, although attempts have been made in the prior art. The absence of such a device has lead to the development of the present invention.

In accordance with the present invention, there is provided a novel dropper structure which is able to provide a reliable and consistent drop of liquid from a reservoir thereof within the body of the dropper. The reservoir is connected via a capillary passage to a tip from which the drops fall and which is capped when not in use.

In the present invention, it is essential for the capillary passage to have a fixed cross-sectional dimension which does not alter as a result of differences in pressure applied to the resiliently-flexible reservoir, so that the flow of liquid through the capillary passage is controlled by surface forces. In this way, irrespective of the pressure applied by hand to the reservoir to eject the liquid therefrom, within a reasonable range, the same volume of liquid is delivered to the tip.

The tip is dimensioned to have a diameter which corresponds to the volume of liquid to be ejected as a single drop from dropper. It is known that the weight of a droplet released from an orifice corresponds to the formula:

$$W = 2\pi r ST f$$

where W is the drop weight, r is the radius of the orifice, ST is the surface tension at the point of wetting and f is a connection factor which depends on the orifice radius and the material of construction of the tip.

Although standard textbooks provide information with respect to f, we have found this information to be incorrect. We have found that the connector factor f is determined by the relationship:

$$f = 0.998 - 1.119X + 0.793X^2 + 0.1520X^3 - 0.265X^4$$

where $X = arV^{-0.33}$

a = an empirical factor depending on tube material and solution.

r = orifice radius

V = drop volume

The invention is described further by way of illustration, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a dropper constructed in accordance with one embodiment of the invention;

Figure 2 is a close-up sectional view of the head of the dropper of Figure 1 illustrating the structure of the head and droplet formation;

Figure 3 is a close-up sectional view of the head of the dropper assembled with the cap;

Figure 4 is a close-up sectional view of an alternative form of the head of the dropper of Figure 1;

Figure 5 is a close-up sectional view of the head of the dropper of Figure 4 assembled with the cap;

Figure 6 is a perspective view of a typical prior art dropper structure which is improved by the structure of the invention;

Figure 7 is a part-sectional view of the dropper of Figure 6 assembled with its cap;

Figure 8 is another part-sectional view of the dropper of Figures 6 during drop formation;

Figure 9 is a close-up sectional view of a further alternative form of the head of the dropper of Figure 1; and

Figure 10 is a close-up sectional view of the head of the dropper of Figure 9 assembled with the cap.

Referring to the drawings, a dropper 10 comprises a dropper body 12 and a cap 14. The body 12 is molded as one piece in a seamless mold, so as to provide an entirely smooth external surface, particularly in the area of the tip, from any convenient polymeric material, such as low density polyethylene. The body 12 includes an elongate generally cylindrical reservoir 16 which is deformable by squeezing to eject drops of liquid, such as polio vaccine, from the reservoir 16. Usually, the reservoir contains a convenient multiple of unit doses. For example, with polio vaccine, the reservoir 16 typically contains 10 or 20 unit doses.

The generally cylindrical reservoir 16, which is heat-sealed closed by heat seal 18 at one end, communicates with a capillary passage 20 in a neck 22 of the dropper body 12. The capillary passage 20 has a uniform diameter along its length which is dimensioned to permit flow therethrough by capillary effect only. The neck 22 is formed of relatively thick material in comparison to the diameter of the capillary

passage 20, to resist deformation of the diameter of the capillary passage 20 as ejecting pressure is applied to the reservoir 16, so as to provide a uniform flow of liquid from the reservoir 16 through the capillary passage 20 irrespective of the pressure applied by hand to the reservoir 16 within a reasonable range. The flow is controlled primarily by surface forces in the passage 20.

5 Located at the downstream end of the neck 22 is a tip 24. The tip 24 has a circular orifice 26 which is of a diameter to ensure that each liquid drop which falls from the orifice 26 always contains the same predetermined volume of liquid. The tip 24 has an entirely smooth surface 28 of contact with the liquid and a cylindrical or slightly tapered cavity 30 extending into the tip 24 to the passage 20. The orifice 26 thereby is defined by a sharp right angle edge.

10 The cap 14 also is molded as a one-piece construction from a polymeric material and is intended to function as a fluid-tight end closure for the body 12 when the dropper 10 is not in use, so that liquid is not lost from the reservoir 16, nor can contaminants enter the liquid reservoir.

The cap 14 includes a series of circular ridges 32, 34, 36 which are integrally molded to the internal surface of the cap 14 and arranged to grip the outer surface of the neck 22 when the cap 14 is positioned in
15 its closing position. An axially inwardly directed projection 38 from the end wall of the cap 14 is arranged to project accurately into the cavity 30 of the tip 24 when the cap 14 is in its closed position.

The projection 38 has a diameter and shape such that it snugly fits into the cavity 30 when the cap 14 is assembled to the body 12 so that the external surface of the projection 38 engages the internal surface of the cavity 30. The projection 38 includes a tapered nose portion 40 which projects into and engages the
20 orifice 42 at the downstream end of the capillary passage 20 when the cap 14 is fully assembled to the body 12, thereby preventing liquid flow out of the passage 20.

One of the ridges, namely ridge 32, is arranged to engage the tip portion 24 of the dropper 10 so that the walls of the cylindrical cavity 30 are gripped between that ridge 32 and the projection 38. The cap 14 is generally formed of harder polymeric material than the tip 24, so that insertion of the projection 38 into the
25 cavity 30 of the tip 24 and gripping of the wall of the cavity 30 between the projection 38 and the ridge 32, in effect, remolds the tip 24 each time the cap 14 is put on the dropper 10. This arrangement ensures that the shape of the tip 24, and, in particular, the size and shape of the orifice 26, is maintained and hence the drop of liquid falling from the tip 24 is consistently of the same volume, irrespective of the rate at which such droplets are formed and fall from the tip 24.

30 The cap 14 has an outer surface having longitudinally-extending ridges which permit the cap 14 to be gripped readily for removal from the body 12 and reassembly with the body 12. The cap 14, at its open end, has a radially-extending rim 46, which facilitates machine assembly of the cap 14 to the body portion 12 prior to filling the reservoir 16 with liquid and formation of the heat seal 18.

Figures 4 and 5 show some variation to the structure shown in Figures 2 and 3. As seen therein, the
35 capillary passage 20 may be made shorter than the length of the neck 22, to provide a cavity 47 in the neck. This modification does not affect the effectiveness of the device, but enables molding of the dropper 10 to be more readily effected.

In addition, an annular shoulder 48 is cut into the periphery of the surface 28, leaving a ring with sharp right angle edges, which produces improved drop uniformity with certain materials.

40 At the present time, oral polio vaccine is dispensed from a tube of uniform diameter as three drops per dose. One attempt to provide a more consistent volume of droplet is illustrated in Figures 4 to 6. However, the dropper 100 illustrated therein is not effective in this regard, for a number of reasons. As can be seen, as initially provided, the body 102 has a membrane closure to the reservoir 106. The cap 108 has a prong 110 which is intended to pierce the membrane to permit liquid to be dispensed from the reservoir 106.
45 Unfortunately, this piercing action does not produce a consistent opening and leaves ragged edge remnants of the membrane in the orifice 112. This problem is avoided in the structure of this invention.

In addition, the dropper 100 is molded in a two-part mold, which leaves a visible mold part line 114. The presence of this mold part line 114, which is of inconsistent dimension, adjacent to and extending into the droplet-forming orifice 116 leads to inconsistency of droplet size. By molding the dropper 10 with smooth
50 walls, this inconsistency problem is overcome. In addition, the prior art dropper 100 has no mechanism for remolding the tip.

Figures 9 and 10 show further variation to the structure shown in Figures 2 and 3. As seen therein, the capillary passage 20 is made very short, thereby lengthening the cavity 47 in the neck. By providing this structure, molding of the dropper 10 is even more readily effected without adversely affecting the
55 effectiveness of the device.

As in the arrangement of Figures 9 and 10, an annular shoulder 48 is cut into the periphery of the surface 28, leaving a ring with sharp right angle edges, which produces improved drop uniformity with certain materials. In addition the orifice 26 is provided in conical form, with the cap projection being formed

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISIÓN DE NUEVAS CREACIONES

202086
Bogotá, D.C.,

Abogado
EMILIO FERRERO

ASUNTO	Radicación	05123846
	Trámite	011
	Evento	379
	Actuación	430
	Oficio	Nº 7 2 5 3
	Folios	10

Patente de Invención	☒	Patente de Modelo de Utilidad	☐
Vía Nacional	☐		
Vía PCT (fase nacional)	☒	Cap. I	☐
		Cap. II	☒
No. Sol. Internacional		PCT/FR2004/001402	
Fecha de Presentación Internal.		07-06-2004	

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 le comunica:

1. Documentos estudiados

Descripción:	Folios: 18 a 25
Reivindicaciones:	Folios: 26 a 27
Dibujos:	Folios: 28 a 29
Prioridad:	Folios: 4 a 17 06-06-203. FR 03/06897

2. Objeto de la invención

- Título de la solicitud: "DISPENSADOR DE PRODUCTOLIQUIDO" (folio 18).

- Objeto de la invención: la invención se refiere a un dispensador cuya función es controlar la distribución de un producto líquido cuando sale de un frasco donde esta almacenado.

Según el autor, existe la necesidad de regular la salida del líquido de forma mucho más lenta que la de los convencionales dispensadores gota a gota. Por lo tanto, el objetivo de la invención es permitir una distribución de un producto líquido, como por ejemplo un perfume, cuando el dispensador entre en contacto con una superficie apropiada para poder humedecer. El dispensador esta compuesto por una tapa (7) que cierra la abertura del frasco y esta atravesada por un conducto (5) y que en la otra extremidad tiene un tubo de extracción que retiene la dosis de liquido en contra de la gravedad.

- El objeto de esta invención se clasifico como *B65D47/18* según la Clasificación Internacional de Patentes (IPC.).

3. De la solicitud de Patente

3.1. Reivindicaciones (artículo 30 D 486)

Después de estudiar completamente la solicitud, se sugiere al solicitante:

- Reemplazar del capítulo reivindicatorio todos los términos imprecisos (“como mínimo” y “al menos”) por expresiones que definan claramente lo que se desea proteger.
- Eliminar de la reivindicación siete (7) las longitudes de los conductos capilares (0.6mm, 1mm, 4mm y 12mm), puesto que no es permitido expresar dentro del capítulo reivindicatorio las dimensiones de los elementos.

4. Determinación del Estado de la Técnica

Teniendo en cuenta que la fecha de prioridad reivindicada es 06-06-2003, se encontraron los siguientes documentos relevantes:

N.	Documento	Titulo	Fecha de pub.
D1	EP0436264	Dropper construction	10-07-1991

5. Análisis de patentabilidad (artículo 14 D486)

5.1 Novedad (artículo 16 D486)

Al comparar elemento por elemento de la invención tal como está definido en la reivindicación uno (1) con el documento D1, encontramos que el mencionado documento revela todos los elementos y características de dicha reivindicación:

<i>Reivindicación Uno (1, folio 26)</i>	<i>D1</i>
1. Dispositivo aplicador para un producto líquido (2) contenido en un frasco contenedor/depósito (1).	SI Ver: elementos 12, 16, figura 1.
2. Susodicho dispositivo incluye una tapa (7) que cierra la abertura de dicho frasco (1), que está atravesada por como mínimo un conducto (5) de desplazamiento capilar de dicho producto líquido (2) hacia una superficie que se pueda mojar llevada a establecer contacto, con una de las extremidades de dicho conducto capilar (5) que acaba en el exterior de dicha tapa (7).	SI Ver: elementos 22, 12, 16, 20, figuras 1-5.
3. Y la otra extremidad acaba en un tubo de extracción (6) de dicho producto líquido (2) realizado de manera que retenga una dosis determinada de producto líquido (2) en contra del efecto de la gravedad por capilaridad.	SI Ver: elementos 20, 28, 30, 40, 38 figuras 1-5, 9-10.

De acuerdo con lo anterior, todos los elementos y características que forman parte del “DISPENSADOR DE PRODUCTO LIQUIDO” mostrados en la reivindicación independiente uno (1, folio 26), ya fueron divulgados en D1, por lo cual se podría considerar que carece de novedad.

Las reivindicaciones 1-11 no muestran en forma expresa y clara lo nuevo que se pretende aportar a la técnica ni aporta diferencias a lo ya existente. El análisis anterior permitiría afirmar que la presente solicitud no cumpliría con lo estipulado en el artículo 16 de la Decisión 486 de la Comisión de la Comunidad Andina de Naciones.

6. Conclusión:

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

N°	Documento N°	Reivindicaciones afectadas	Requisito que afecta
D1	EP0436264	1-11	NOVEDAD

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta (60) días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.



ALIX CARMENZA CÉSPEDES DE VERGEL
Jefe de División de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en lista, de fecha
03 JUL. 2009

CONCEPTO TÉCNICO No 1626	EXAMINADOR TÉCNICO Código No.202086
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