



No. 13-039467- -00001-0000

Fecha: 2013-07-11 15:12:55 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 400 OPOSIOBSERVTER Folios: 56

DIRECCIÓN DE NUEVAS CREACIONES
PRESENTACIÓN DE OPOSICIÓN

1. Oposición a solicitud de:

- ☒ Patente de invención
☐ Registro de Diseño Industrial
☐ Patente de Modelo de Utilidad
☐ Esquema de Trazado de Circuitos Integrados

Número de expediente: 13-039-467

Solicitante: LABORATOIRES THEA

Apoderado GILDA OGIASTRI PUERTA

Título de la Nueva Creación: CABEZAL DE DISTRIBUCIÓN DE LIQUIDO GOTA A GOTA

Gaceta: 665 DEL 15 DE ABRIL DE 2013

2. Datos del Opositor

☐ Persona Natural

☒ Persona Jurídica

PRODUCTORES DE ENVASES FARMACÉUTICOS S.A.S. PROENFAR S.A.S.

Nombre o denominación /Razón social completa

Nombre del representante legal

Documento de identificación: C.C. ☐ C.E ☐ NIT ☒ Otro ☐ Cuál _____

Número 860.513.290-1

Dirección Calle 10 No. 34A-13 Ciudad BOGOTÁ, D.C.

Teléfono 6736990 Fax: 6734930 Correo electrónico fmedina@proenfar.com

☐ Autorizo expresamente a la Superintendencia de Industria y Comercio para que todas las comunicaciones sean enviadas a través de la dirección de correo electrónico

3. Datos del representante o apoderado:

GILDA OGIASTRI PUERTA 41.683.468 T.P.37.875 C.S.J.

Apellidos y Nombre

Documento de identificación

Tarjeta profesional

Dirección del representante

CARRERA 7 No. 156-80, PISO 8, BOGOTÁ

Dirección electrónica

No. Fax

Número Telefónico

gildao@proenfar.com

6734930

6736990

En caso de haber presentado poder general para asuntos que se adelanten ante la Delegatura de Propiedad Industrial, sírvase indicar el número de su radicación o protocolo de poder general: _____

4. Fundamentos de la oposición

Causal: La solicitud de patente de invención del expediente No. 13.039.467 no cumple con los requisitos de patentabilidad establecidos por los artículos 14,16, del Título II de las Patentes de Invención de la Decisión 486 de la Comisión de la Comunidad Andina.

Justificación: VER DOCUMENTO ADJUNTO

Prórroga:

SI

☐

NO

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5. Anexos

- ☒ Comprobante de pago de la tasa.
☒ Poder, si fuera el caso.
☒ Fundamentos de la oposición. Se anexan 6 folios (obligatorios indicar cuántos).
☒ Anexo de fundamentos de la oposición. Se anexan 43 folios (obligatorios indicar cuántos)
☐ Copias para traslado.
☐ Copia de la solicitud y sus anexos en formato magnético.
☒ Certificado de Existencia y Representación Legal

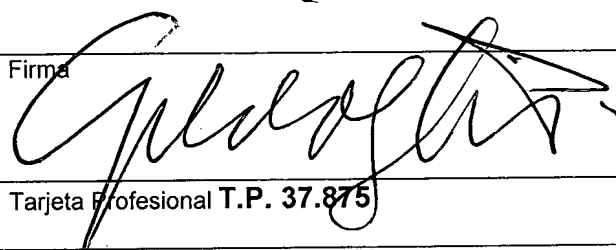
6. Firma

Nombre del Firmante

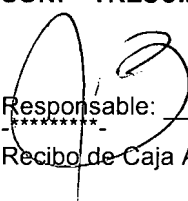
GILDA OGIASTRI PUERTA

C.C. 41.683.468

Firma



Tarjeta Profesional T.P. 37.875

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO NIT : 800.176.089-2 - / -					
 Industria y Comercio SUPERINTENDENCIA	RECIBO DE CAJA			No. 13 - 0069400	
				Bogotá D.C., Julio 11 de 2013 - 15:04:27	
RECIBIDO DE : PRODUCTORES DE ENVASES FARMACEUTICOS S.A. PROENFAR S.A.				NI 860.513.290	
*** Soporte del Pago ***					
TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	VR.PAGO
CONSIGNACION	BANCO DE BOGOTA	062754387	596452522	10/07/2013	315.000.00
CONSIGNACION	BANCO DE BOGOTA	062754387	601673660	11/07/2013	10.000.00
*** Conceptos Pagados ***					
CANT.	RENTISTICO	CONCEPTO	Vr.UNDITARIO	Vr.CONCEPTO	
1	50005-01-04 PRESENTACION DE OBSERVACIONES A SOLICITUDES	12 OPOSICION POR CADA CLASE-MARCAS Y LEMAS COMERCIALES	325.000.00	325.000.00	
				=====	
				\$325.000.00	
SON: **TRESCIENTOS VEINTICINCO MIL PESOS MONEDA CORRIENTE**					
Responsable:  ***** Recibo de Caja Aplicado al Expediente No. _____					
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO					
					
No. 13-039467- -00001-0000					
Fecha: 2013-07-11 15:12:55 Dep. 2020 DIR.NUEVASCR					
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI					
Act. 400 OPOSIOBSERVTER Folios: 56					
Sede Centro: Carrera 13 No. 27 - 00 Pisos 3,4,5 y 10 Bogotá, D.C.- Colombia					
Web: www.sic.gov.co e-mai: info@sic.gov.co Conmutador: (571) 5870000 Fax: (571) 5870284 Linea: 018000-910165 Call Center: (571) 6513240					
Julio 11 de 2013 - 15:04:28					



PODER

El suscrito, FERNANDO GUSTAVO MEDINA GARAVITO, mayor de edad, identificado como aparece al pie de mi firma, obrando en nombre y representación de PRODUCTORES DE ENVASES FARMACEUTICOS S.A.S. PROENFAR S.A.S., con NIT 860.513.290-1, en mi calidad de representante legal, sociedad organizada y existente de conformidad con las leyes de Colombia, domiciliada en la Calle 10 No. 34 A - 13, de Bogotá, Colombia, por el presente otorga a GILDA OGLIASTRI PUERTA, mujer mayor de edad, domiciliada en Bogotá, identificada con cédula de ciudadanía No. 41.683.468 expedida en Bogotá y con Tarjeta Profesional de Abogado No. 37.875 expedida por el Consejo Superior de la Judicatura, Poder amplio y suficiente para presentar una Oposición a la Solicitud de Patente de Invención No. 13-039.467, radicada ante la Superintendencia de Industria y Comercio por la sociedad LABORATOIRES THEA, a cuyo efecto la autorizamos para que nos represente ante cualquier entidad o personas, ejerzan o no jurisdicción, especialmente ante las del orden administrativo, contencioso administrativo y judicial, así como los tribunales de arbitramento, en todo lo concerniente a la presentación de dicha oposición a solicitud de patente de invención en Colombia, así como la facultamos para presentar solicitudes, peticiones y demandas, interponer recursos, reclamos, pagar impuestos y tasas, recibir, transigir y desistir, incluyendo facultades para entrar en acuerdos amigables, conciliaciones y transacciones, abandonar solicitudes y renunciar a derechos de propiedad industrial, y en general, a dar ante las autoridades competentes todos los pasos necesarios para la debida protección de nuestros intereses. Asimismo, se concede a la mencionada apoderada poder suficiente para recibir notificaciones a nombre de mi representada, otorgar poderes a quienes vayan a representar a la compañía judicial y extrajudicialmente, responder en juicio a todas las reclamaciones o demandas que por motivo de la oposición a dicha solicitud de patente se presentaren y hacer cuanto fuere necesario ante las autoridades administrativas o judiciales de cualquier orden para el cumplimiento de este mandato, dándole igualmente facultad para sustituir el presente poder y en caso necesario, revocar dichas sustituciones y, demás facultades requeridas.

Bogotá, D.C., Colombia, 10 de julio de 2013.

PRODUCTORES DE ENVASES FARMACEUTICOS S.A.S. PROENFAR S.A.S.
FERNANDO GUSTAVO MEDINA GARAVITO
C.C. No. 79.146.438 de Usaquén
Representante Legal

Acepto el Poder,

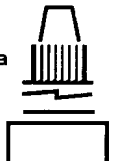
Gilda Ogliastri Puerta

GILDA OGLIASTRI PUERTA
C.C. No. 41.683.468 de Bogotá
T.P. 37.875 C.S. de la J.



Calle 10 No. 34A - 13
Conmutador PBX: (57-1) 364 8586
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A.A. 50440 Z.P.6
Bogotá, D.C.
Colombia - South America
Nit: 860.513.290 - 1
IVA REGIMEN COMUN No. 03-3395-04

¡ Tecnología farmacéutica
hecha envase !





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CAMARA DE COMERCIO DE BOGOTA

SEDE NORTE

9 DE JULIO DE 2013 HORA 12:24:50

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PAGINA: 1 de 4

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CERTIFICADO DE EXISTENCIA Y REPRESENTACION LEGAL O INSCRIPCION DE DOCUMENTOS

LA CAMARA DE COMERCIO DE BOGOTA, CON FUNDAMENTO EN LAS MATRICULAS E INSCRIPCIONES DEL REGISTRO MERCANTIL

CERTIFICA:

NOMBRE : PRODUCTORES DE ENVASES FARMACEUTICOS S A S PROENFAR S A S,
CON SIGLA PROENFAR S A S

SIGLA : PROENFAR S A S

N.I.T. : 860513290-1

DOMICILIO : BOGOTA D.C.

CERTIFICA:

MATRICULA NO: 00190577 DEL 19 DE MAYO DE 1983

CERTIFICA:

RENOVACION DE LA MATRICULA :26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO: 2013

ACTIVO TOTAL REPORTADO:\$121,593,425,561

CERTIFICA:

DIRECCION DE NOTIFICACION JUDICIAL : CL 10 NO. 34A-13

MUNICIPIO : BOGOTA D.C.

EMAIL DE NOTIFICACION JUDICIAL : impuestos@proenfar.com

DIRECCION COMERCIAL : CL 10 NO. 34A-13

MUNICIPIO : BOGOTA D.C.

EMAIL COMERCIAL : impuestos@proenfar.com

CERTIFICA:

CONSTITUCION: ESCRITURA PUBLICA NO.399, NOTARIA 26 DE BOGOTA, EL-
25 DE ABRIL DE 1.983, INSCRITA EL 19 DE MAYO DE 1.983, BAJO EL NO.
133161 DEL LIBRO IX, SE CONSTITUYO LA SOCIEDAD LIMITADA DENOMINA-
DA "PRODUCTORES DE ENVASES LTDA." PROENVASES "

CERTIFICA:

QUE POR ESCRITURA PUBLICA NUMERO 1.324 OTORGADA EN LA NOTARIA 26 DE
BOGOTA EL 24 DE SEPTIEMBRE DE 1.985, INSCRITA EN ESTA CAMARA DE
COMERCIO EL 8 DE OCTUBRE DE 1.985, BAJO EL NUMERO 178.146 DEL LIBRO
IX, LA SOCIEDAD CAMBIO SU NOMBRE DE "PRODUCTORES DE ENVASES LTDA.
PROENVASES" POR EL DE "PRODUCTORES DE ENVASES FARMACEUTICOS LTDA.
PROENFAR LTDA."

CERTIFICA:

QUE POR E.P. NO.61 NOTARIA 26 DE BOGOTA DEL 20 DE ENERO DE 1.988
INSCRITA EL 8 DE FEBRERO DE 1.988 BAJO EL NO.228.231 DEL LIBRO IX LA
SOCIEDAD ADICIONO EN NOMBRE ASI: " PRODUCTORES DE ENVASES
FARMACEUTICOS LIMITADA - PROENFAR LTDA" (QUE PODRA USAR EN FORMA
ABREVIADA COMO "PROENFAR LTDA" E INTRODUJO OTRAS REFORMAS AL ESTATUTO
SOCIAL.

CERTIFICA:

QUE POR ACTA NO. 85 DE LA ASAMBLEA DE ACCIONISTAS DEL 30 DE JULIO DE
2009, INSCRITA EL 20 DE AGOSTO DE 2009 BAJO EL NUMERO 1320764 DEL

LIBRO IX, LA SOCIEDAD DE LA REFERENCIA CAMBIO SU NOMBRE DE: PRODUCTORES DE ENVASES FARMACEUTICOS S.A. PROENFAR S.A. Y PODRA UTILIZAR LA SIGLA PROENFAR S.A., POR EL DE: PRODUCTORES DE ENVASES FARMACEUTICOS S.A.S. PROENFAR S.A.S., CON SIGLA PROENFAR S.A.S.

CERTIFICA:

QUE POR ESCRITURA PUBLICA NO 3529 DE LA NOTARIA 41 DE SANTAFE DE BOGOTA, DEL 18 DE NOVIEMBRE DE 1997, INSCRITO EL 19 DE NOVIEMBRE DE 1997, BAJO EL NO. 610860 DEL LIBRO IX, LA SOCIEDAD PRODUCTORES DE ENVASES FARMACEUTICOS LTDA PROENFAR LIMITADA, SE TRANSFORMO EN ANONIMA BAJO EL NOMBRE DE PRODUCTORES DE ENVASES FARMACEUTICOS S.A. PROENFAR S.A. Y PODRA UTILIZAR LA SIGLA PROENFAR S.A.

CERTIFICA:

QUE POR ACTA NO. 85 DE LA ASAMBLEA DE ACCIONISTAS, DEL 30 DE JULIO DE 2009, INSCRITA EL 20 DE AGOSTO DE 2009 BAJO EL NÚMERO 1320764 DEL LIBRO IX, LA SOCIEDAD DE LA REFERENCIA SE TRANSFORMO DE SOCIEDAD ANONIMA A SOCIEDAD POR ACCIONES SIMPLIFICADA BAJO EL NOMBRE DE: PRODUCTORES DE ENVASES FARMACEUTICOS S.A.S. PROENFAR S.A.S., CON SIGLA PROENFAR S.A.S.

CERTIFICA:

REFORMAS:

ESCRITURAS NO.	FECHA	NOTARIA	INSCRIPCION
731	9-VII-1.983	26 BTA	3-VIII-1983 NO.136854
1.316	24- IX-1.985	26 BTA	8- X -1985 NO.178146
1.324	24- IX-1.985	26 BTA	8- X -1985 NO.178146
659	14--V--1.986	26 BTA.	20-V---1986 NO.190420
1.132	6-VIII-1.986	26 BTA.	25-VIII-1986 NO.195967
61	20- I-1.988	26 BTA.	8- II-1988 NO.228231
1.738	12-VIII-1.988	26 BTA.	19-VIII-1988 NO.243382
3.276	26-XII -1.989	26 BTA.	28-XII -1989 NO.283271
2.133	18-VIII-1.992	26 STAFE BTA.	27-VIII-1992 NO.376206
1.160	30- IV -1.996	41 STAFE BTA	14- V -1996 NO.537721
3.305	28-X --1.996	41 STAFE BTA	30- X -1996 NO.560301

CERTIFICA:

REFORMAS:

E.P. NO.	FECHA	NOTARIA	CIUDAD	FECHA	NO. INSC.
0003529	1997/11/18	0041	BOGOTA D.C.	1997/11/19	00610850
0001078	1999/05/19	0041	BOGOTA D.C.	1999/05/27	00681865
0002743	1999/11/19	0041	BOGOTA D.C.	1999/11/19	00704557
0000001	1999/11/22	0000	BOGOTA D.C.	1999/11/26	00705362
0001514	2000/07/25	0041	BOGOTA D.C.	2000/07/31	00739009
0001325	2003/06/18	0041	BOGOTA D.C.	2003/07/04	00887075
0001262	2004/06/25	0041	BOGOTA D.C.	2004/06/28	00940731
0000731	2005/04/12	0041	BOGOTA D.C.	2005/04/13	00985830
0001500	2007/06/26	0041	BOGOTA D.C.	2007/06/28	01141024
0001647	2008/08/26	0041	BOGOTA D.C.	2008/08/28	01238074
753	2009/05/11	0041	BOGOTA D.C.	2009/05/12	01296465
85	2009/07/30	0000	BOGOTA D.C.	2009/08/20	01320764
87	2009/09/30	0000	BOGOTA D.C.	2009/10/01	01331260
90	2011/09/23	0000	BOGOTA D.C.	2011/09/29	01516256

CERTIFICA:

VIGENCIA: QUE EL TERMINO DE DURACION DE LA SOCIEDAD ES INDEFINIDO

CERTIFICA:

OBJETO SOCIAL: LA SOCIEDAD TENDRÁ POR OBJETO SOCIAL PRINCIPAL EL SIGUIENTE: A. LA FABRICACIÓN O COMERCIALIZACIÓN DE TODA CLASE DE MATERIALES, ARTÍCULOS O DISPOSITIVOS PLÁSTICOS PARA TODO TIPO DE INDUSTRIA Y EMPRESAS DE SERVICIOS EN GENERAL Y EN ESPECIAL PARA LA



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CAMARA DE COMERCIO DE BOGOTA

SEDE NORTE

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INDUSTRIA FARMACÉUTICA, COSMÉTICA, VETERINARIA Y DE SERVICIOS RELACIONADOS CON EL CUIDADO DE LA SALUD; B. LA EXPORTACIÓN, IMPORTACIÓN, DISTRIBUCIÓN Y VENTA DE MATERIALES, ARTÍCULOS O DISPOSITIVOS PLÁSTICOS, METÁLICOS, DE VIDRIO, O DE CUALQUIER OTRA CLASE Y DE LAS MATERIAS PRIMAS NECESARIAS PARA LA ELABORACIÓN DE LOS MISMOS; C. REPRESENTACIÓN DE FABRICANTES, IMPORTADORES O EXPORTADORES DE LOS PRODUCTOS ANTES MENCIONADOS, O QUE COMERCIALIZEN LAS MATERIAS PRIMAS RESPECTIVAS Y DE EQUIPOS O TECNOLOGÍAS RELACIONADOS CON LOS MISMOS; D. LA FABRICACIÓN DE TODA CLASE DE MOLDES, SU EXPORTACIÓN, IMPORTACIÓN Y VENTA; E. LA PRESTACIÓN DE SERVICIOS DE DECORACIÓN DE ENVASES, SU ESTERILIZACIÓN Y SU LLENADO Y CUALQUIER OTRO PROCESO REQUERIDO POR TODO TIPO DE INDUSTRIA Y POR EMPRESAS DE SERVICIOS EN GENERAL Y EN ESPECIAL PARA LA INDUSTRIA FARMACÉUTICA, COSMÉTICA, VETERINARIA Y DE SERVICIOS RELACIONADOS CON EL CUIDADO DE LA SALUD; F. LA FABRICACIÓN O COMERCIALIZACIÓN DE MÁQUINAS Y APARATOS PARA TRABAJAR PLÁSTICO, CAUCHO Y OTROS MATERIALES, ASÍ COMO DE MÁQUINAS Y APARATOS PARA IMPRIMIR POR SERIGRAFÍA TAMPOGRÁFICA, OFFSET, HOTSTAMPING O CUALQUIER OTRA TÉCNICA DE IMPRESIÓN G. INVERSIONES EN OTRAS COMPAÑÍAS O NEGOCIOS DE CARÁCTER INDUSTRIAL, AGRÍCOLA, COMERCIAL, DE SERVICIOS, FINANCIERO E, INMOBILIARIO, CUALQUIERA QUE FUERE SU OBJETO; H. LA VENTA, EL OTORGAMIENTO DE LICENCIAS, LA ASISTENCIA TÉCNICA Y CUALQUIER OTRO TIPO DE ACTO DE COMERCIO RELACIONADO CON SU TECNOLOGÍA. I. GARANTIZAR OBLIGACIONES DE SUS FILIALES, SUBORDINADAS, CONTROLADAS O, DE AQUELLAS SOCIEDADES EN LAS QUE TENGA PARTICIPACIÓN ACCIONARIA.

CERTIFICA:

CAPITAL:

** CAPITAL AUTORIZADO **

VALOR : \$20,000,000,000.00
NO. DE ACCIONES : 2,000,000.00
VALOR NOMINAL : \$10,000.00

** CAPITAL SUSCRITO **

VALOR : \$13,635,730,000.00
NO. DE ACCIONES : 1,363,573.00
VALOR NOMINAL : \$10,000.00

** CAPITAL PAGADO **

VALOR : \$13,635,730,000.00
NO. DE ACCIONES : 1,363,573.00
VALOR NOMINAL : \$10,000.00

CERTIFICA:

** JUNTA DIRECTIVA: PRINCIPAL (ES) **

QUE POR ACTA NO. 85 DE JUNTA DE SOCIOS DEL 30 DE JULIO DE 2009, INSCRITA EL 24 DE AGOSTO DE 2009 BAJO EL NUMERO 01321455 DEL LIBRO IX, FUE (RON) NOMBRADO (S):



NOMBRE	IDENTIFICACION
PRIMER RENGLON	
DURAN ECHEVERRI DARIO ALBERTO	C.C. 0000000079397873
SEGUNDO RENGLON	
KURLA VARGAS JORGE ALEXIS	P.P. 000000004293391

QUE POR ACTA NO. 91 DE ASAMBLEA DE ACCIONISTAS DEL 30 DE MARZO DE 2012, INSCRITA EL 22 DE MAYO DE 2012 BAJO EL NUMERO 01635752 DEL LIBRO IX, FUE (RON) NOMBRADO (S):

NOMBRE	IDENTIFICACION
TERCER RENGLON	
CARRILLO RODRIGUEZ ALEJANDRO	C.C. 0000000079948084

QUE POR ACTA NO. 85 DE JUNTA DE SOCIOS DEL 30 DE JULIO DE 2009, INSCRITA EL 24 DE AGOSTO DE 2009 BAJO EL NUMERO 01321455 DEL LIBRO IX, FUE (RON) NOMBRADO (S):

NOMBRE	IDENTIFICACION
CUARTO RENGLON	
GEDEON GHISAYS RODOLFO WADY	C.C. 000000003795186
QUINTO RENGLON	
MORENO ESCALLON MAURICIO LIBORIO	C.C. 0000000019309062

CERTIFICA:

REPRESENTACION LEGAL: LA SOCIEDAD TENDRA UN PRESIDENTE QUE SERÁ ELEGIDO POR LA ASAMBLEA GENERAL. EL PRESIDENTE TENDRÁ DOS SUPLENTE QUE REEMPLAZARAN AL PRINCIPAL, EN SUS FALTAS ACCIDENTALES, TEMPORALES O ABSOLUTAS. EL PRESIDENTE TENDRÁ A SU CARGO LA REPRESENTACIÓN LEGAL DE LA SOCIEDAD, LA ADMINISTRACIÓN Y GESTIÓN DE LOS NEGOCIOS SOCIALES CON SUJECCIÓN A LA LEY, A ESTOS ESTATUTOS, Y A LOS REGLAMENTOS Y RESOLUCIONES DE LA ASAMBLEA DE ACCIONISTAS Y DE LA JUNTA DIRECTIVA.

CERTIFICA:

** NOMBRAMIENTOS **

QUE POR ACTA NO. 85 DE JUNTA DE SOCIOS DEL 30 DE JULIO DE 2009, INSCRITA EL 24 DE AGOSTO DE 2009 BAJO EL NUMERO 01321561 DEL LIBRO IX, FUE (RON) NOMBRADO (S):

NOMBRE	IDENTIFICACION
PRESIDENTE	
VERGARA CORRADINE MARIO	C.C. 0000000019439733
PRIMER SUPLENTE DEL PRESIDENTE	
MEDINA GARAVITO FERNANDO GUSTAVO	C.C. 0000000079146438
SEGUNDO SUPLENTE DEL PRESIDENTE	
RAMIREZ REYES LUIS ORLANDO	C.C. 000000003020961

CERTIFICA:

FACULTADES DEL REPRESENTANTE LEGAL: EL PRESIDENTE DE LA SOCIEDAD EJERCERÁ TODAS LAS FUNCIONES PROPIAS DE LA NATURALEZA DE SU CARGO, Y EN ESPECIAL, LAS SIGUIENTES: A. REPRESENTAR A LA SOCIEDAD ANTE LOS ACCIONISTAS, ANTE TERCEROS Y ANTE TODA CLASE DE AUTORIDADES DEL ORDEN ADMINISTRATIVO Y JURISDICCIONAL; B. EJECUTAR TODOS LOS ACTOS U OPERACIONES CORRESPONDIENTES AL OBJETO SOCIAL, DE CONFORMIDAD CON LO PREVISTO EN LAS LEYES Y EN ESTOS ESTATUTOS; C. AUTORIZAR CON SU FIRMA TODOS LOS DOCUMENTOS PÚBLICOS O PRIVADOS QUE DEBAN OTORGARSE EN DESARROLLO DE LAS ACTIVIDADES SOCIALES O EN INTERÉS DE LA SOCIEDAD; D. PRESENTAR A LA ASAMBLEA GENERAL EN SUS REUNIONES ORDINARIAS, LOS ESTADOS FINANCIEROS DE EJERCICIO, JUNTO CON UN INFORME ESCRITO SOBRE LA SITUACIÓN DE LA SOCIEDAD, UN DETALLE COMPLETO DE LA CUENTA DE PÉRDIDAS Y GANANCIAS Y UN PROYECTO DE DISTRIBUCIÓN DE UTILIDADES OBTENIDAS; E. PRESENTAR PARA APROBACIÓN DE LA JUNTA DIRECTIVA, A MÁS TARDAR EL ÚLTIMO DÍA DEL MES DE ENERO DE CADA AÑO, UN PRESUPUESTO GENERAL DE GASTOS Y COSTOS GENERALES DEL AÑO. UNA VEZ APROBADO EL



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CAMARA DE COMERCIO DE BOGOTA

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PAGINA: 3 de 4

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PRESUPUESTO SERÁ REVISADO DE CONFORMIDAD CON LA AGENDA ESTABLECIDA CONJUNTAMENTE CON LA JUNTA DIRECTIVA PARA ESTE PROPÓSITO; F. NOMBRAR Y REMOVER LOS EMPLEADOS DE LA SOCIEDAD QUE NO DEBAN SER DESIGNADOS POR LA JUNTA DIRECTIVA O LA ASAMBLEA GENERAL DE ACCIONISTAS; G. TOMAR TODAS LAS MEDIDAS QUE RECLAME LA CONSERVACIÓN DE LOS BIENES SOCIALES, VIGILAR LA ACTIVIDAD DE LOS EMPLEADOS DE LA ADMINISTRACIÓN DE LA SOCIEDAD E IMPARTIRLES LAS ÓRDENES E INSTRUCCIONES QUE EXIJA LA BUENA MARCHA DE LA COMPAÑÍA; H. CONVOCAR LA ASAMBLEA GENERAL A REUNIONES EXTRAORDINARIAS CUANDO LO JUZGUE CONVENIENTE O NECESARIO Y HACER LAS CONVOCATORIAS DEL CASO CUANDO LO ORDENEN LOS ESTATUTOS, LA JUNTA DIRECTIVA O EL REVISOR FISCAL DE LA SOCIEDAD; I. CONVOCAR A LA JUNTA DIRECTIVA CUANDO LO CONSIDERE NECESARIO O CONVENIENTE Y MANTENERLA INFORMADA DEL CURSO DE LOS NEGOCIOS SOCIALES; J. CUMPLIR LAS ÓRDENES E INSTRUCCIONES QUE LE IMPARTAN LA ASAMBLEA GENERAL O LA JUNTA DIRECTIVA, Y, EN PARTICULAR, SOLICITAR AUTORIZACIONES PARA LOS NEGOCIOS QUE DEBEN APROBAR PREVIAMENTE LA ASAMBLEA O LA JUNTA DIRECTIVA SEGÚN LO DISPONEN LAS NORMAS CORRESPONDIENTES DEL PRESENTE ESTATUTO; K. CUMPLIR O HACER QUE SE CUMPLAN OPORTUNAMENTE TODOS LOS REQUISITOS O EXIGENCIAS LEGALES QUE SE RELACIONEN CON EL FUNCIONAMIENTO Y ACTIVIDADES DE LA SOCIEDAD. L. CERTIFICAR QUE LOS ESTADOS FINANCIEROS Y OTROS INFORMES RELEVANTES PARA EL PÚBLICO NO CONTIENEN VICIOS, IMPRECISIONES O ERRORES QUE IMPIDAN CONOCER LA VERDADERA SITUACIÓN PATRIMONIAL O LAS OPERACIONES DE LA SOCIEDAD. M. ADQUIRIR O HACERSE PARTE EN SOCIEDADES DE CUALQUIER NATURALEZA, ADQUIRIENDO DERECHOS SOCIALES O ACCIONES Y ENAJENARLOS. PARÁGRAFO. LIMITACIONES: EL PRESIDENTE DEBERÁ PEDIR AUTORIZACIÓN A LA JUNTA DIRECTIVA PARA EJECUTAR ACTOS Y CELEBRAR CONTRATOS EN NOMBRE Y REPRESENTACIÓN DE LA COMPAÑÍA POR UN VALOR SUPERIOR A MIL SALARIOS MÍNIMOS LEGALES MENSUALES VIGENTES.

CERTIFICA:

** REVISOR FISCAL **

QUE POR DOCUMENTO PRIVADO NO. sin num DE REVISOR FISCAL DEL 1 DE ABRIL DE 2013, INSCRITA EL 1 DE ABRIL DE 2013 BAJO EL NUMERO 01718278 DEL LIBRO IX, FUE (RON) NOMBRADO (S):

NOMBRE	IDENTIFICACION
REVISOR FISCAL PRINCIPAL	
GUERRERO OLMOS ANGELA MARIA	C.C. 000000052851266
REVISOR FISCAL SUPLENTE	
BENAVIDES CEPEDA ANA MILENA	C.C. 000001018420899

QUE POR ACTA NO. 86 DE ASAMBLEA DE ACCIONISTAS DEL 2 DE SEPTIEMBRE DE 2009, INSCRITA EL 1 DE FEBRERO DE 2010 BAJO EL NUMERO 01358309 DEL LIBRO IX, FUE (RON) NOMBRADO (S):

NOMBRE	IDENTIFICACION
REVISOR FISCAL	
ERNST & YOUNG AUDIT LTDA	N.I.T. 000008600088905

CERTIFICA:

QUE POR RESOLUCION NO. SL-03741 DE LA SUPERINTENDENCIA DE SOCIEDADES DEL 7 DE ABRIL DE 1.988, INSCRITA EL 21 DE ABRIL DE 1.988--BAJO EL NO. 233989 DEL LIBRO IX, SE CONCEDIO PERMISO DEFINITIVO--DE FUNCIONAMIENTO A LA SOCIEDAD.-

CERTIFICA:

QUE POR DOCUMENTO PRIVADO NO. 1000000 DE REPRESENTANTE LEGAL DEL 6 DE SEPTIEMBRE DE 2007, INSCRITO EL 7 DE SEPTIEMBRE DE 2007 BAJO EL NUMERO 01156465 DEL LIBRO IX, SE COMUNICO QUE SE HA CONFIGURADO UNA SITUACION DE CONTROL POR PARTE DE LA SOCIEDAD MATRIZ: PRODUCTORES DE ENVASES FARMACEUTICOS S A S PROENFAR S A S, CON SIGLA PROENFAR S A S, RESPECTO DE LAS SIGUIENTES SOCIEDADES SUBORDINADAS:

- PLASTICOS BDS SRL

DOMICILIO: (FUERA DEL PAIS)

QUE POR DOCUMENTO PRIVADO NO. DE REPRESENTANTE LEGAL DEL 12 DE FEBRERO DE 2010, INSCRITO EL 23 DE FEBRERO DE 2010 BAJO EL NUMERO 01363933 DEL LIBRO IX, SE COMUNICO QUE SE HA CONFIGURADO UNA SITUACION DE CONTROL POR PARTE DE LA SOCIEDAD MATRIZ: PRODUCTORES DE ENVASES FARMACEUTICOS S A S PROENFAR S A S, CON SIGLA PROENFAR S A S, RESPECTO DE LAS SIGUIENTES SOCIEDADES SUBORDINADAS:

- PROENFAR S R L

DOMICILIO: (FUERA DEL PAIS)

QUE POR DOCUMENTO PRIVADO DE REPRESENTANTE LEGAL DEL 15 DE ABRIL DE 2010, INSCRITO EL 16 DE ABRIL DE 2010 BAJO EL NUMERO 01376428 DEL LIBRO IX, SE COMUNICO QUE SE HA CONFIGURADO UNA SITUACION DE CONTROL POR PARTE DE LA SOCIEDAD MATRIZ: PRODUCTORES DE ENVASES FARMACEUTICOS S A S PROENFAR S A S, CON SIGLA PROENFAR S A S, RESPECTO DE LAS SIGUIENTES SOCIEDADES SUBORDINADAS:

- COMERCIALIZADORA DE ENVASES FARMACEUTICOS S A C COENFAR S A C

DOMICILIO: (FUERA DEL PAIS)

QUE POR DOCUMENTO PRIVADO DE REPRESENTANTE LEGAL DEL 25 DE OCTUBRE DE 2011, INSCRITO EL 1 DE NOVIEMBRE DE 2011 BAJO EL NUMERO 01524502 DEL LIBRO IX, SE COMUNICO QUE SE HA CONFIGURADO UNA SITUACION DE CONTROL POR PARTE DE LA SOCIEDAD MATRIZ: PRODUCTORES DE ENVASES FARMACEUTICOS S A S PROENFAR S A S, CON SIGLA PROENFAR S A S, RESPECTO DE LAS SIGUIENTES SOCIEDADES SUBORDINADAS:

- BIS PLAST S A DE C V

DOMICILIO: (FUERA DEL PAIS)

- BODEGA COSME S A DE C V

DOMICILIO: (FUERA DEL PAIS)

- EROMOLD S A DE C V

DOMICILIO: (FUERA DEL PAIS)

- INNOVAPLAST S A DE C V

DOMICILIO: (FUERA DEL PAIS)

FECHA DE CONFIGURACION DE LA SITUACION DE CONTROL : 2011-09-26

CERTIFICA:

QUE POR ESCRITURA PUBLICA NO. 51 DE NOTARIA UNICA DE (FUERA DEL PAIS) DEL 13 DE ENERO DE 2010, INSCRITO EL 23 DE FEBRERO DE 2010 BAJO EL NUMERO 01363929 DEL LIBRO IX, COMUNICO LA SOCIEDAD MATRIZ:

- ZINGER INVESTMENTS S L

DOMICILIO: (FUERA DEL PAIS)

QUE SE HA CONFIGURADO UNA SITUACION DE CONTROL CON LA SOCIEDAD DE LA REFERENCIA.

CERTIFICA:

ACLARACIÓN SITUACIÓN DE CONTROL
SE ACLARA LA SITUACIÓN DE CONTROL INSCRITA EL DIA 23 DE FEBRERO DE



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CAMARA DE COMERCIO DE BOGOTA

SEDE NORTE

9 DE JULIO DE 2013 HORA 12:24:50

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PAGINA: 4 de 4

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2010 BAJO EL NUMERO 01363929 DEL LIBRO IX, EN EL SENTIDO DE INDICAR QUE LA MISMA SE CONFIGURÓ A PARTIR DEL DIA 21 DE MAYO DE 2009.

ACLARACIÓN SITUACIÓN DE CONTROL

SE ACLARA LA SITUACIÓN DE CONTROL INSCRITA EL DIA 23 DE FEBRERO DE 2010 BAJO EL NUMERO 01363933 DEL LIBRO IX, EN EL SENTIDO DE INDICAR QUE LA MISMA SE CONFIGURÓ A PARTIR DEL DIA 21 DE MAYO DE 2009.

ACLARACIÓN SITUACIÓN DE CONTROL

SE ACLARA LA SITUACIÓN DE CONTROL INSCRITA EL DIA 16 DE ABRIL DE 2010 BAJO EL NUMERO 01376428 DEL LIBRO IX, EN EL SENTIDO DE INDICAR QUE LA MISMA SE CONFIGURÓ A PARTIR DEL DIA 16 DE MARZO DE 2010.

CERTIFICA:

QUE LA SOCIEDAD TIENE MATRICULADOS LOS SIGUIENTES ESTABLECIMIENTOS:

NOMBRE : FABRICA DE PLASTICOS EL PIPE S.A.PLASPIBE

MATRICULA NO : 00548330 DE 17 DE MAYO DE 1993

RENOVACION DE LA MATRICULA : EL 26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO : 2013

NOMBRE : MOLDES UNIVERSALES

MATRICULA NO : 01055832 DE 20 DE DICIEMBRE DE 2000

RENOVACION DE LA MATRICULA : EL 26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO : 2013

NOMBRE : PRODUCTORES DE ENVASES FARMACEUTICOS S.A PROENFAR S.A

MATRICULA NO : 00857972 DE 20 DE MARZO DE 1998

RENOVACION DE LA MATRICULA : EL 26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO : 2013

NOMBRE : PRODUCTORES DE ENVASES FARMACEUTICOS LTDA PROENFAR LTDA

MATRICULA NO : 00550379 DE 1 DE JUNIO DE 1993

RENOVACION DE LA MATRICULA : EL 26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO : 2013

NOMBRE : PRODUCTORES DE ENVASES FARMACEUTICOS S A PROENFAR S A Y PODRA UTILIZAR LA SIGLA PROENFAR S.A.

MATRICULA NO : 01884129 DE 31 DE MARZO DE 2009

RENOVACION DE LA MATRICULA : EL 26 DE MARZO DE 2013

ULTIMO AÑO RENOVADO : 2013

CERTIFICA:

DE CONFORMIDAD CON LO ESTABLECIDO EN EL CODIGO DE PROCEDIMIENTO ADMINISTRATIVO Y DE LO CONTENCIOSO Y DE LA LEY 962 DE 2005, LOS ACTOS ADMINISTRATIVOS DE REGISTRO AQUI CERTIFICADOS QUEDAN EN FIRME DIEZ (10) DIAS HABILES DESPUES DE LA FECHA DE INSCRIPCION, SIEMPRE QUE NO SEAN OBJETO DE RECURSOS.

* * * EL PRESENTE CERTIFICADO NO CONSTITUYE PERMISO DE * * *
* * * FUNCIONAMIENTO EN NINGUN CASO * * *

INFORMACION COMPLEMENTARIA

LOS SIGUIENTES DATOS SOBRE PLANEACION DISTRITAL SON INFORMATIVOS
FECHA DE ENVIO DE INFORMACION A PLANEACION DISTRITAL : 13 DE ABRIL DE 2010

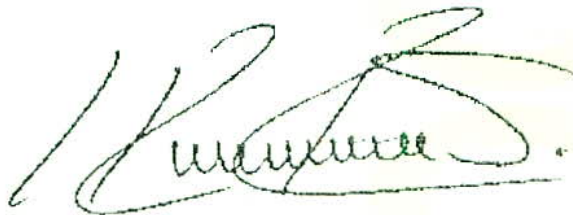
SEÑOR EMPRESARIO, SI SU EMPRESA TIENE ACTIVOS INFERIORES A 30.000 SMLMV Y UNA PLANTA DE PERSONAL DE MENOS DE 200 TRABAJADORES, USTED TIENE DERECHO A RECIBIR UN DESCUENTO EN EL PAGO DE LOS PARAFISCALES DE 75% EN EL PRIMER AÑO DE CONSTITUCION DE SU EMPRESA, DE 50% EN EL SEGUNDO AÑO Y DE 25% EN EL TERCER AÑO. LEY 590 DE 2000 Y DECRETO 525 DE 2009.

RECUERDE INGRESAR A www.supersociedades.gov.co PARA VERIFICAR SI SU EMPRESA ESTA OBLIGADA A REMITIR ESTADOS FINANCIEROS. EVITE SANCIONES.

EL SECRETARIO DE LA CAMARA DE COMERCIO,

** CERTIFICADO SIN COSTO PARA AFILIADO **

DE CONFORMIDAD CON EL DECRETO 2150 DE 1995 Y LA AUTORIZACION IMPARTIDA POR LA SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO, MEDIANTE EL OFICIO DEL 18 DE NOVIEMBRE DE 1996, LA FIRMA MECANICA QUE APARECE A CONTINUACION TIENE PLENA VALIDEZ PARA TODOS LOS EFECTOS LEGALES



Bogotá, D.C.,

11 JUL 2013



SEÑOR
SUPERINTENDENTE DE INDUSTRIA Y COMERCIO
E. S. D.

REFERENCIAS:

Expediente : No. 13-039.467
Asunto: OPOSICION concesión solicitud de Patente de Invención: "CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA"
Solicitante: LABORATOIRES THEA
Gaceta No.: 665 del 15 de Abril de 2013

GILDA OGIASTRI PUERTA, mayor de edad, vecina de Bogotá, D.C., identificada como aparece al pie de mi firma, con T.P.A. No. 37.875, en mi condición de Apoderada de la sociedad **PRODUCTORES DE ENVASES FARMACÉUTICOS S.A.S. PROENFAR S.A.S.**, organizada y existente de conformidad con las leyes colombianas y domiciliada en la ciudad de Bogotá, D.C, en ejercicio de la acción de **OPOSICIÓN** establecida en el Artículo 42 de la Decisión 486 de la Comisión de la Comunidad Andina y estando dentro del término de sesenta (60) días establecido por el artículo 42, respetuosamente solicito a esa Superintendencia declarar fundadas y en consecuencia resolver favorablemente las pretensiones contenidas en la presente **OPOSICIÓN** contra la solicitud de Patente de Invención de la referencia.

I. SOLICITUD DE PATENTE DE INVENCION CONTRA LA CUAL SE PRESENTA OPOSICION.

La solicitud de Patente de Invención contra la cual se presenta **OPOSICION** corresponde a la contenida en el expediente No. **13-039.467**, titulada "**CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA**", cuyo solicitante es la sociedad **LABORATOIRES THEA**, que corresponde a la solicitud **PCT/IB2011/001741** presentada el día 28 de Julio de 2011, la cual entró en fase nacional en Colombia el 01 de Marzo de 2013, publicada en la página 461 de la Gaceta de Propiedad Industrial No. 665 del 15 de Abril de 2013 y el término para presentar oposiciones fundamentadas vence el 12 de Julio de 2013.

II. PRETENSIONES.

1. Que se declare la falta de novedad y nivel inventivo del objeto reivindicado en la solicitud de Patente de Invención que obra en el expediente No. **13-039.467** consistente en un "**CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA**", como se demostrará a través del presente memorial.

2. Que con fundamento en dicha declaración, se **niegue el privilegio de Patente de Invención** para el objeto reivindicado en la solicitud que obra en el expediente **13-039.467**.

III. **LEGÍTIMO INTERÉS PARA LA PRESENTACIÓN DE LA OPOSICIÓN.**

El mandante la sociedad **PRODUCTORES DE ENVASES FARMACÉUTICOS S.A.S. PROENFAR S.A.S.** es una compañía de origen colombiano con cerca de 30 años en el mercado especializada en la fabricación y comercialización de empaques para la industria farmacéutica y cosmética; está conformada por más de 1000 empleados y sus productos se distribuyen a nivel nacional y a nivel internacional a países como Venezuela, Ecuador, Perú, Argentina, México, Chile, Paraguay, República Dominicana, entre otros. Dentro de su portafolio de productos cuenta con envases oftálmicos, nasales, óticos y orales. En su línea de productos oftálmicos se destacan los envases goteros los cuales ha desarrollado y fabricado desde cerca de 30 años, llegando a obtener patentes en este tipo de empaques. **PROENFAR S.A.S.**, cuenta con certificaciones ISO 9001 y tiene productos registrados ante la Food and Drug Administration – FDA. Actualmente, **PROENFAR S.A.S.** suministra productos a empresas del sector farmacéutico como Pfizer, Merck, Boehringer Ingelheim, Schering y otras empresas importantes de carácter nacional.

De esta manera, a mi representada le asiste legítimo interés para oponerse a la solicitud de patente de invención **“CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA”** que se menciona en la referencia, por cuanto entre sus actividades principales se encuentra **la fabricación y comercialización de envases goteros** como los que se reclaman en la solicitud de patente de invención ahora objetada; toda vez que si se llega a conceder el privilegio de patente de invención a la solicitud de la referencia, se estaría desconociendo la existencia del conocimiento técnico que ha venido y seguirá evolucionando desde hace varios años atrás, no solamente afectando nuestros intereses comerciales sino también de los demás empresarios que constituyen este ramo de la industria.

IV. **HECHOS.**

Los hechos en los cuales se fundamenta la presente **OPOSICIÓN** son los siguientes:

El día 28 de julio de 2011, la sociedad **LABORATOIRES THEA**, presentó la solicitud de patente de invención **PCT/IB2011/001741** titulada **“CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA”** la cual entró en fase nacional en Colombia el 01 de Marzo de 2013, bajo el expediente No. **13-039-467**, publicada en la página 461 de la Gaceta de Propiedad Industrial No. 665 del 15 de Abril de 2013, la cual en su capítulo reivindicatorio describe: “La invención se refiere a un cabezal de distribución de líquido gota a gota que comprende un elemento tubular perforado por un canal de expulsión del líquido por el cual se realiza igualmente el retorno de aire aspirado del exterior en sentido inverso. En el elemento tubular, sobre el canal de expulsión, el cabezal de distribución gota

a gota según la invención comprende una válvula que funciona como válvula anti-retorno respecto a la circulación del líquido en expulsión. El obturador móvil de esta válvula está realizado de forma que se deje atravesar selectivamente por el aire cuando se encuentra apoyado contra su asiento en una posición de obturación del canal de expulsión de líquido. El mismo vuelve a esta posición bajo el único efecto de una depresión que se ejerce aguas arriba y tendente a aspirar aire exterior. El obturador está hecho ventajosamente de un material micro poroso que realiza una filtración anti-bacteriana en el retorno de aire."

V. LA PATENTE DE INVENCION SOLICITADA NO CONSTITUYE UNA PATENTE SEGÚN LAS NORMAS ANDINAS.

De conformidad con los artículos 14 y 16 de la Decisión 486 de la Comisión de la Comunidad Andina, que dicen:

"Artículo 14.- Los Países Miembros **otorgarán patentes para las invenciones, sean de producto o de procedimiento, en todos los campos de la tecnología, siempre que sean nuevas, tengan nivel inventivo y sean susceptibles de aplicación industrial**". (el resaltado es nuestro)

"Artículo 16.- **Una invención se considerará nueva cuando no está comprendida en el estado de la técnica.**

El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso, de la prioridad reconocida...." (el resaltado es nuestro)

"Artículo 18.- Se considerará que una invención tiene **nivel inventivo**, si para una persona del oficio normalmente versada en la materia técnica correspondiente, esa invención no hubiese resultado obvia ni se hubiese derivado de manera evidente del estado de la técnica". (el resaltado es nuestro)

"Artículo 19.- Se considerará que una invención es susceptible de **aplicación industrial**, cuando su objeto pueda ser producido o utilizado en cualquier tipo de industria, entendiéndose por industria la referida a cualquier actividad productiva, incluidos los servicios". (el resaltado es nuestro)

La solicitud de Patente de Invención de la Sociedad **LABORATOIRES THEA, Expediente No. 13-039.467**, no es susceptible de patentabilidad porque **CARECE DE NOVEDAD Y NIVEL INVENTIVO** puesto que su **objetivo se viene desarrollando e implementando en la industria de empaques** tanto para la industria farmacéutica como la cosmética, desde hace varios años, tal como se demostrará a continuación:

1. El objeto de la solicitud de patente de invención **"CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA"**, Exp. No. 13-039.467, es un frasco de acondicionamiento

de un líquido para distribuir gota a got en forma de un frasco destinado más particularmente para el acondicionamiento de un colirio. La composición de este último puede ventajosamente responder a una fórmula desprovista de conservante, debido a la calidad de preservación anti-bacteriana asegurada según la invención.

Este frasco, según la invención, comprende un recipiente 2 que lleva en su interior un depósito de almacenado del líquido 8, y un cabezal de distribución del líquido 4 que se monta en un cuello 10 del recipiente en un extremo de dicho depósito cerrando con ello este último. Una caperuza amovible 6 está prevista para tapar el cabezal de distribución cuando el usuario no utiliza el frasco.

Las figuras 1 y 2 de la invención son las siguientes:

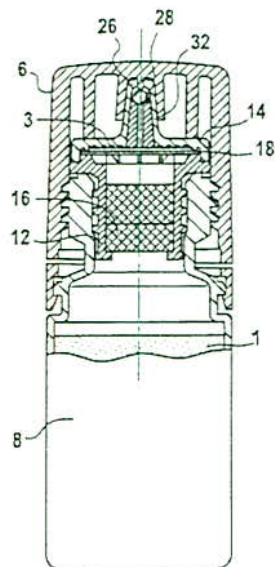


FIG.1

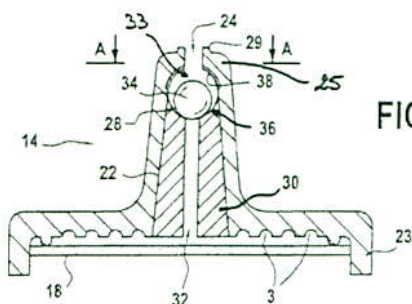


FIG.2

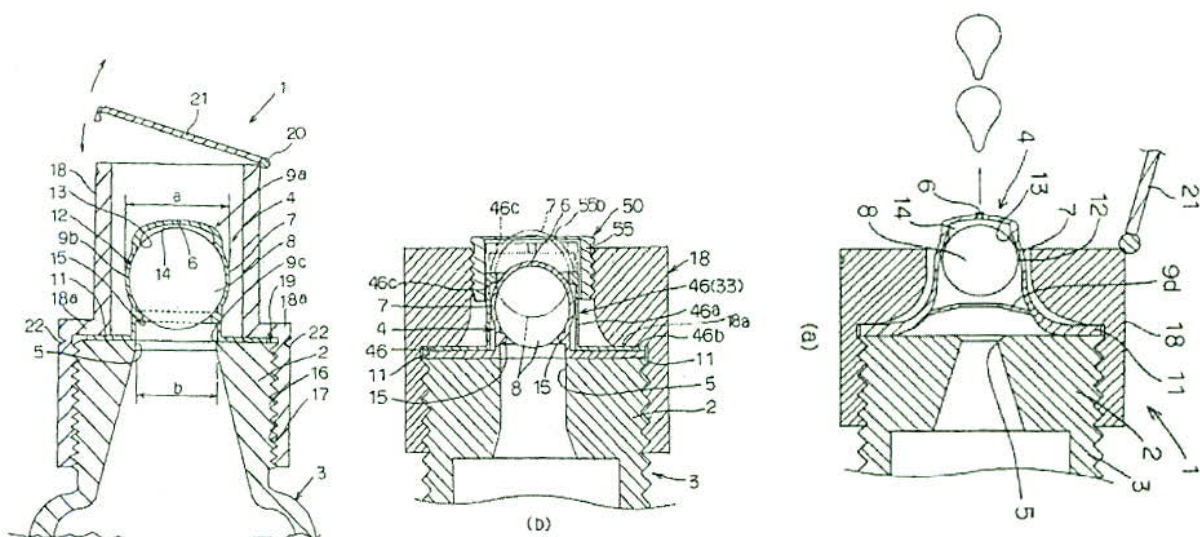
2. El estado de la técnica aplicable a la solicitud de patente de invención **Exp.13-039.467**, es antes de la **fecha de prioridad reivindicada** No. FR 1003233, es decir antes del día **30 de julio de 2010**, comprobándose la existencia de publicaciones anteriores a ésta fecha que afectan la **novedad y el nivel inventivo de la invención** objeto de esta oposición, así.

2.1 Falta de Novedad de la solicitud de patente de LABORATOIRES THEA

GM

Documento D1 (EP1538099), título de la invención: "Inserto que previene la devolución del flujo para un contenedor, el contenedor, y el dispositivo de vertido (Reverse-flow prevention plug for container, the container, and pouring device), a nombre de la sociedad **SUMITOMO RUBBER IND**, con fecha de publicación: **08 de Junio de 2005**.

Algunos dibujos relevantes de este documento de patente son:



El inserto que previene la devolución del flujo que se divulga en el documento EP1538099 cuenta con una membrana elástica 7 provista en la abertura del recipiente 2 y formada con el orificio de salida 6, y un inserto 8 dispuesto en la membrana elástica 7 y capaz de bloquear el flujo de contenido entre la abertura del recipiente 2 y el orificio de salida 6.

En el párrafo [0057] del documento EP1538099 se enseña como el inserto 8 está dispuesto en la porción de cuerpo 9b de la membrana elástica 7 y comprende un cuerpo sólido en forma de esfera, por ejemplo, resina dura o similar. El inserto 8 está inserto forzosamente en la membrana elástica 7 a través de la abertura 9c y dispuesto en el interior del extremo distal 9a y 9b de la parte de cuerpo.

Continúa la especificación del documento de patente EP1538099 explicando que el inserto 8 como tiene una forma esférica realiza la función de sellado por medio de contacto elástico y apretado con la membrana elástica 7. Ver párrafo [0059].

El mismo documento señala que este inserto 8 puede ser fabricado en diferentes materiales y en particular enseña:

"[0150] (...) El material del inserto 8 no se limita a resina dura, pudiendo ser cualquier material de resina diverso, goma, piedra, vidrio, cerámica, concha, madera, metal, o material antibacteriano incluyendo revestimiento de plata o similares. Alternativamente, el inserto 8 puede estar recubierto con metal antibacteriano o bactericida tal como plata." (Subrayado fuera de texto)

Finalmente, tal y como se muestra en el párrafo [0048] de la publicación de Sumitomo, este contenedor puede tener diferentes usos incluido la distribución de cosméticos y productos médicos para el ojo.

En conclusión, todas las características técnicas de la solicitud de patente publicada bajo el número 13-039-467 fueron anticipadas por la publicación EP1538099 como veremos a continuación:

Solicitud de patente 13-039-467	Publicación EP1538099
Reiv. 1. Cabezal de distribución de líquido gota a gota que comprende un elemento tubular (14;114) perforado por un canal de expulsión de líquido (32) mediante el cual se realiza igualmente el retorno de aire en sentido inverso	El contenedor 1 incluye un cuerpo de recipiente 3 que tiene una abertura del recipiente 2 en un extremo del mismo, y un inserto de prevención de regreso de flujo proporcionado en la abertura del recipiente 2. La abertura del recipiente 2 está formada con un orificio de descarga 5, y los contenidos descargados desde el punto de descarga 5 se pasan a través de un camino de flujo en una membrana elástica 7 y se descarga desde un orificio de salida 6. (Párrafo [0049]).
comprende, a nivel del elemento tubular, una válvula que funciona como válvula anti-retorno por cierre de dicho canal respecto a la circulación de líquido,	[0057] El inserto 8 está dispuesto en la porción de cuerpo 9b de la membrana elástica 7 y comprende un cuerpo sólido esférico fabricado, por ejemplo, resina dura o similar. El inserto 8 está forzosamente inserto en la membrana

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comprendiendo la indicada válvula un obturador (34; 40) que es retenido en una cavidad receptora (33) prevista en el trayecto de dicho canal y que es móvil con relación al asiento (36;126) contra el cual se aplica en posición de cierre de la válvula bajo el solo efecto de las diferencias de presión que se ejercen axialmente sobre él, estando realizado el indicado obturador de forma que se deje atravesar selectivamente por el aire cuando se encuentra aplicado contra el mencionado asiento.	elástica 7 a través de la abertura 9c y dispuesto en el interior del extremo distal 9a y 9b de la parte de cuerpo.
Reiv. 2. (...) el obturador de la válvula (34; 40) está realizado en material poroso y constituye un filtro anti-bacteriano. Reiv. 3. (...) el obturador de la válvula (34; 40) está realizado en un material hidrófobo.	El material del inserto 8 no se limita a resina dura, pudiendo ser cualquier material de resina diverso, goma, piedra, vidrio, cerámica, concha, madera, metal, o material antibacteriano incluyendo revestimiento de plata o similares. Alternativamente, el inserto 8 puede estar recubierto con metal antibacteriano o bactericida tal como plata. Ver párrafo 0150.
Reiv. 4. (...) el extremo tubular comprende un orificio de expulsión (24) que tiene un reborde periférico (29).	Párrafo [0053]: El extremo distal 9a de la membrana elástica 7 está formada con el orificio de salida 6 para los contenidos, y el puerto de salida 6 y el orificio de descarga 5 se colocan separados unos de otros en la dirección de descarga de contenido. En el párrafo 0052 se divulga que existe una pestaña circular 11 formada en el borde periférico exterior de la abertura 9c. También

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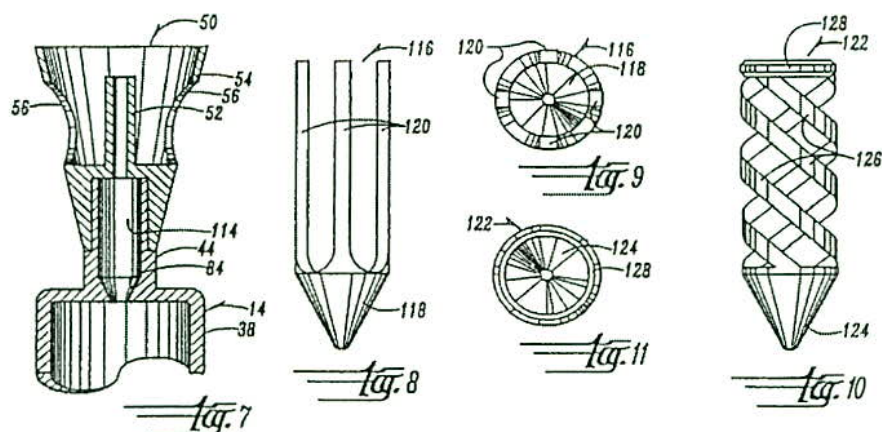
	se observa en las figuras
Reiv. 5 (...) el obturador de la válvula (34; 40) adaptado para desplazarse axialmente dentro de la cavidad (33).	En el párrafo 0064 se enseña que el inserto 8 se mueve en la dirección de descarga con respecto al cuerpo del recipiente 3 con la deformación elástica de la membrana elástica 7. Ver también las figuras mostradas en este escrito del documento D1.
Reiv. 6 (...) la válvula presenta forma de bola esférica (...)	A lo largo de toda la especificación y dibujos se muestra que el inserto 8 es esférico, o puede tener más formas como forma ovoide.
Reiv. 7 (...)la válvula presenta forma de peón (...)	El inserto 8 puede tener varias formas hasta forma ovalada (forma oval en vista lateral, forma de huevo) como se ve en la cuarta realización del invento (ver párrafo 0074).
Reiv. 8 (...) ranuras centrípetas (38) están formadas en las paredes de la cavidad (33) (...)	Una pluralidad de salientes se proporcionan entre los medios de formación 13 en posiciones separadas entre sí en la dirección circunferencial en la superficie interna de la membrana elástica 7. En la primera realización, cuatro proyecciones se proporcionan entre los medios de formación 13. (ver párrafo 0061)

En consecuencia, dado que la publicación EP1538099 revela todas las características de la invención de LABORATOIRES THEA; entonces esta invención comprendida en 12 reivindicaciones carece de novedad.

2.2 Falta de Nivel Inventivo de la solicitud de patente de LABORATOIRES THEA

Documento D2 (CA2066606) título de la invención: Contenedor para entregar preparaciones libres de preservativos (CONTAINER FOR DISPENSING PRESERVATIVE-FREE PREPARATIONS), a nombre de la sociedad **ALCON LAB INC**, con fecha de publicación: **17 de Enero de 1992**.

Gm



Esta invención se refiere a un dispositivo para entregar preparaciones farmacéuticas libres de preservativos que enseña diversos tipos de insertos que se desplazan dentro de la boquilla, como es el caso de la invención bajo análisis.

Esta patente canadiense revela la posibilidad de que un frasco dispensador de líquido en gotas cuente con un orificio de entrega (26, 168) que encierra una válvula de fluido (46, 178/180). Un medio de empuje elástico (80, 180, 116, 122, 140, 252) tiene una cabeza de pistón (82, 118, 124, 142, 192, 232) en una posición normalmente de sellado o cerrado. En esta publicación se revela además una segunda abertura (40, 204/208, 108) en comunicación con el interior de la botella (12, 152) está cubierto por un filtro hidrófobo (90, 206/182) que tiene un tamaño de poro que evita que los contaminantes microbianos entren en el envase (12, 152), pero prohíbe el fluido salga del recipiente. Finalmente, la botella (12, 152) se comprime para abrir la válvula (44, 178/180) para dispensar fluido desde la botella (12, 152). Tras la liberación de que la presión manual, la válvula de fluido (46, 178/180) se cierra y el aire pasa a través del filtro (90, 206/182) para sustituir el fluido dispensado y el aire que entra en el recipiente (12, 152) se esteriliza por el filtro (90, 206/182).

De esta manera, la solicitud de patente de Thea con respecto a la publicación canadiense no cuenta con nivel inventivo puesto que, una persona versada en la materia técnica correspondiente, hubiera llegado a los resultados de la presente invención a partir de las divulgaciones hechas en CA2066606 haciendo modificaciones que son evidentes, sin olvidar que la válvula de bola que pretende reclamar Thea en su frasco es ampliamente conocida en otro tipo de envases como por ejemplo los licores. De esta manera, el frasco de acondicionamiento de líquido

en forma de gotas de la sociedad Laboratoires Thea, que se pretende proteger por medio de las reivindicaciones 1 a 12 de expediente 13-039-467, no cumple tampoco con el requisito de nivel inventivo.

CONCLUSION.

Por todo lo anteriormente expuesto se concluye que a solicitud contenida en el **Exp.13-039-467**, no es novedosa por cuanto todas sus características técnicas que se pretenden reclamar en las reivindicaciones, ya habían sido previamente divulgadas en el documento de patente **EP1538099**.

Adicionalmente, una persona versada en la materia técnica correspondiente podría haber tomado las enseñanzas divulgadas en **CA2066606** y conocimientos generales de válvulas de bola y, de manera evidente, haber propuesto la solución contenida en la solicitud de patente objeto de esta observación.

Por lo tanto, se deben tener en cuenta los argumentos técnicos expuestos en el presente memorial de **OPOSICIÓN** y se proceda a **NEGAR** el privilegio solicitado en la Patente de Invención titulada "**CABEZAL DE DISTRIBUCION DE LIQUIDO GOTA A GOTA**" a nombre de la sociedad **LABORATOIRES THEA**, descrita en el **Exp.13-049.467** puesto que la tecnología propuesta en dicha solicitud existe con anterioridad a la fecha de presentación de la solicitud en estudio, **afectando la NOVEDAD y NIVEL INVENTIVO DE LA INVENCION** y por consiguiente, la misma no cumple con los requisitos de patentabilidad establecidos por los **artículos 14, 16, del Título II de las Patentes de Invención de la Decisión 486 de la Comisión de la Comunidad Andina**.

VI. ANEXOS.

Para los efectos correspondientes anexo al presente escrito los siguientes documentos:

ANEXO 1. Poder.

ANEXO 2. Certificado de Existencia y Representación Legal de la sociedad **PRODUCTORES DE ENVASES FARMACÉUTICOS S.A.S.**

PROENFAR S.A.S. expedido por la Cámara de Comercio de Bogotá.

ANEXO 3. Comprobante en el cual consta que se ha pagado el valor correspondiente a la tasa por tramitación de la presente oposición.

ANEXO 4. Copia de la presente oposición para el traslado del solicitante.

VII. PRUEBAS.

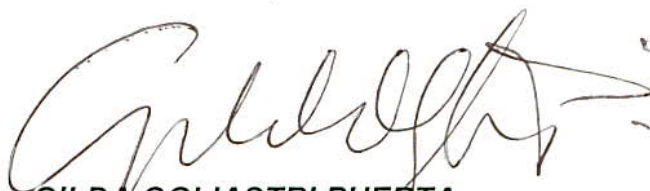
Se acompañan como medios de prueba los siguientes documentos que se detallan a continuación:

- Copia de la publicación EP1538099
- Copia de la publicación CA2066606

VII. NOTIFICACIONES

Mi poderdante y la suscrita, las recibiremos en mi oficina situada en la carrera 7 No. 156-80, Piso 8 de la ciudad de Bogotá, D.C.

Atentamente,



GILDA OGIASTRI PUERTA
C.C. No. 41.683.468 de Bogotá
T.P. No. 37.875 C.S.J.

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(12)

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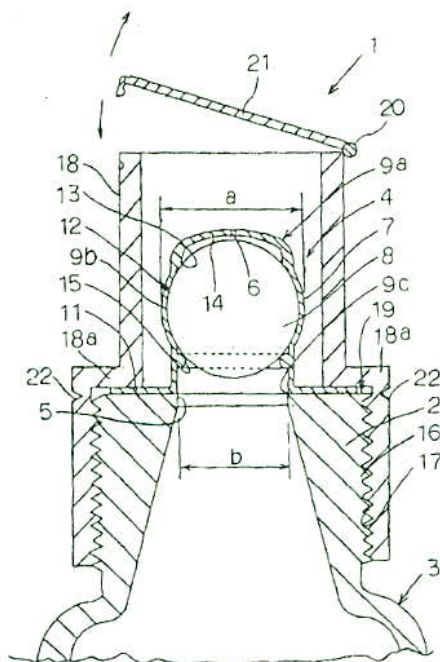
(54)

REVERSE-FLOW PREVENTION PLUG FOR CONTAINER, THE CONTAINER, AND POURING DEVICE

(57) A backflow preventing plug, a container, and a pouring device in which a container body and a plug member are provided separately in a simple shape, and tight-contact property between the plug member and a resilient member is enhanced to improve a backflow preventing function are provided.

A back flow preventing plug 4 includes a resilient membrane 7 formed of a thin film for defining a flow path having an inlet port 9c and an outlet port 6, and a ball-shaped plug member 8 retained in the flow path of the resilient membrane 7 and formed with a spherical sealing surface 12 for restricting fluid flow by coming into tight resilient contact with a middle portion of the resilient membrane 7. In a container 1, the backflow preventing plug 4 is attached to a container opening 2 of a container body 3 accommodating contents. A pouring device 43 includes, for example, a container holder 47 accommodating and holding the container 1 and allowing the container body 3 to be pressurized from the container opening 2 side to be contractingly deformed.

FIG.1



Description

TECHNICAL FIELD

5 [0001] The present invention relates to a backflow preventing plug for a container, the container, and a pouring device for preventing outside air or the like from entering into the container for protecting contents against oxidation or bacteria.

BACKGROUND ART

10 [0002] Currently, food products, cosmetics, or drugs are generally manufactured with adding antioxidants or anti-septic agents for preventing oxidation or multiplication of bacteria in the products in order to maintain quality of the products as long as possible. Manufacturing products with the antioxidants or the antiseptic agents added therein is one of effective measures for increasing life of the products, enhancing value of the products, and hence contributing to industrial growth. However, in recent years, there is an increasing demand for using food products or the like in a

15 state as natural as possible without the antioxidants or the antiseptic agents therein.
[0003] In order to restrain oxidation of the food products or multiplication of bacteria without adding the antioxidants or the antiseptic agents, measures such as manufacturing a container capable of preventing outside air from entering into the container and encapsulating the food products or the like in such a container for use may be taken. Examples of such measures in the related art are disclosed in Japanese Unexamined Patent Publication No. 2002-2755 (hereinafter referred to as Patent Document 1) and United State Patent Publication No. 6536631 (hereinafter referred to as Patent Document 2).

20 [0004] In Patent Document 1, a container "including a container body having resiliency and being formed with a discharging port at one end, an inner plug provided for closing the discharging port, an inner plug projection provided at a center of the inner plug and projecting outwardly from the discharging port, a through-hole provided in the inner plug for communicating the inside and the outside of the container body, and a nozzle member having resiliency and coming into tight contact with the peripheral edge of the discharging port and the side surface of the inner plug projection" is disclosed.

[0005] In Patent Document 2, a container having a reservoir for storing contents, and a head for discharging a predetermined amount of liquid from at least one outlet port is disclosed.

30 [0006] However, in the container of Patent Document 1, since the inner plug projection and the resilient nozzle member are simply in line contact with each other in the discharging direction, tight contact between the nozzle member and the inner plug projection is insufficient, and hence sufficient backflow preventing function cannot be achieved.

[0007] In the container according to Patent Document 2, since the head and the reservoir are formed integrally, the shape is complex, and hence it is difficult to manufacture.

35 [0008] Therefore, it is an object of the present invention to provide a backflow preventing plug for a container, the container, and a pouring device in which a container body and a plug member are separately formed in simple shapes and tight contact between the plug member and a resilient member is enhanced to improve the backflow preventing function.

40 DISCLOSURE OF INVENTION

[0009] In order to achieve the object described above, the present invention devises the following technical means.

[0010] Specifically, a backflow preventing plug 4 includes a thin film resilient membrane 7 defining a flow path having an intake port 9c and an outlet port 6, and a ball-shaped plug member 8 retained in the flow path in the resilient membrane 7 and formed with a spherical sealing surface 12 for restricting flow of fluid by coming into resilient contact with a middle portion of the resilient membrane 7 (See Fig. 1).

45 [0011] With this structure, since the plug member 8 is formed in a simple ball-shape to be held by the resilient membrane 7, the plug member 8 does not need to be integrally formed with the container body and, in addition, tight-contact between the spherical sealing surface 12 and the resilient membrane 7 allows a resilient force of the resilient membrane 7 to act on the spherical sealing surface 12, the resilient membrane 7, and respective contact points in a centripetal direction, thereby improving the backflow preventing function.

[0012] The resilient membrane 7 is formed of an elastic rubber member which is expandingly deformable in the direction away from the plug member 8 by a fluid pressure applied from the intake port 9c (See Fig. 1).

50 [0013] Accordingly, contents are allowed to enter between the plug member 8 and the resilient membrane 7 with releasing tight contact between the resilient membrane 7 and the plug member 8 so as to secure the flow path for the contents.

[0014] In the backflow preventing plug 4, the plug member 8 has a spherical shape (See Fig. 1).

[0015] Accordingly, the plug member 8 can be formed in a simple shape so as to facilitate manufacture and assembly

of the backflow preventing plug 4.

[0016] In the backflow preventing plug 4, the plug member 8 has an ellipsoidal shape (See Fig. 7).

[0017] Accordingly, the plug member 8 can be formed into a simple shape so as to facilitate manufacture and assembly of the backflow preventing plug 4.

[0018] In the backflow preventing plug 4, the outlet port 6 of the resilient membrane 7 has a slit-shape (See Fig. 4).

[0019] Accordingly, outflow of contents from the outlet port 6 can be adequately stopped when discharge of contents is stopped.

[0020] The resilient membrane 7 is formed with an annular projection 15 capable of coming into tight contact with the plug member 8 on the inner surface thereof (See Fig. 1).

[0021] Accordingly, the backflow preventing plug 4 is provided with a double-sealing structure comprising a tight contact between the film portion of the resilient membrane 7 and the spherical sealing surface 12 of the plug member 8 and another tight contact between the annular projection and the plug member 8, whereby further enhanced sealing is achieved.

[0022] The backflow preventing plug 4 includes discharge guiding means for guiding contents, which have passed through the flow path formed by the expansion of the resilient membrane 7 due to an increase in fluid pressure on the intake port 9c side, toward the outlet port 6 (See Fig. 1).

[0023] Accordingly, the contents can be reliably discharged from the outlet port 6.

[0024] The backflow preventing plug 4 further includes a clearance forming projection 13 for forming a clearance for guiding flow of fluid contents to the outlet port 6 by positioning the plug member 8 with respect to the outlet port 6 (See Fig. 1).

[0025] The clearance forming projection 13 provides a space between the outlet port 6 and the plug member 8 to prevent the plug member 8 from closing the outlet port 6, so that the contents can be reliably discharged from the outlet port 6.

[0026] There is further provided separating means for separating the outlet port 6 of the resilient membrane 7 from the plug member 8 for preventing tight contact therebetween when contents are discharged from the outlet port 6 (See Fig. 7).

[0027] Accordingly the backflow preventing plug 4 can reliably discharge the contents.

[0028] In a container 1, the backflow preventing plug 4 is attached to a container opening 2 of a container body 3 in which contents are accommodated (see Fig. 1).

[0029] With this structure, since the plug member 8 is formed in a simple ball-shape to be held by the resilient membrane 7, the plug member 8 does not need to be integrally formed with the container body 2 and, in addition, tight-contact between the spherical sealing surface 12 and the resilient membrane 7 allows a resilient force of the resilient membrane 7 acts on the spherical sealing surface 12, the resilient membrane 7, and respective contact points in a centripetal direction, thereby improving the backflow preventing function.

[0030] The container 1 includes fixed quantity discharging means 50 for allowing contents to be discharged by a fixed quantity (see Fig. 8, Fig. 11).

[0031] With this arrangement, a fixed quantity of contents can be conveniently discharged every time when using the container 1.

[0032] The container body 3 is formed in a bag shape which is contractively deformable for discharging contents from the container opening 2 (See Fig. 19).

[0033] With this structure, the contents can be discharged from the outlet port 6 of the backflow preventing plug 4 by contractively deforming the container body 3.

[0034] The container body 3 is formed in an accordion shape which is contractively deformable for discharging contents from the container opening 2 (See Fig. 21).

[0035] With this structure, by causing the container body 3 to contractively deform in a folding manner, the contents can be discharged from the outlet port 6 of the backflow preventing plug 4.

[0036] The container body 3 includes a cylindrical member 51 for accommodating contents and a piston 52 axially slidably fitted into the cylindrical member 51 (See Fig. 25).

[0037] Accordingly, the contents can be discharged from the outlet port 6 of the backflow preventing plug 4 by sliding the piston 52.

[0038] A pouring device 43 includes an outer mantle 42 which surrounds the container body 3 of the container 1 with an intermediary of a space, and is resiliently deformable, so that the container body 3 can be contractively deformed through air in the space by a resilient deformation of the outer mantle due to an external pressure (See Fig. 22).

[0039] With this structure, since the outer mantle 42 causes the container body 3 to contract by its resilient deformation and, thereafter, is restored to the original shape when the resilient deformation is released, the outer mantle 42 can contract the container body 3 always under the same condition even when the container body 3 is under contractively deformed condition.

[0040] The pouring device 43 includes a container holder 47 for holding the container 1 and allowing the container

body 3 to be pressurized from the container opening 2 side for contracting deformation (See Fig. 23).

[0041] With this arrangement, the container 1 can be used in a stabled posture.

[0042] The pouring device 43 includes a cartridge holder 66 for supporting the container 1, and a fixed quantity discharging mechanism 67 for causing contents to be poured by a predetermined small amount at every pushing operation for discharging the contents from the container opening 2 of the container 1 (See Fig. 26).

[0043] Accordingly, the pouring device 43 can pour the contents by a fixed quantity every time when used.

[0044] The pouring device 43 further includes a pushing member 56 for pushing the piston 52 with respect to the cylindrical member in the content discharging direction (See Fig. 25).

[0045] Accordingly, the pouring device 43 can pour contents easily by moving the pushing member 56.

BRIEF DESCRIPTION OF THE DRAWINGS

[0046]

Fig. 1 is a vertical cross-sectional view of a container and a backflow preventing plug showing a first embodiment of the present invention;

Fig. 2 is a vertical cross-sectional view of the container and the backflow preventing plug showing a state in which contents are discharged;

Fig. 3 is a vertical cross-sectional view of a resilient membrane;

Fig. 4 is a bottom view of the resilient membrane;

Fig. 5 shows a second embodiment of the present invention, in which (a) is a plan view of a plug member, and (b) is a side view of the plug member;

Fig. 6 shows a third embodiment of the present invention, in which (a) is a plan view of the plug member, and (b) is a side view of the plug member;

Fig. 7 shows a backflow preventing plug and a container according to a fourth embodiment, in which (a) is a plan view, and (b) is a vertical cross-sectional view;

Fig. 8 shows a backflow preventing plug and a container according to a fifth embodiment, in which (a) is a plan view, and (b) is a vertical cross-sectional view;

Fig. 9 is an exploded vertical cross-sectional view of the backflow preventing plug and the container of the above embodiment;

Fig. 10 shows a restricting member of the above embodiment, in which (a) is a plan view, and (b) is a perspective view;

Fig. 11 shows a container and a backflow preventing plug according to a sixth embodiment, in which (a) is a plan view, and (b) is a vertical cross-sectional view;

Fig. 12 shows a container and a backflow preventing plug according to a seventh embodiment, in which (a) is a vertical cross-sectional view showing a state in use, and (b) a vertical cross-sectional view showing a state not in use;

Fig. 13 shows a container and a backflow preventing plug according to an eighth embodiment, in which (a) is a vertical cross-sectional view showing a state in use, and (b) is a vertical cross-sectional view showing a state not in use;

Fig. 14 is a vertical cross-sectional view showing a container and a backflow preventing plug according to a ninth embodiment;

Fig. 15 is a vertical cross-sectional view showing a container and a backflow preventing plug according to a tenth embodiment;

Fig. 16 is a vertical cross-sectional view showing a container and a backflow preventing plug 4 according to an eleventh embodiment;

Fig. 17 shows a modification of the backflow preventing plug in vertical cross-sectional views;

Fig. 18 shows a modification of the resilient membrane in bottom views;

Fig. 19 is a side view of a container and a backflow preventing plug according to a twelfth embodiment;

Fig. 20 is a side view of a container and a backflow preventing plug according to a thirteenth embodiment;

Fig. 21 is a vertical cross-sectional view of a container and a backflow preventing plug according to a fourteenth embodiment;

Fig. 22 is a vertical cross-sectional view showing a container, a backflow preventing plug, and a pouring device according to a fifteenth embodiment;

Fig. 23 is a side view of a container, a backflow preventing plug, and a pouring device according to a sixteenth embodiment;

Fig. 24 is a plan view of the same;

Fig. 25 is a vertical cross-sectional view of a container, a backflow preventing plug, and a pouring device according

to a seventeenth embodiment;

Fig. 26 is a vertical cross-sectional view of a container, a backflow preventing plug, and a pouring device according to an eighteenth embodiment;

Fig. 27 is a vertical cross-sectional view of a container, a backflow preventing plug, and a pouring device according to a nineteenth embodiment;

Fig. 28 is a vertical cross-sectional view showing a container, a backflow preventing plug, and a pouring device according to a twentieth embodiment; and

Fig. 29 is a side view of the same.

BEST MODE FOR CARRYING OUT THE INVENTION

[0047] Embodiments of the present invention will now be described with reference to the drawings.

[0048] A container 1 according to the present invention is used for preventing backflow (entering) of air therein and restraining oxidation or multiplication of bacteria in contents in the container. The container 1 can accommodate various objects including fluid contents in a state of gas, liquid, paste, for example, food products such as mayonnaise, ketchup, sauce, grated horse-radish, cosmetics in a state of cream, and medical products such as ointment, or eye lotion.

[0049] Figs. 1 to 4 show a first embodiment of the present invention. The container 1 includes a container body 3 having a container opening 2 at one end thereof, and a backflow preventing plug 4 provided on the container opening 2. The container opening 2 is formed with a discharge port 5, and contents discharged from the discharge port 5 are passed through a flow path in a resilient membrane 7 and discharged from an outlet port 6.

[0050] The container 3 is formed of a resin material such as polyethylene, polypropylene, PET, nylon, TPE, or the like, and a side surface thereof has flexibility, so that contents are discharged from the discharge port 5 when its side surface is pushed by fingers or the like.

[0051] The backflow preventing plug 4 includes the resilient membrane 7 provided on the container opening 2 and formed with the outlet port 6, and a plug member 8 disposed in the resilient membrane 7 and capable of blocking flow of contents between the container opening 2 and the outlet port 6.

[0052] The resilient membrane 7 is formed of a thin film in a sack shape (bag shape) having a distal end 9a formed in a substantially semispherical shape, a body portion (middle portion) 9b in a cylindrical shape, a proximal end defining an opening 9c as an intake port (9c) for contents, and a circular flange 11 formed on the outer peripheral edge of the opening 9c. The resilient membrane 7 is attached to the container opening 2 so as to cover the discharge port 5 of the container body 3.

[0053] The distal end 9a of the resilient membrane 7 is formed with the outlet port 6 for contents, and the outlet port 6 and the discharge port 5 are placed apart from each other in the discharging direction of contents. The contents discharged from the discharge port are passed through the flow path in the body portion 9b of the resilient membrane 7 and, then, discharged from the outlet port 6.

[0054] The resilient membrane 7 is formed of any material selected from rubber, resin or the like in view of physical properties such as viscosity or grain size, chemical properties such as PH, appearance, economical conditions, usability or the like of contents.

[0055] For example, an elastic rubber member formed at least one of NR, SBR, BR, NBR, CR, EPM, EPDM, IR, IIR, FKM, VMQ, U, T, CO, ACM and the like, SBS, SIBS, SEBS, SIS, SEPS, SEEPS, TPO, TPU, TPEE, TPAA, TPVC, 1, 2-polybutadiene thermoplastic elastomer, fluorinated thermoplastic elastomer, and combinations thereof may be used.

[0056] The outlet port 6 of the resilient member 7 is formed in a slit shape of a straight line (may be a cross-shape), or is formed in a duckbill shape, and the edges thereof are in tight contact with each other. With the outlet port 6 formed in the slit-shape in this manner, contents are discharged by pressingly opening the outlet port 6 when the side surface of the container body 3 is pressed, while the outlet port 6 is closed so as to stop the flow of contents instantaneously by its resilient restoring force when pushing operation is stopped. With this structure, since the outlet port 6 is closed instantaneously, contents are prevented from staying around the peripheral edge of the outlet port 6, and can be stopped completely. Therefore, although the outlet port 6 may be formed in an opening of a circular shape, for example, in plan view, it is more preferable to form it in a slit-shape or in a duckbill shape in view of the instantaneously stopping property.

[0057] The plug member 8 is disposed in the body portion 9b of the resilient membrane 7 and comprises a solid spherical body formed of, for example, hard resin or the like. The plug member 8 is forcibly inserted into the resilient membrane 7 through the opening 9c and disposed inside of the distal end 9a and the body portion 9b.

[0058] The plug member 8 has a diameter larger than an inner diameter of the body portion 9b of the resilient membrane 7. Therefore, when the plug member 8 is provided in the body portion 9b of the resilient membrane 7, the plug member 8 comes into tight contact with an inner surface of the resilient membrane 7, and the body portion 9b of the resilient membrane 7 which comes into contact with the plug member 8 is resiliently deformed so as to expand outwardly. The plug member 8 is held by the resilient force generated by resilient deformation of the resilient membrane 7, thereby

being retained within the resilient membrane 7.

[0059] Since the plug member 8 has a spherical shape, the surface thereof forms a spherical surface. The plug member 8 performs sealing function by means of resilient and tight contact with the resilient membrane 7. Hereinafter, the surface (spherical surface) of the plug member 8 performing sealing function is referred to as a spherical sealing surface 12. Since the spherical sealing surface 12 has a spherical surface shape, a larger sealing area than a flat surface can be secured.

[0060] Since the resilient membrane 7 is formed of a thin film, the inner surface and the outer surface of the resilient membrane 7 are resiliently deformed into a spherical shape corresponding to the spherical shape of the spherical sealing surface 12 at the tight-contact portion. Therefore, sealing between the spherical sealing surface 12 and the resilient membrane 7 in the tight-contact portion is performed by tight contact between the spherical surfaces. In this manner, with the tight contact between spherical surfaces, the resilient force of the resilient membrane 7 at each contact point in the tight-contact area acts in the centripetal direction directed toward the center of the sphere of the spherical sealing surface 12. In other words, since a uniform resilient force (resilient restoring force) in the centripetal direction acts at any contact points, tight contact property is improved, and thus a reliable and high backflow preventing function can be achieved over a large area.

[0061] The resilient membrane 7 is provided with a projection (clearance forming projection) for locking and positioning the plug member 8 on an inner surface of the distal end 9a at a position near the outlet port 6, and the projection serves as clearance forming means 13 for forming a clearance between the outlet port 6 and the plug member 8. A plurality of projections are provided as the clearance forming means 13 at positions apart from each other in the circumferential direction on the inner surface of the resilient membrane 7. In the first embodiment, four projections are provided as the clearance forming means 13. The clearance forming means 13 in the shape of projection is positioned apart from the outlet port 6 in the content discharging direction. Therefore, the plug member 8 locked by the clearance forming means 13 in the shape of the projection is positioned apart from the outlet port 6 so that a clearance 14 is formed between the plug member 8 and the outlet port 6.

[0062] With thus formed clearance 14, the plug member 8 is prevented from coming into tight contact with the outlet port 6 and closing the same, so that contents can be advantageously discharged with releasing the sealing state with a desired pressure. In other words, with the clearance 14 formed by the projection on the resilient membrane 7, the plug member 8 is prevented from coming into tight contact with the outlet port 6 and closing the same, so that contents entering from the intake port 9c and flowing through the flow path can be guided reliably to the outlet port 6. Therefore, the resilient membrane 7 is provided with discharge guiding means for guiding contents passed through the flow path to the outlet port 6. The discharge guiding means is provided closer to the distal end 9a of the resilient membrane 7.

[0063] The body portion 9b of the resilient membrane 7 is provided with an annular projection 15 (seal ring portion) for coming into contact with the plug member 8 and performing sealing function on the inner surface thereof in addition to the sealing performed by tight contact between the spherical sealing surface 12 and the resilient membrane 7. The annular projection 15 is provided at a position apart from the outlet port 6, and when the plug member 8 is provided in the resilient membrane 7, the plug member 8 is clamped between the projecting clearance forming means 13 and the annular projection 15. In other words, the projecting clearance forming means 13 and the annular projection 15 restrict movements of the plug member 8 and, further, the annular projection 15 supports the plug member 8 so as not to move toward the container opening 2. Therefore, the container 1 having the backflow preventing plug 4 has a double-sealing structure in which sealing is performed at two positions of the tight contact portion between the spherical sealing surface 12 and the resilient membrane 7, and the contact portion between the plug member 8 (spherical sealing surface 12) and the annular projection 15. With such a double-sealing structure, reliable and sufficient backflow preventing function can be achieved. Alternatively, since the spherical sealing surface 12 and the resilient membrane 7 are brought into tight contact with each other and the reliable and sufficient backflow preventing function can be achieved even only with such tight contact, it is also possible to employ a structure in which the annular projection 15 serves only to support the plug member 8. In this case, for example, the annular projection 15 may be constituted of a plurality of projections disposed in a ring shape.

[0064] In Fig. 2, when using the container 1, contents are discharged from the discharge port 5 by pushing the side surface of the container body 3 with fingers or the like. Subsequently, the contents discharged from the discharge port 5 exert a pressure on the plug member 8, whereby the resilient membrane 7 receives pressure and hence is resiliently deformed so as to be extended in the discharging direction. At this time, the plug member 8 moves (transferred) in the discharging direction with respect to the container body 3 with resiliently deforming the resilient membrane 7 as described above. When the resilient membrane 7 is resiliently deformed in this manner, the plug member 8 is moved away from the annular projection 15 and hence sealing between the plug member 8 and the annular projection 15 is released. Following this release, the contents move over the annular projection 15 and flow into the sealed portion (the tight contact portion) between the spherical sealing surface 12 and the resilient membrane 7. The contents push the resilient membrane 7 in the tight-contact state so as to resiliently and expansively deform the resilient membrane 7 outward, thereby releasing the sealed portion between the spherical sealing surface 12 and the resilient membrane 7,

and entering into the clearance 14 on the side of the outlet port 6. The clearance 14 is finally filled with the contents, and the contents press the discharging port 6 in the discharging direction to be discharged toward the outside.

[0065] Then, when the pushing on the side surface of the container body 3 is stopped, the resilient membrane 7 resiliently deformed by the contents comes again into contact with the spherical sealing surface 12 of the plug member 8 by its resilient restoring force, and the sealed state is restored.

[0066] A male screw 16 is formed on a side surface of the container opening 2, and a cap 18 having a female screw 17 thereon is fitted on the male screw 16. A shoulder 18a for fixing the resilient membrane 7 is formed on a side portion of the cap 18. The flange 11 of the resilient membrane 7 is clamped between the shoulder 18a and a front surface 19 of the container opening 2, and when the cap 18 is rotated to the screw-tightening direction, the flange 11 is pressed by the shoulder 18a so that the resilient membrane 7 is fixed to the container opening 2. It is also possible to fix the resilient membrane 7 to the container opening 2 by adhering with adhesive agent or the like or welding between the flange 11 of the resilient membrane 7 and the front surface 19 of the container opening 2.

[0067] A lid 21 is provided on the front surface side of the cap 18 via a hinged portion 20 provided on the peripheral edge of the front surface so as to be capable of opening and closing. Such a cap 18 can be opened and closed easily by a one-touch operation for use.

[0068] The fitting portion between the female screw 17 of the cap 18 and the male screw 16 on the side surface of the container opening 2 is preferably welded, so that the fitting portion can be prevented from loosening and hermeticity of the container 1 can be secured. It is also possible to provide a mechanism for preventing a reverse rotation of the cap 18, such as a ratchet mechanism, at this fitting portion.

[0069] An outer side surface of the cap 18 is formed with a notch 22 extending along a circumferential direction thereof. Where the fitting portion is welded, the cap 18 is formed to be cut into two pieces along this notch 22 to remove the backflow preventing plug 4. With this structure, when the contents cannot be easily discharged by pressing the container body 3 due to, for example, decrease in remaining amount of contents, the backflow preventing plug 4 can be removed so that the contents can be discharged easily without pressing the side surface of the container body 3 with a strong force, whereby even a decreased amount of contents can advantageously be used up.

[0070] In the tight contact portion between the plug member 8 and the resilient membrane 7, the diameter a of the outer surface of the resilient membrane 7 in a lateral direction at an outermost position in a resiliently deformed area thereof is substantially the same as the inner diameter (aperture diameter) b of the discharge port 5 or slightly larger than the inner diameter b, so that the plug 4 removed for using up the contents as described above can be fitted into the discharge port 5 from the distal end thereof for closing the same.

[0071] In a second embodiment shown in Fig. 5, the plug member 8 is formed in a substantially oval shape in side view. At one end of the plug member 8 in the longitudinal direction, the projection (clearance forming projection) 13 is formed for forming a clearance between the outlet port 6 and the plug member 8 in the resilient membrane 7, which serves as the clearance forming means 13. In this case, it is not necessary to form the clearance forming means 13 on the resilient membrane 7 as in the first embodiment. A plurality of clearance forming means 13 are provided at an interval in a lateral circumferential direction of the plug member 8, and in the figures, four clearance forming means are provided. The spherical sealing surface 12 is formed on a middle portion in the longitudinal direction of the plug member 8. Other points are the same as the structure of the first embodiment, and hence the same effects can be obtained.

[0072] A third embodiment shown in Fig. 6 is different from the second embodiment in that a recess for forming a clearance between the outlet port 6 and the plug member 8 is provided in the resilient membrane 7 instead of the projecting clearance forming means 13 provided on the plug member 8 in the second embodiment, and the recess serves as the clearance forming means 13. Other points are the same as the structure in the second embodiment, and the same effects can be obtained.

[0073] In a fourth embodiment shown in Fig. 7, the shape of the resilient membrane 7, the shape of the plug member 8, the structure of the cap or the like are partly different from the first embodiment.

[0074] Specifically, the resilient membrane 7 does not have the clearance forming means 13 in the first embodiment (Fig. 1). While the plug member 8 was described to have a spherical shape in the first embodiment, the one having an oval shape (oval shape in side view, egg-shape) is used in the fourth embodiment. A projection 18b which abuts against the resilient membrane 7 is formed on a distal end surface of the cap 18. The projection 18b abuts against the resilient membrane 7 at a portion above a position where the lateral width of the plug member 8 is the maximum. Four projections 18b are formed along a periphery of an edge of a hole 18c formed substantially at the center of the distal end surface of the cap 18. The number of the projections 18b may be one to three or five or more. Other parts of the structure are the same as the container 1 and the backflow preventing plug 4 of the first embodiment.

[0075] According to the container 1 and the backflow preventing plug 4 in the fourth embodiment, when the container body 3 is pressed from outside for discharging contents, the contents flow toward the distal end of the resilient membrane 7 with pushing the resilient membrane 7 outward so as to release tight contact between the resilient membrane 7 and the spherical sealing surface 12 of the plug member 8 while pressing the plug member 8 in the discharging

direction, and are discharged from the discharge port at the distal end of the resilient membrane 7.

[0076] In this case, the plug member 8 is pushed by the contents first, and then moved toward the discharging direction, whereby the resilient membrane 7 is expanded in the discharging direction as a whole. At this time, the projection 18b of the cap 18 being in abutment with the outer surface of the resilient membrane 7 restricts the movement of the plug member 8 through the abutting portion with respect to the resilient membrane 7. In other words, the container 1 is provided with restricting means 33 for restricting deformation of the backflow preventing plug 4 or movement of the plug member 8 when the contents are discharged from the back flow preventing plug 4. The restricting means 33 is provided for securing the flow path for the contents between the plug member 8 and the resilient membrane 7 by restricting the movement of the plug member 8 so as to prevent the outlet port 6 and the plug member 8 from coming into tight contact with each other and obstructing discharge of the contents when the contents presses the plug member 8.

[0077] In other words, since the backflow preventing plug 4 includes the cap 18 as a component and the outlet port 6 and the plug member 8 are separated by the projection 18b of the cap 18 when the contents are discharged from the outlet port 6, the backflow preventing plug 4 is provided with separating means for separating the outlet port 6 and the plug member 8 so as not to be brought into tight contact with each other when the contents are discharged from the outlet port 6. With the separating means, the plug member 8 is prevented from coming into tight contact with and hence closing the outlet port 6 when the contents are discharged from the outlet port 6, so that the contents can reliably discharged.

[0078] The projection 18b and the resilient membrane 7 do not need to be configured to abut with each other, that is, they may be disposed apart from each other and arranged to come into abutment with each other by an expansion of the resilient membrane 7 for discharging contents. In such a structure as well, the projection 18b restricts the movement of the plug member 8 through the resilient membrane 7 to secure the flow path for the contents.

[0079] In the container 1 in a fifth embodiment shown in Fig. 8 to Fig. 10, the relation between the plug member 8 and the resilient membrane 7 is the same as the fourth embodiment shown in Fig 7. Specifically, the resilient membrane 7 does not have the clearance forming means 13, while the annular projection 15 is formed on the inner surface at the middle portion in the longitudinal direction of the body portion 9b of the resilient membrane 7. The container 1 includes restricting means 33 for restricting deformation of the backflow preventing plug 4 or movement of the plug member 8 when contents are discharged from the backflow preventing plug 4. The restricting means 33 includes a restricting member 46 which is attached to the container opening 2 so as to cover the backflow preventing plug 4. The restricting member 46 is formed of elastic resilient member. For example, an elastic rubber or a resilient resin material is preferably employed.

[0080] As shown in Fig. 10, the restricting member 46 includes a cylindrical portion 46a through which the body portion of the plug member 8 is inserted, and a flange 46b formed on one end of the cylindrical portion 46a in the axial direction. The other end of the cylindrical portion 46a in the axial direction has an opening and is formed with a projection 46c projecting radially inwardly of the cylindrical portion 46a on an inner side (inner surface) thereof.

[0081] The flange 46b of the restricting member 46 and the flange 11 of the resilient membrane 7 are overlapped with each other, and outer peripheral portions of the respective flanges 11, 46b are pressed against the front surface of the container opening 2 and fixed thereto by the shoulder 18a of the cap 18.

[0082] The cap 18 is provided on a mouth portion at a distal end thereof with fixed quantity discharging means 50 for discharging contents by a fixed quantity every time when the container 1 is used. The fixed quantity discharging means 50 includes a cylindrical member 55 attached to the mouth portion on the distal end of the cap 18. The cap 18 is formed with a female screw on the inner surface on the distal end thereof, and an outer surface of the cylindrical member 55 is formed with a male screw to be engaged with the female screw.

[0083] The cylindrical member 55 is formed with a front wall 55a projecting radially inwardly of the cylindrical member 55 on one end in a longitudinal direction thereof. The front wall 55a is formed in a ring-shape on one end of the cylindrical member 55 in the longitudinal direction. At the center of the front wall 55a in front view is formed with a circular hole 55b.

[0084] In the container 1 constructed as described above, when the side surface of the container body 3 is pressed to cause contents to be discharged, the contents discharged from the discharge port 5 of the container opening 2 enter into between the resilient membrane 7 and the plug member 8 so as to separate the resilient membrane 7 being in tight contact with the plug member 8 while pressing the plug member 8 in the discharging direction. At this time, the plug member 8 pressed by the contents moves in the discharging direction to cause the resilient membrane 7 to be resiliently deformed so as to be expanded in the discharging direction.

[0085] Then, the outer surface of the resilient membrane 7 comes into abutment with the projection 46c of the restricting member 46, whereby the projection 46c comes into abutment with the outer surface of the resilient membrane 7 to restrict the movement of the plug member 8 as in the case of the fourth embodiment described above. Therefore, contents pass between the resilient membrane 7 and the plug member 8 with separating the resilient membrane 7 and the plug member 8 in tight contact with each other, and are discharged from the outlet port 6.

[0086] When the contents are discharged in this manner, the restricting member 46 is pressed by the resilient mem-

brane 7 to be resiliently deformed in the discharging direction as shown by the alternate long and two short dashes in Fig. 8 in a state in which the projection 46c is kept in abutment with the outer surface of the resilient membrane 7.

[0087] On the other hand, the resilient membrane 7 expands in the discharging direction together with the restricting member 46 as shown by the alternate long and two short dashes in Fig. 8 while discharging the contents.

[0088] The resilient membrane 7 and the restricting member 46 expand in the discharging direction until the resilient membrane 7 comes into abutment with the front wall 55a of the cylindrical member 55. When the resilient membrane 7 abuts against the front wall 55a, the front wall 55a holds the outer periphery of the resilient membrane 7 and performs sealing with respect to the plug member 8, whereby the flow path for the contents in the backflow preventing plug 4 is blocked, and discharge is forcibly terminated.

[0089] In this state, even if the side surface of the container body 3 is further pressed, contents are not discharged. When the pressing on the side surface of the container body 3 is released, the restricting member 46 and the resilient membrane 7 in the expanded state are contracted to the original shape by the resiliently restoring force. Then, when the side surface of the container body 3 is pressed again, the restricting member 46 and the resilient membrane 7 repeat resilient deformations (expansions) as described above, whereby the amount of discharge is limited again by the cylindrical member 55 which is an example of the fixed quantity discharging means 50. With the structure as described above, the container 1 can discharge contents by a fixed quantity every time it is used.

[0090] It is also possible to adjust the amount of discharge per use of the container 1 by changing the position of the front wall 55a by rotating the cylindrical member 55 fitted to the cap 18 in the loosening direction or in the tightening direction of the screw. In this point, it is convenient to use the backflow preventing plug 4 of the container 1 for eye lotion or the like. Therefore, in the fourth and fifth embodiments, when the container 1 is not used, since the plug member 8 and the resilient membrane 7 come into tight contact with each other, contents are not remained at the distal end of the backflow preventing plug 4.

[0091] The container 1 according to a sixth embodiment in Fig. 11 includes the backflow preventing plug 4 having the clearance forming means 13 described in the first embodiment, and the fixed quantity discharging means 50 described in the fifth embodiment described above, while the restricting member 46 described in the fifth embodiment is not provided. The cylindrical member 55, which is an example of the fixed quantity discharging means 50, is formed with a radially inwardly projecting annular projection 55c on an inner surface of one end thereof. In the same manner as the front wall 55a in the fifth embodiment described above, the annular projection 55c blocks the flow path of contents by coming into abutment with the outer periphery of the resilient membrane 7 expanded by the pressure of contents to obtain sealing between the plug member 8 and the resilient membrane 7. Other parts of the structure are the same as in the container 1 in the fifth embodiment.

[0092] With such a structure as well, the container 1 can discharge a fixed quantity of the contents every time when it is used, and backflow of bacteria or outside air into the container can be prevented.

[0093] In a seventh embodiment in Fig. 12, the annular projection 15 provided on the resilient membrane 7 of the backflow preventing plug 4 has a different shape from that of the first embodiment. Specifically, in the seventh embodiment, an inner flange 9d is formed on the proximal portion of the resilient membrane 7 at a position on the inner surface corresponding to the flange 11. The inner flange 9d is formed in a plate shape extending along the peripheral edge of the opening on the proximal portion of the cylindrical portion of the resilient membrane 7 and defines a hole for passing contents therethrough at the center thereof.

[0094] As shown in Fig. 12(b), when the container 1 is not in use, the plug member 8 and the inner flange 9d come into tight contact with each other for sealing. In this state, the inner flange 9d is resiliently deformed by being pressed by the plug member 8 so as to be depressed toward the container body 3. Accordingly, sufficient tight contact between the plug member 8 and the inner flange 9d is secured and reliable sealing is achieved.

[0095] As shown in Fig. 12(a), when contents are discharged, the body portion and the flange of the resilient membrane 7 expand in the discharging direction, and the distal end (head portion) of the backflow preventing plug 4 is projected from the front surface of the cap 18 while discharging contents.

[0096] In an eighth embodiment shown in Fig. 13, the annular projection 15 is not formed on the resilient membrane 7 of the backflow preventing plug 4, which is a difference between this embodiment and the first embodiment. A container opening 5 is formed with an inclined surface which comes into direct tight contact with the plug member 8. The container 1 has a double-sealing structure including the sealing by a tight contact between the spherical sealing surface 12 of the plug member 8 of the backflow preventing plug 4 and the resilient membrane 7, and a sealing by a direct tight contact between the plug member 8 and the inclined surface. Other parts of the structure are substantially the same as the first embodiment, and the same effects are achieved.

[0097] A ninth embodiment shown in Fig. 14 is different from the first embodiment in that a sealing member 60 is provided between the flange of the resilient membrane 7 of the backflow preventing plug 4 and the front surface of the container body 3. The sealing member 60 has a disc shape and is formed of a resilient material having low oxygen permeability, such as butyl rubber or resilient resin. The sealing member 60 defines at the center thereof a hole for allowing contents to pass through, and when it is not in use, the plug member 8 comes into tight contact with the

peripheral edge of the hole to close the hole. Specifically, the container 1 has a double-sealing structure including the sealing between the plug member 8 and the resilient membrane 7 through the spherical sealing surface 12, and a sealing between the plug member 8 and the sealing member 60. Other parts of the structure are substantially the same as the first embodiment, and the same effects are achieved.

[0098] The container 1 according to a tenth embodiment in Fig. 15 is different from the container 1 in the ninth embodiment in that a sealing portion (projection) 60a in an annular shape (doughnut shape) is formed along the peripheral edge of the hole on the sealing member 60. The annular sealing portion 60a has an advantage in that it engages the container opening for positioning the sealing member 60 without lateral displacement thereof. The container 1 has a double-sealing structure including the sealing by tight contact between the spherical sealing surface 12 of the plug member 8 and the resilient membrane 7, and a sealing by tight contact between the plug member 8 and the annular sealing portion 60a.

[0099] The container 1 according to an eleventh embodiment shown in Fig. 16 is different from the container 1 according to the ninth embodiment shown in Fig. 14 in that this embodiment includes a cylindrical projection 60b formed along the peripheral edge of the hole of the sealing member 60 for allowing the contents to pass through as described in the fifth embodiment.

[0100] The cylindrical projection 60b has a cylindrical shape projecting in the direction of the thickness of the plate-shaped sealing member 60. The distal end of the cylindrical projection 60b is opened, and hence the inner side of the cylindrical projection 60b defines a channel (flow path) for contents. Other parts of the structure are substantially the same as the container 1 in the ninth embodiment, and the same effects can be achieved.

[0101] As shown in Fig. 16, the cylindrical projection 60b projects toward the inside of the container body and is fitted into the discharge port 5 of the container opening 2. Accordingly, the sealing member 60 can be positioned reliably without lateral displacement, and reliable sealing with respect to the plug member 8 can be achieved. Although the container 1 shown in Fig. 13 to Fig. 16 is formed of an oxygen impermeable material, the resilient membrane 7 itself may be formed of a material having low oxygen permeability if the cost for such material is acceptable.

[0102] In the backflow preventing plug 4 in Figs. 17 (a), (b), irrespective of presence or absence of the clearance forming means 13, a tubular projection having a closed distal end is formed on the distal surface of the cylindrical portion of the resilient membrane 7 instead of the outlet port 6 of the backflow preventing plug 4. When using the container 1 provided with this backflow preventing plug 4, the body portion of the tubular projection is cut with scissors or the like, and a thus formed opening serves as the outlet port 6 for discharging contents therefrom. Other parts of the structure are substantially the same as the backflow preventing plug 4 in the first or other embodiments.

[0103] With this arrangement, for example, the backflow preventing plug 4 can prevent backflow of bacteria or outside air by its double-sealing structure as in the case of the first embodiment, and when the container 1 is circulated in the market as a container for a products, unauthorized usage or alteration of contents can be revealed easily by inspecting whether or not the tubular projection is cut off or not, which is advantageous.

[0104] In the backflow preventing plug 4 in Fig. 17(c), irrespective of the presence or absence of the clearance forming means 13, a bill-shaped projection which serves as the outlet port 6 is formed on the distal surface of the cylindrical portion of the resilient membrane 7 instead of the outlet port 6 of the backflow preventing plug 4. The projection is pressed outward and resiliently deformed by contents entering into the clearance between the plug member 8 and the resilient membrane 7 when the side surface of the container body 3 is pressed, so that the projection is opened to allow the contents to be discharged. Accordingly, for example, when pressing of the container body 3 is stopped, the bill-shaped projection is closed by its resilient restoring force to strongly block the discharge of contents.

[0105] As shown in Figs. 18 (a), (b), a slit-shaped outlet port 6 is formed on the distal end of the resilient membrane 7, and end portions of the outlet port 6 are disposed at positions overlapping the projections serving as the clearance forming means 13, so that the end portions of the outlet port 6 (slit) can be prevented from being torn. Alternatively, the resilient membrane 7 may be formed to have an increased thickness at a position where the slit is formed as the outlet port 6, so that the slit is formed at the portion where the thickness is increased for preventing the end portion of the slit from being torn.

[0106] In addition to the structure shown in Figs. 18 (a), (b), it is also possible to provide a thickened portion on the outer surface of the distal end of the resilient membrane 7 and forming the outlet port 6 on the thickened portion for preventing the end portion of the slit as the outlet port 6 from being torn.

[0107] Table 1 shows a result of measurement of a backflow preventing capability for contents in the container 1 and in the backflow preventing plug 4 according to the present invention. In this measurement, a gauge pressure in the container body with respect to the atmospheric pressure is measured for a predetermined period (60 minutes).

[Table 1]

	Start 0	15 min.	30 min.	45 min.	60 min.
1st time	-0.038	-0.038	-0.038	-0.038	-0.038
2nd time	-0.042	-0.042	-0.042	-0.042	-0.042
3rd time	-0.040	-0.040	-0.040	-0.040	-0.040
Average	-0.040	-0.040	-0.040	-0.040	-0.040
(unit: MPa, Temperature:16°C)					

[0108] According to Table 1, the internal pressure of the container body 3 has changed little with the passage of time, and hence it is clear that the outside air is not flown back into the container 1.

[0109] In a twelfth embodiment shown in Fig. 19, a projection 24 with a sharppoint for forming the outlet port 6 on the resilient membrane 7 is provided on the inner surface of the cap 18. The distal end of the backflow preventing plug 4 is not formed with the outlet port 6 in advance, and the outlet port 6 is formed by allowing the projection 24 to penetrate through the resilient membrane 7 when using the container 1. Accordingly, countermeasures for alteration of contents and perfect hermeticity before using the container 1 are secured, and contents can be preserved for a longer time.

[0110] In a thirteenth embodiment shown in Fig. 20, the container 1 is formed with a pin 38, which is to be torn off or cut off when using the container 1 on the resilient membrane 7 at the distal end of the backflow preventing plug 4. Specifically, the pin 38 is torn off or cut off to form a hole or a slit as the outlet port 6 on the resilient membrane 7 when using the container 1. With such an arrangement as well, perfect hermeticity before using the container 1 is secured, and contents can be preserved for a longer time as in the case of the twelfth embodiment.

[0111] In a fourteenth embodiment shown in Fig. 21, the shape of the container body 3 is formed in an accordion shape. When using the container 1 by contractingly deforming the container body 3 in the content discharging direction so as to fold the container body 3, contents are discharged from the container opening 2 toward the backflow preventing plug 4 so as to be discharged from the outlet port of the backflow preventing plug 4.

[0112] In a fifteenth embodiment shown in Fig. 22, the container body 3 of the container 1 is formed in a bag shape which is contractively deformable so as to discharge contents through the container opening 2, and an outer mantle 42 is provided outside the container body 3, so that the container 1 and the outer mantle 42 constitute a pouring device 43. The outer mantle 42 surrounds the container body 3 with a space therebetween so that the container body 3 is contractingly deformed by an external pressure (by squeezing by hand or the like) through air in the space.

[0113] The outer mantle 42 is formed of material such as plastic, and is capable of being deformed resiliently by finger pressure.

[0114] The outer mantle 42 has an opening attached to the fixture 41, and surrounds the container body 3 through an air layer. The outer mantle 42 is formed with an air hole 45 for communicating an air layer 44 therein and the outside.

[0115] Although the air hole 45 may be formed in advance on the outer mantle 42, for accommodating contents which may be easily affected by oxygen, it is also possible to adhere a seal on the air hole 45 to avoid circulation of air, or to integrally form a pin 42a for cutting off or tearing off the pin 38 to form the air hole 45 before use.

[0116] Alternatively, it is also applicable to form another air hole 45 separately from the aforementioned air hole 45 and provide a check valve at the air hole 45, so as to configure in such a manner that the outer mantle 42 is compressed with the air hole 45 closed with a finger but air can be introduced into the air layer 44 via the check valve without releasing the air hole 45, or to configure in such a manner that the check valve is provided on the air hole 45 itself so as to avoid the necessity to close the air hole 45 with a finger.

[0117] In the container 1, when the outer mantle 42 is compressed with the air hole 45 closed so as to contract the container body 3 through the air layer 44, contents are caused to outwardly expand the resilient membrane 7 in tight contact with the spherical sealing surface 12 to separate it from the spherical sealing surface 12 so as to pass by the plug member 8 to be discharged from the outlet port 6.

[0118] When the finger pressure of the outer mantle 42 is released after the contents are discharged, the outer mantle 42 tends to restore the original shape by its resilient restoring force, and since the container body 3 is contracted at this moment, air enters through the air hole 45 from outside so as to refill thus reduced capacity.

[0119] Entering of air into the air layer 44 in the outer mantle 42 maintains the container body 3 in the contracted state.

[0120] When the compression of the outer mantle 42 with the finger is stopped, since the internal pressure to expand the resilient membrane 7 is released, the expanded resilient membrane 7 comes into tight contact with the spherical sealing surface 12 again to perform sealing for preventing bacteria or outside air from coming into the container body 3.

[0121] For discharging contents next time, the aforementioned action is repeated. Since air for compensating the capacity reduced by the contracted container body 3 is replenished in the outer mantle 42, the outer mantle 42 is capable of performing the action to contract the container body 3 under substantially the same conditions.

[0122] When contents are sufficiently filled in the container body 3, it is also possible to compress the outer mantle 42 without closing the air hole 45 and apply finger pressure directly to the container body 3 through the outer mantle 42, so that the container body 3 is contracted.

[0123] In a sixteenth embodiment shown in Fig. 23 and Fig. 24, the pouring device 43 includes a container holder 47 for accommodating and retaining the container 1 provided with the container body 3 in an accordion shape, and allowing pressure application from the side of the container opening 2 for contractingly deforming the container body 3. The container 1 is a cartridge type, and the container 1 is replaceably accommodated in the container holder 47. Therefore, when contents in the container 1 are used up, since only the container 1 can be replaced, the container holder 47 can be reused.

[0124] On the upper surface of the container body 3, there is provided a push button 48 for downwardly contracting the container body 3. The body portion of the backflow preventing plug 4 is provided in the upper part of the container body 3 and formed in a bent shape so that the outlet port 6 is oriented to the lateral direction.

[0125] The container holder 47 includes a cylindrical portion for accommodating and holding the container 1 and a notch 49 formed on a part of the side wall of the cylindrical portion and extending from the upper opening to the bottom thereof so as not to obstruct downward movement of the backflow preventing plug 4 and a finger placed on the push button 48 when contracting the container 1 downward. In this arrangement, since contents can be discharged by pressing the container from above in a state in which the container 1 is accommodated and held in the container holder 47, the pouring device 43 facilitates handling of the container.

[0126] In a seventeenth embodiment in Fig. 25, the container body 3 of the container 1 includes a cylindrical member 51 for storing contents, and a piston 52 axially slidably fitted into the cylindrical member 51. The distal end of the cylindrical member 51 is formed into a cylindrical shape having a smaller diameter than that of the body portion and has on the side wall thereof the backflow preventing plug 4 oriented in the lateral direction.

[0127] The piston 52 includes a column shaped body portion having a diameter slightly larger than that of the inner diameter of the body portion of the cylindrical member 51 and a column shaped projection 53 to be fitted to the distal end of the cylindrical member 51.

[0128] The container 1 is provided with a pushing member 56 on the rear portion thereof for pushing the piston 52 in the content discharging direction relative to the cylindrical member 51, the container 1 and the pressing member 56 are provided, and the container 1 and the pressing member 56 constitute the pouring device 43.

[0129] A clip 59 is provided on the outer surface of the pushing member 56, so that, for example, as in the case of a pen having a clip, the pouring device 43 can be retained on a pocket of a cloth by hooking the clip 59.

[0130] In an eighteenth embodiment shown in Fig. 26, the container body 3 of the container 1 includes the cylindrical member 51 for storing contents, and the piston 52 axially slidably fitted to the cylindrical member 51. The cylindrical member 51 is formed in a cylindrical shape having the flange-shaped container opening 2 at the distal end thereof. The backflow preventing plug 4 is integrally formed with the container opening 2. The backflow preventing plug 4 is covered by an outlet port fitting 62 having a tubular needle 61 for discharging contents. The outlet port fitting 62 has a cylindrical shape and is provided at the proximal portion thereof with a fixture 63 for clamping and fixing the container opening 2 and the flange at the proximal portion of the backflow preventing plug 4 integrally. The container 1 is a cartridge type, and can be replaced. The cartridge type container 1 accommodates, for example, an injection. In this cartridge type structure, the thickness of the distal end of the resilient membrane 7 of the backflow preventing plug 4 where the needle is provided can be increased to achieve multiple usage of the injection.

[0131] On the distal side of the outlet port fitting 62, there is provided a conical holding portion 64 for holding the tubular needle 61, and the tubular needle 61 is projected from the top of the holding portion 64 toward the axial center of the container 1. The proximal end of the tubular needle 61 is passed through the resilient membrane 7 of the backflow preventing plug 4 and positioned in the backflow preventing plug 4. Contents are discharged from the outlet port at the distal end of the tubular needle 61 through the tubular needle 61.

[0132] The pouring device 43 includes a cartridge holder 66 for supporting the container 1 and a fixed quantity discharging mechanism 67 capable of pouring contents by a constant small amount by one pushing operation for discharging the contents from the container opening 2 by moving the piston 52 of the container 1 in the content discharging direction by a predetermined distance.

[0133] The fixed quantity discharging mechanism 67 employs a lead knocking-out mechanism for a mechanical pensile, in which an discharging mechanism body 68 is screwed onto a cartridge holder 66 (82, 83) for accommodating and retaining the container 1 so as to be capable of adjusting the amount of screwing, a knocking member 69 is inserted and supported in the discharging mechanism body 68 so as to be capable of moving in the axial direction, a pushing rod 58, which corresponds to a lead of the mechanical pensile, is inserted into the knocking member 69, and the distal end of the pushing rod 58 is connected to the piston 52 of the container body 3. The rear end of the cartridge holder 66 is positioned in the discharging mechanism body 68 to form an annular guiding portion 70.

[0134] The knocking member 69 has a three-step cylindrical shape in the axial direction comprising a large diameter cylindrical portion 71 on the rear end thereof which is slidably supported in the rear portion of the discharging mechanism

body 68, a middle portion which is guided by a guiding holder 73 provided in the discharging mechanism body 68, and a small diameter portion 74 on the front end thereof which includes a tightening portion 75 having a slit on its distal end.

[0135] The tightening portion 75 is split into three (may be two or four) and capable of loosening or tightening the pushing rod 58, and the outer peripheral surface thereof is formed with a tapered surface 75a which increase in diameter as it approaches the distal end of the small diameter portion 74.

[0136] A squeezing member 76 formed in a tapered tube shape is fitted on the tightening portion 75. When the tightening portion 75 advances into the squeezing member 76, the tightening portion 75 is squeezed so as to clamp the pushing rod 58.

[0137] The squeezing member 76 is capable of coming into abutment with the guiding portion 70 by advancing forward. When it abuts against the guiding portion 70, the movement thereof is blocked and hence only the tightening portion 75 advances. Accordingly, fitted relation between the tightening portion 75 and the squeezing member 76 is released, and the clamping of the pushing rod 58 by the tightening portion 75 is released.

[0138] The guiding holder 73 disposed in the discharging mechanism body 68 is formed with a receiving portion 78 on the distal end thereof for preventing rearward movement of the squeezing member 76 and allowing the tightening portion 75 to enter into the squeezing member 76. Between the receiving portion 78 of the guiding holder 73 and the middle portion of the knocking member 69, there is disposed a return spring 79.

[0139] In the large diameter cylindrical portion 71 of the knocking member 69, a balance spring 80 is provided for urging the pushing rod 58 softly toward the container 1.

[0140] In the fixed quantity discharging mechanism 67 arranged as described above, the pushing rod 58 of the piston 52 is moved to the rear end position in a state in which the container 1 is accommodated and retained in the cartridge holder 66, the balance spring 80 is compressed, and the knocking member 69 is moved to the rear end position by the return spring 79.

[0141] From this state, when the discharging mechanism body 68 is held and the knocking member 69 is pressed once with a finger or the like, the tightening portion 75 clamping the pushing rod 58 with the squeezing member 76 advances with the pushing rod 58 clamped and moves the pushing rod 58 and the piston 52 by a certain distance, so that a fixed quantity of contents are discharged from the outlet port 6.

[0142] When the squeezing member 76 abuts against the guiding portion 70 in the course of pressing the knocking member 69, fitted state of the squeezing member with respect to the tightening portion 75 is released. Accordingly, since the tightening portion 75 is released from constriction on the outer periphery thereof and, hence, is loosened, the tightening portion releases the pushing rod 58 which has been clamped.

[0143] Accordingly, the pushing rod 58 and the piston 52 are stopped at positions where they are advanced by a certain distance. When the pressing of the knocking member 69 is released thereafter, the tightening portion 75 of the knocking member 69 is moved to the rear end position by the return spring 79 without clamping the pushing rod 58.

[0144] In the latter half of the returning movement of the knocking member 69, the squeezing member 76 enters into the receiving portion 78 of the guiding holder 73 so that the movement thereof is constricted, and the tightening portion 75 enters into the squeezing member 76 and clamps the pushing rod 58.

[0145] By adjusting the distance between the guiding portion 70 and the guiding holder 73, the amount of movement of the piston 52 by one pressing of the knocking member 69 can be adjusted. Also, a spacer may be interposed in the clearance between the discharging mechanism body 68 and a first holder member 82 and fixed so as not to move for adjusting the amount of movement.

[0146] In a nineteenth embodiment shown in Fig. 27, the cartridge container 1 having the accordion shaped container body 3 which is contractively deformable is used, and the pouring device 43 includes the cartridge holder 66 for supporting the container 1, and the fixed quantity discharging mechanism 67 described in the eighteenth embodiment. The cartridge holder 66 includes a cylindrical first holder member 82 having the annular guiding portion 70, and a cylindrical second holder member 83 fitted to the first holder member 82 for holding the container 1 from above. The first holder member 82 and the second holder member 83 are joined by screwing or the like. At the distal end of the pushing rod 58 of the fixed quantity discharging mechanism 67, there is provided a supporting plate 85 for supporting the container 1 by abutting against the outer surface of the bottom of the container 1, and the supporting plate 85 contracts the container 1 by folding the same by the movement of the pushing rod 58 caused by the pushing movement of the fixed quantity discharging mechanism 67 described in the eighteenth embodiment.

[0147] In a twentieth embodiment shown in Fig. 28 and Fig. 29, the container 1 is provided with the accordion shaped contractively deformable container body 3, and the backflow preventing plug 4 projecting from the upper side wall of the container body 3 in the lateral direction.

[0148] In the pouring device 43, the cartridge container 1 is stored in the container holder 47 having the notch 49 as described in the sixteenth embodiment, and the upper portion of the container holder 47 is closed by the cylindrical cartridge holder 66 formed integrally with the fixed quantity discharging mechanism 67 described in the eighteenth embodiment.

[0149] In the container and the pouring device 43 in the twelfth embodiment to the twenties embodiment, although

the backflow preventing plug 4 according to the first embodiment is provided, the backflow preventing plug 4 according to the second embodiment to the eleventh embodiment is also applicable.

[0150] It should be noted that the present invention is not limited to the embodiment described above, and variations or modifications as described below are included in the present invention. In the backflow preventing plug 4 according to the first embodiment, the number of projections formed as the clearance forming means 13 is not limited to four, but may be one to three or five or more. Various shapes of the container body 3 may be employed, such as the shape of a bag for pouches or of a folded paper bag, and material thereof may be biodegradable plastic, water-proof paper, synthetic resin, rubber, metal such as aluminum. Material of the plug member 8 is not limited to hard resin, but may be various resin material, rubber, stone, glass, ceramic, shell, wood, metal, or antibacterial material including silver plating or the like. Alternatively, the plug member 8 may be coated with antibacterial or bactericidal metal such as silver.

[0151] Although the body portion 9b of the resilient membrane 7 is formed into a cylindrical shape in the first embodiment, the body portion 9b may be formed into a tapered cylindrical shape tapered toward the distal end 9a thereof. In this case, an increased resilient force (resilient restoring force) of the resilient membrane 7 in the direction from the distal end 9a toward the opening 9c is applied to the plug member 8 retained in the resilient membrane 7. Therefore, when the plug member 8 is pressed against the annular projection 15 by thus increased resilient force, tight contact between the plug member 8 and the annular projection 15 increases, and hence further reliable sealing is advantageously achieved.

INDUSTRIAL APPLICABILITY

[0152] The present invention is effective for the plug, the container, and the pouring device for preventing oxidization of contents.

Claims

1. A backflow preventing plug comprising a thin film resilient membrane defining a flow path having an intake port and an outlet port, and a ball-shaped plug member retained in the flow path in the resilient membrane and formed with a spherical sealing surface for restricting flow of fluid by coming into resilient contact with a middle portion of the resilient membrane.
2. A backflow preventing plug according to Claim 1, **characterized in that** the resilient membrane is formed of an elastic rubber member which can be expanded and deformed in a direction away from the plug member by a fluid pressure applied from the intake port.
3. A backflow preventing plug according to Claim 1, **characterized in that** the plug member has a spherical shape.
4. A backflow preventing plug according to Claim 1, **characterized in that** the plug member has an ellipsoidal shape.
5. A backflow preventing plug according to Claim 1, **characterized in that** the outlet port is formed in a slit-shape.
6. A backflow preventing plug according to Claim 1, **characterized in that** the resilient membrane has an inner surface formed with an annular projection which can come into tight contact with the plug member.
7. A backflow preventing plug according to Claim 1, **characterized by** further comprising discharge guiding means for guiding contents which has been passing through the flow path with expanding the resilient membrane by an increase in fluid pressure on the intake port side toward the outlet port.
8. A backflow preventing plug according to Claim 1, **characterized by** further comprising a clearance forming projection for forming a clearance for guiding flow of fluid contents to the outlet port by positioning the plug member with respect to the outlet port.
9. A backflow preventing plug according to Claim 1, **characterized by** further comprising separating means for separating the outlet port and the plug member so as to prevent the same from coming into tight contact with each other when contents are discharged from the outlet port.
10. A container **characterized in that** the backflow preventing plug according to any one of Claims 1 to 9 is attached to a container opening of a container body thereof accommodating contents.

11. A container according to Claim 10 **characterized by** comprising fixed quantity discharging means for allowing contents to be discharged by a fixed quantity.
- 5 12. A container according to Claim 10 **characterized in that** the container body is formed in a contractively deformable bag shape for discharging contents from the container opening.
13. A container according to Claim 11 **characterized in that** the container body is formed in a contractively deformable bag shape for discharging contents from the container opening.
- 10 14. A container according to Claim 10 **characterized in that** the container body is formed in a contractively deformable accordion shape for discharging contents from the container opening.
- 15 15. A container according to Claim 11 **characterized in that** the container body is formed in a contractively deformable accordion shape for discharging contents from the container opening.
- 16 16. A container according to Claim 10 **characterized in that** the container body includes a cylindrical member for accommodating contents, and an axially slidable piston fitted into the cylindrical member.
- 20 17. A container according to Claim 11 **characterized in that** the container body includes a cylindrical member for accommodating contents, and an axially slidable piston fitted into the cylindrical member.
- 25 18. A pouring device **characterized by** comprising an outer mantle surrounding the container body of the container according to Claim 12 through a space therebetween, the outer mantle being resiliently deformable so as to contractingly deform the container body through air in the space by a resilient deformation thereof due to an external pressure.
- 30 19. A pouring device **characterized by** comprising an outer mantle surrounding the container body of the container according to Claim 13 through a space therebetween, the outer mantle being resiliently deformable so as to contractingly deform the container body through air in the space by a resilient deformation thereof due to an external pressure.
- 35 20. A pouring device **characterized by** comprising a container holder for holding the container according to Claim 14 and allowing the container body to be pressurized from the container opening side for contracting deformation.
- 40 21. A pouring device **characterized by** comprising a container holder for holding the container according to Claim 15 and allowing the container body to be pressurized from the container opening side for contracting deformation.
- 45 22. A pouring device **characterized by** comprising a cartridge holder for supporting the container according to Claim 16, and a fixed quantity discharging mechanism for causing contents to be poured by a predetermined small amount at every pushing operation for discharging the contents from the container opening of the container.
- 50 23. A pouring device **characterized by** comprising a pushing member for pushing the piston with respect to the cylindrical member of the container according to Claim 16 in a content discharging direction.
- 55 24. A pouring device **characterized by** comprising a pushing member for pushing the piston with respect to the cylindrical member of the container according to Claim 17 in a content discharging direction.

FIG.2

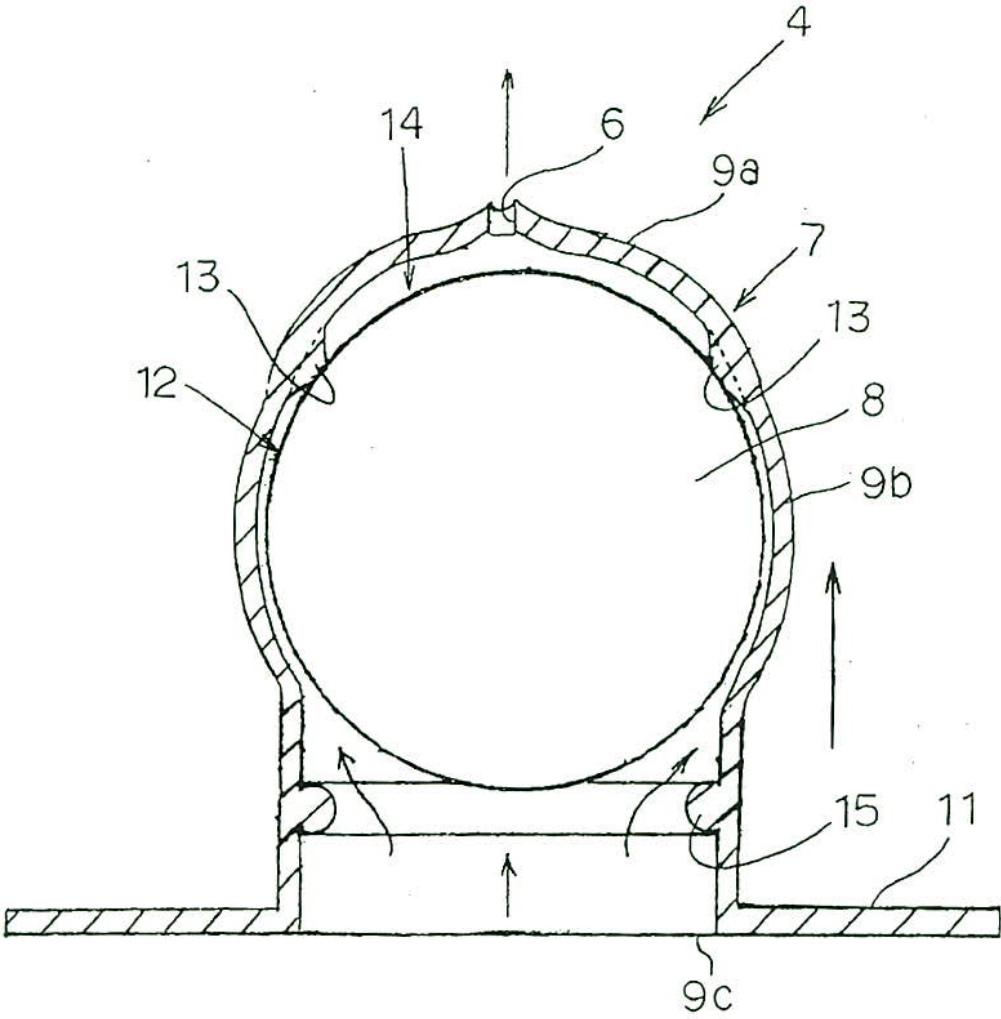


FIG.3

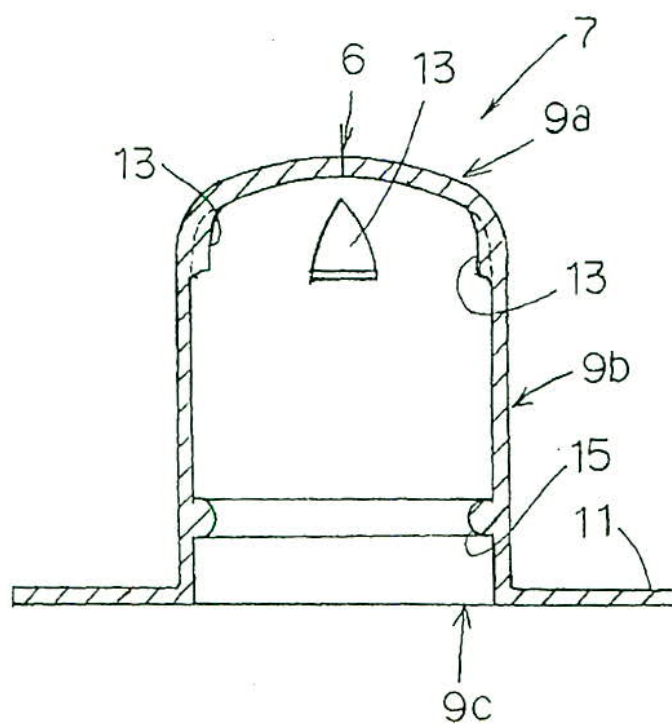


FIG.4

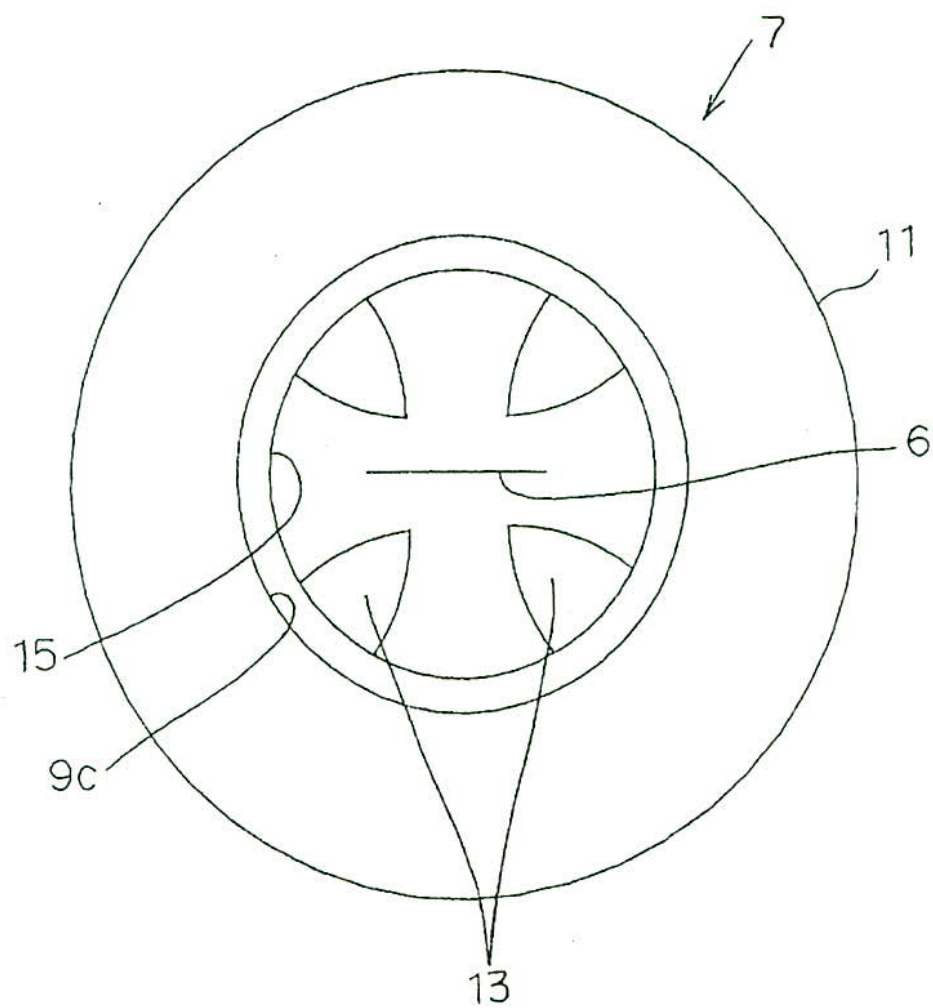


FIG.5

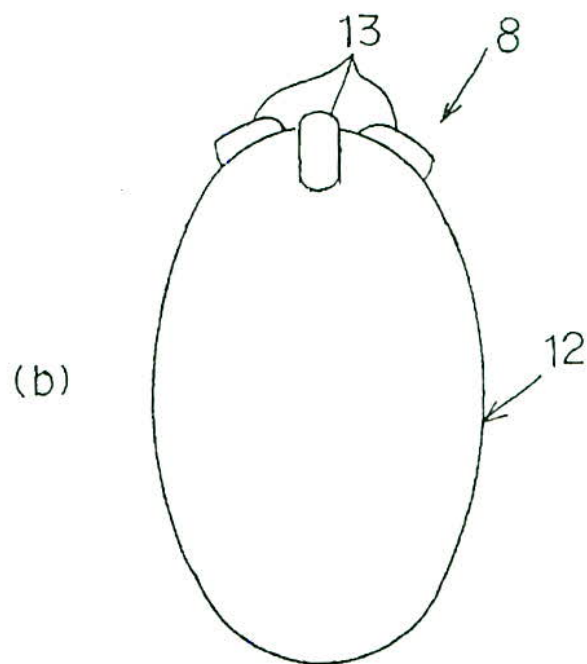
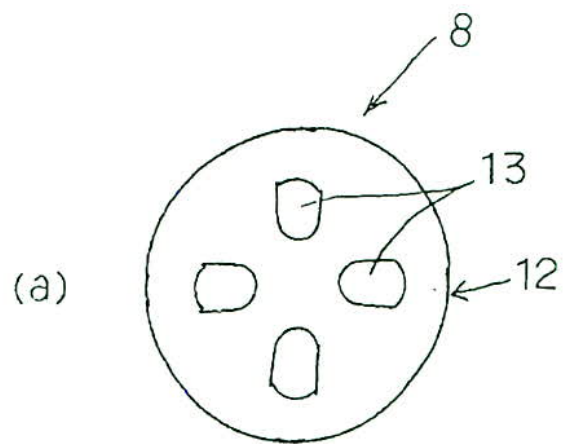


FIG.6

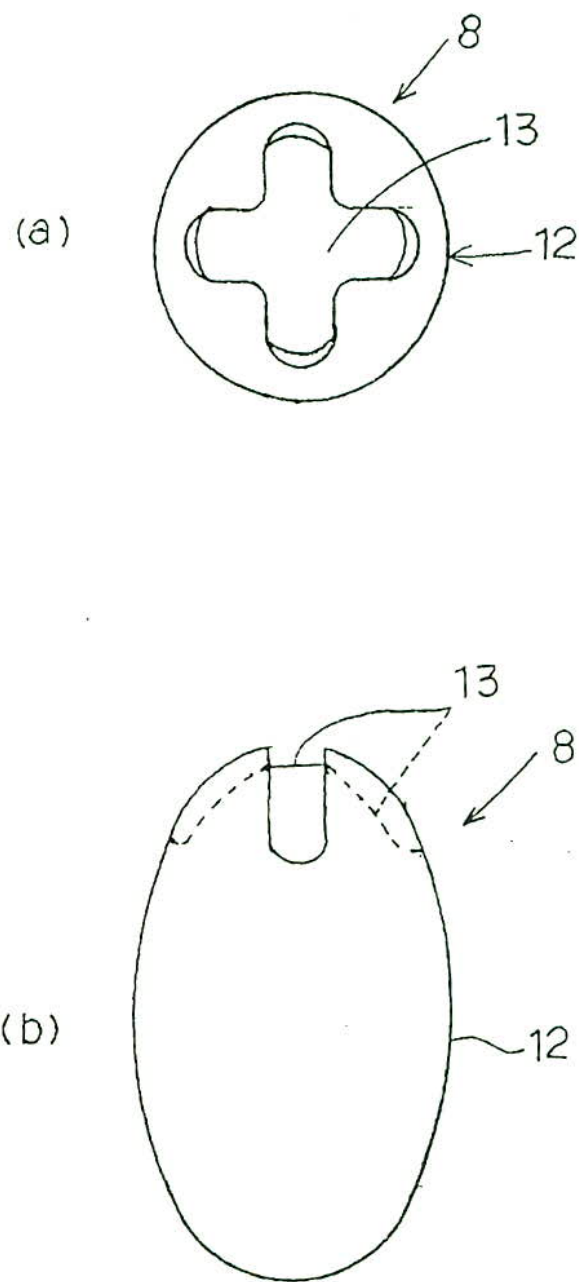


FIG.7

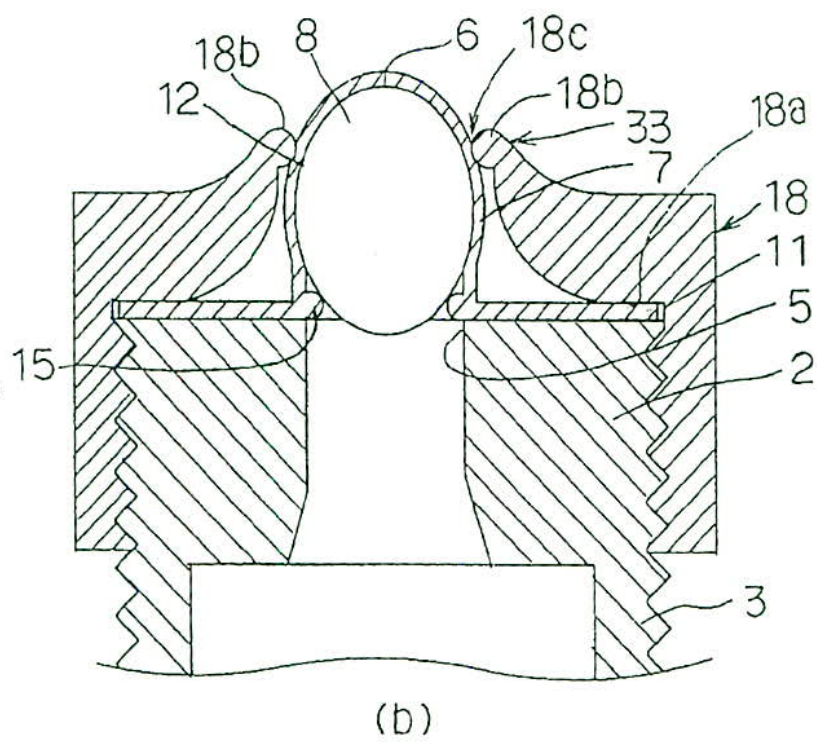
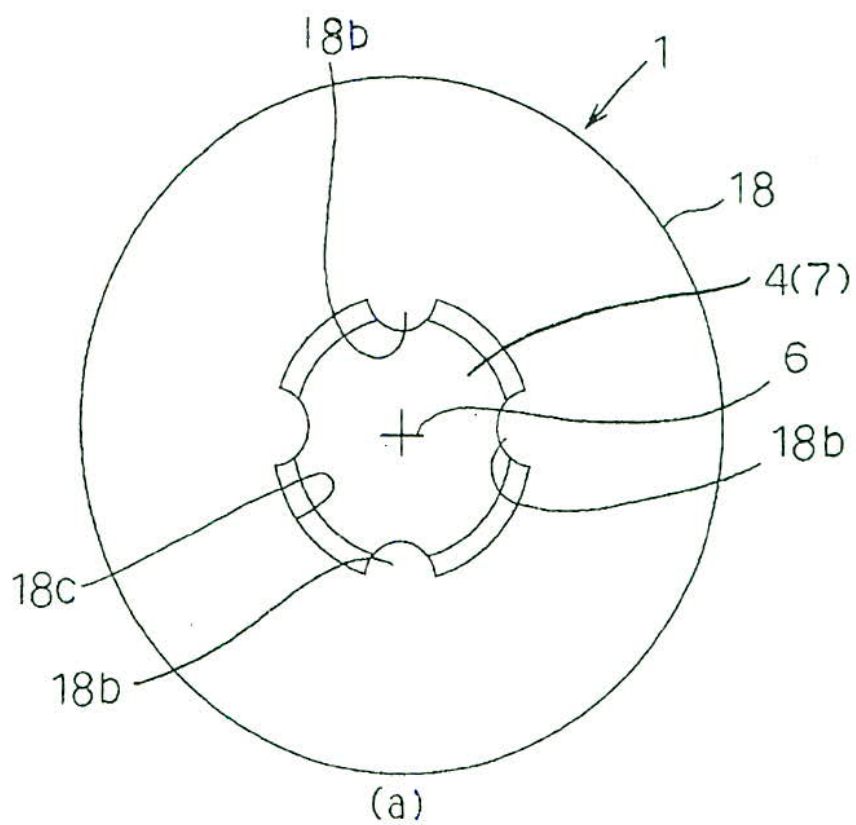


FIG.8

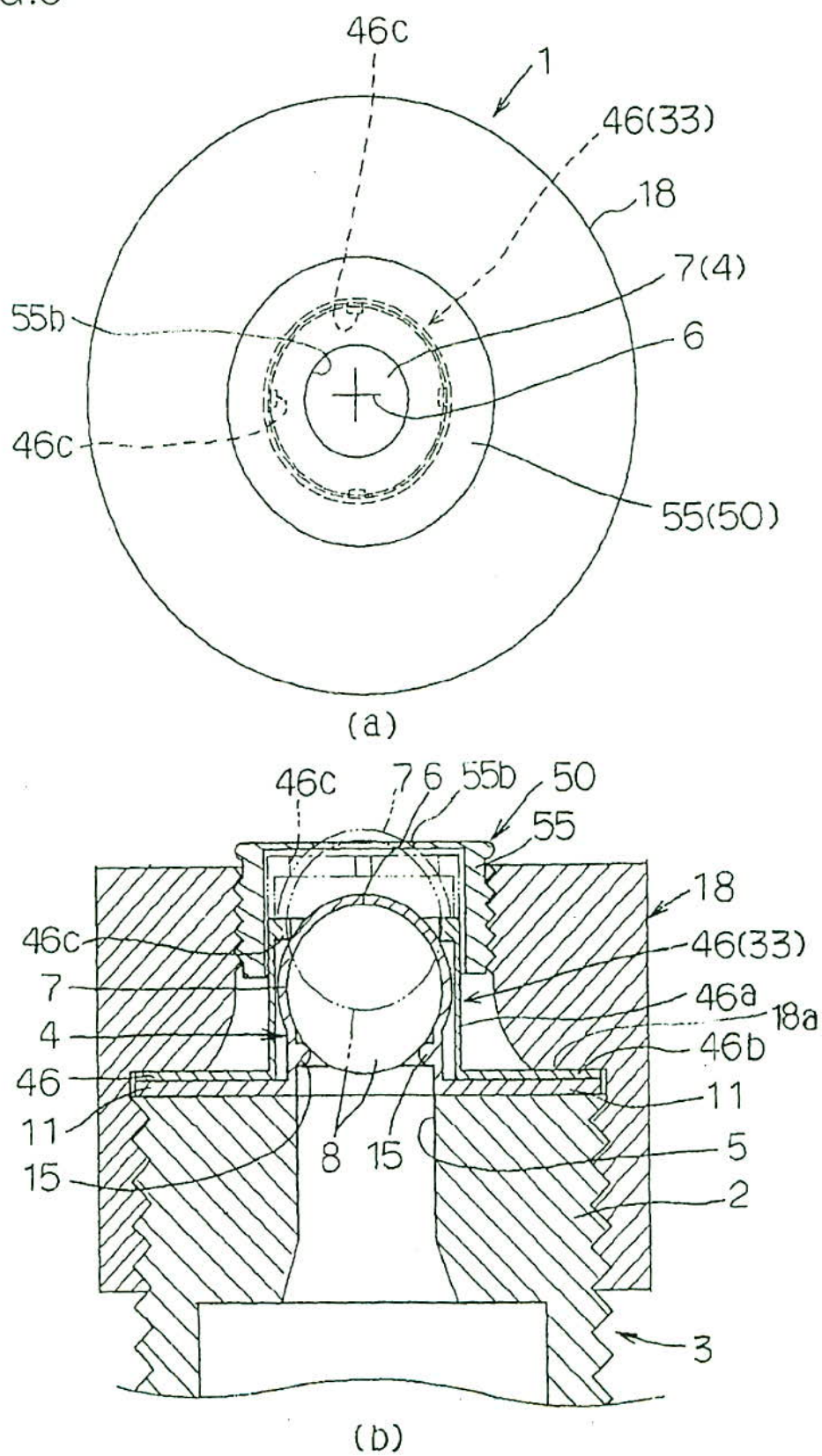


FIG.9

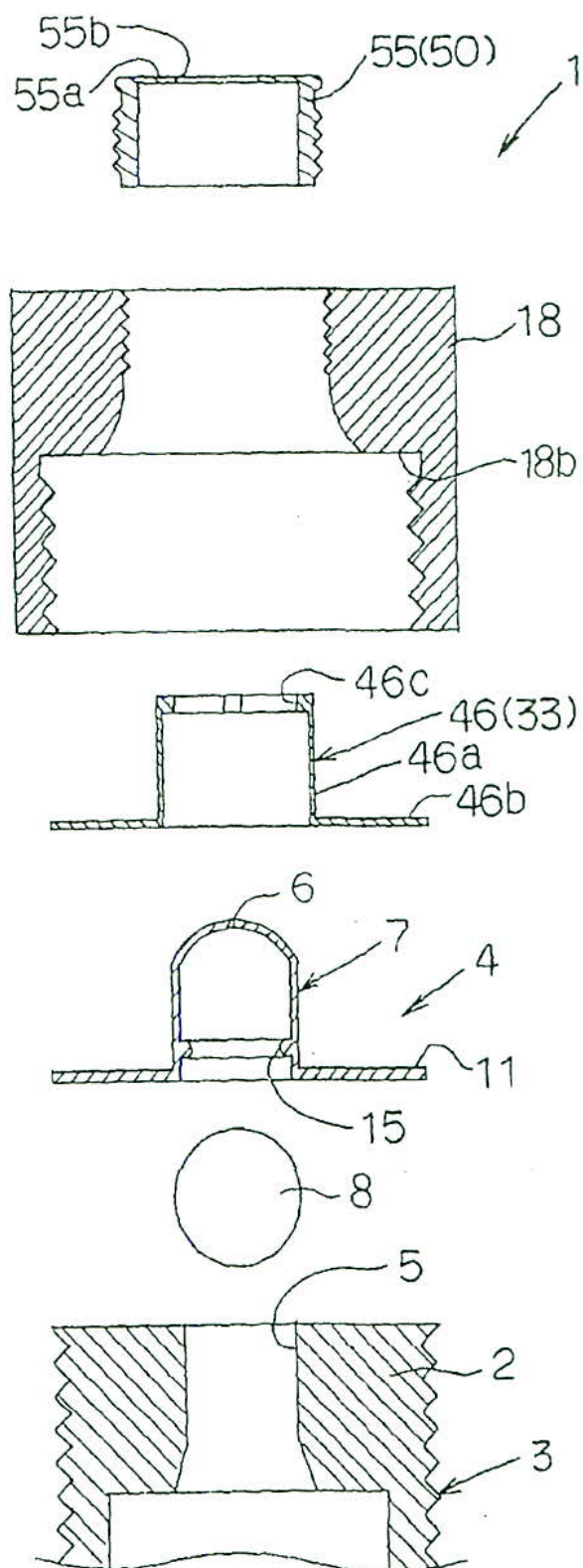


FIG.10

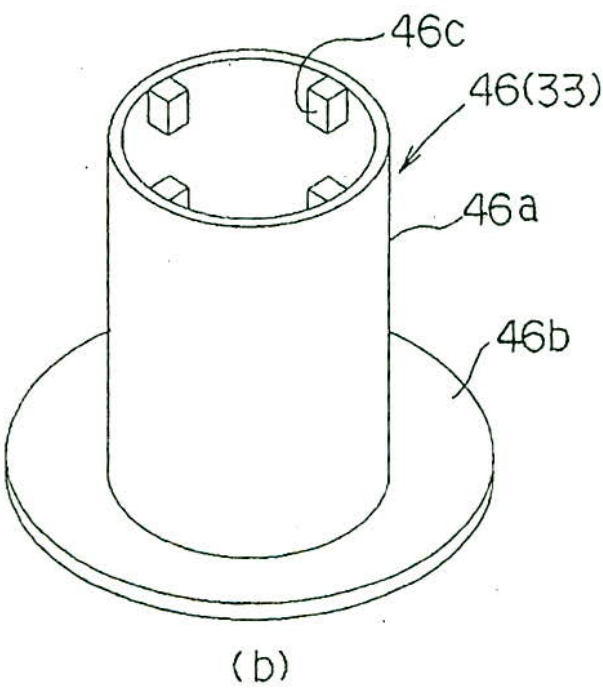
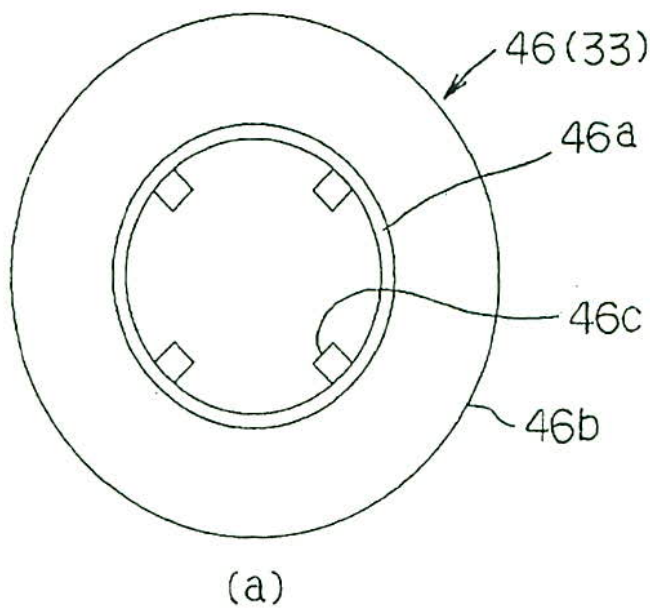
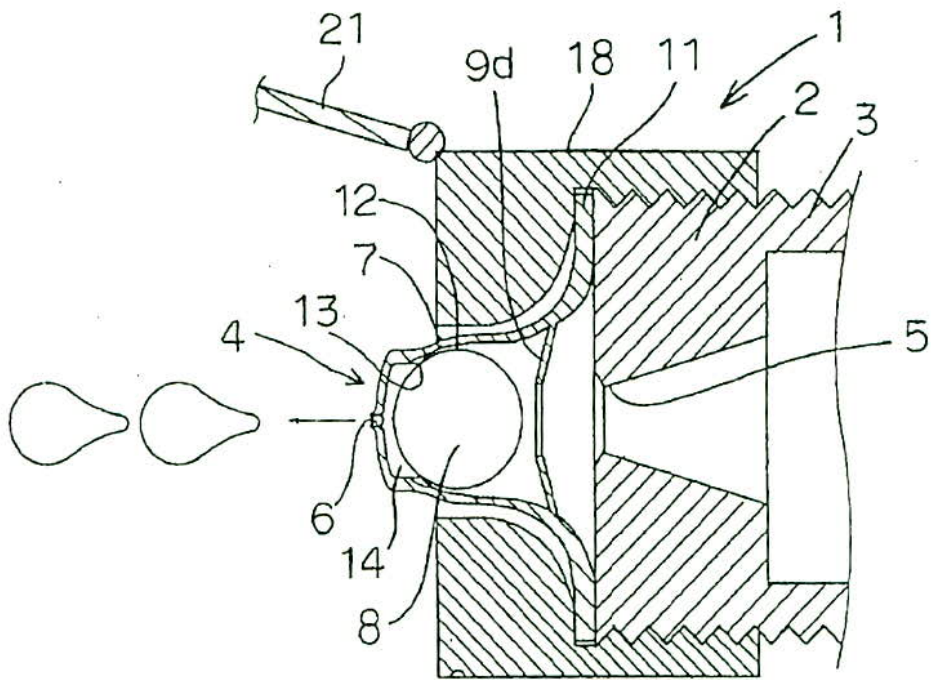
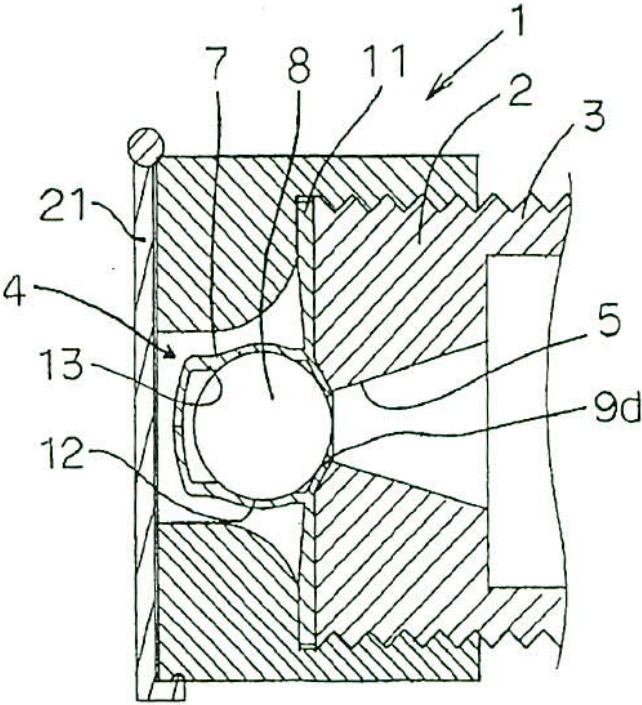


FIG.12



(a)



(b)

FIG.15

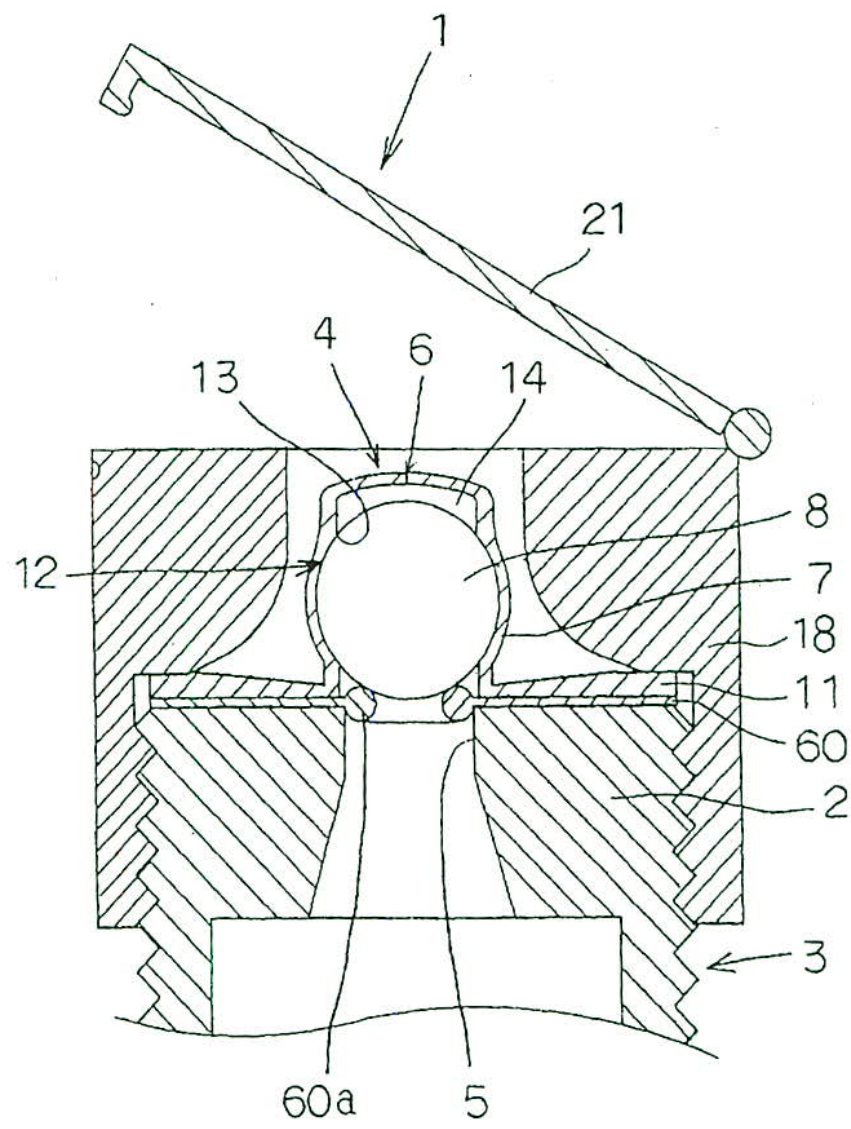


FIG.16

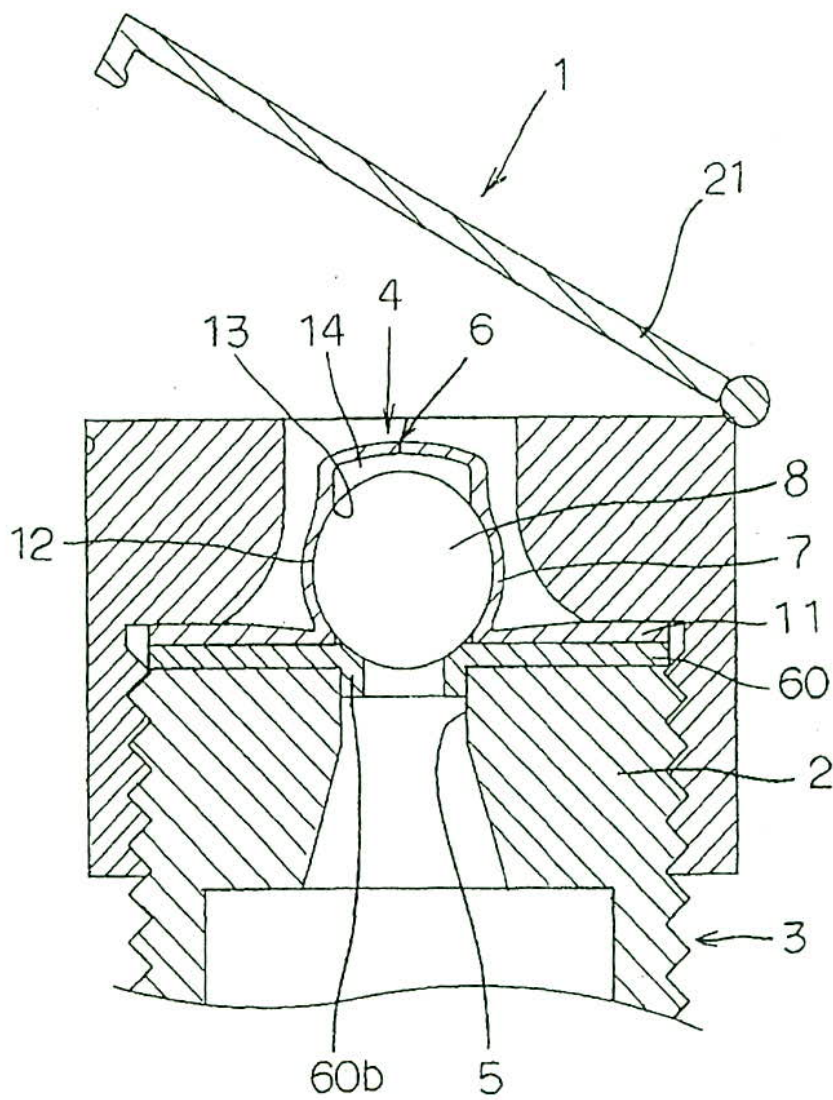


FIG.17

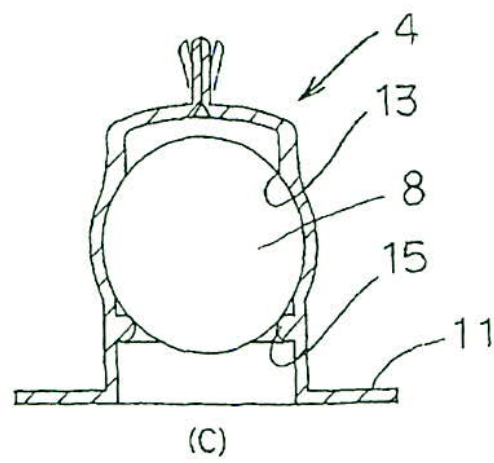
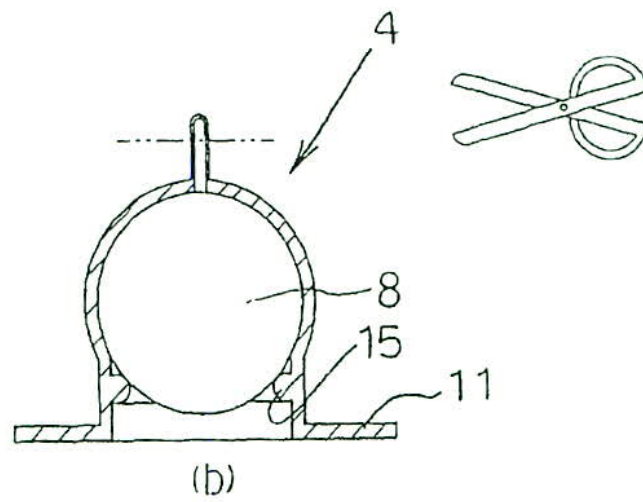
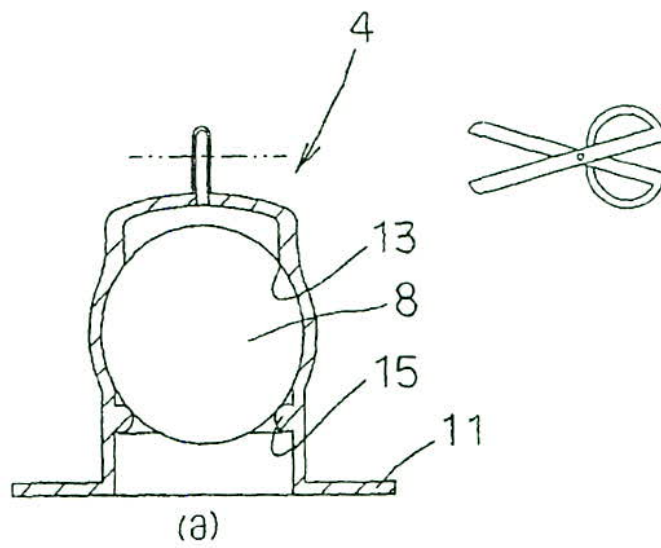
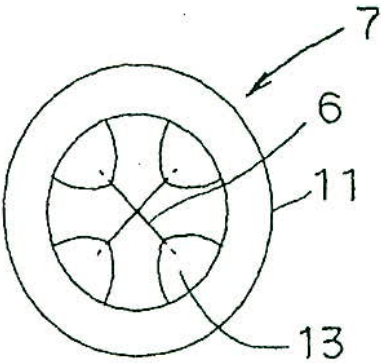
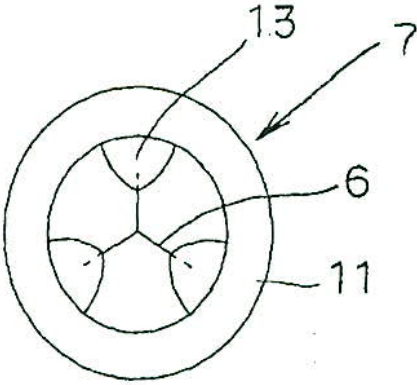


FIG.18



(a)



(b)

FIG.19

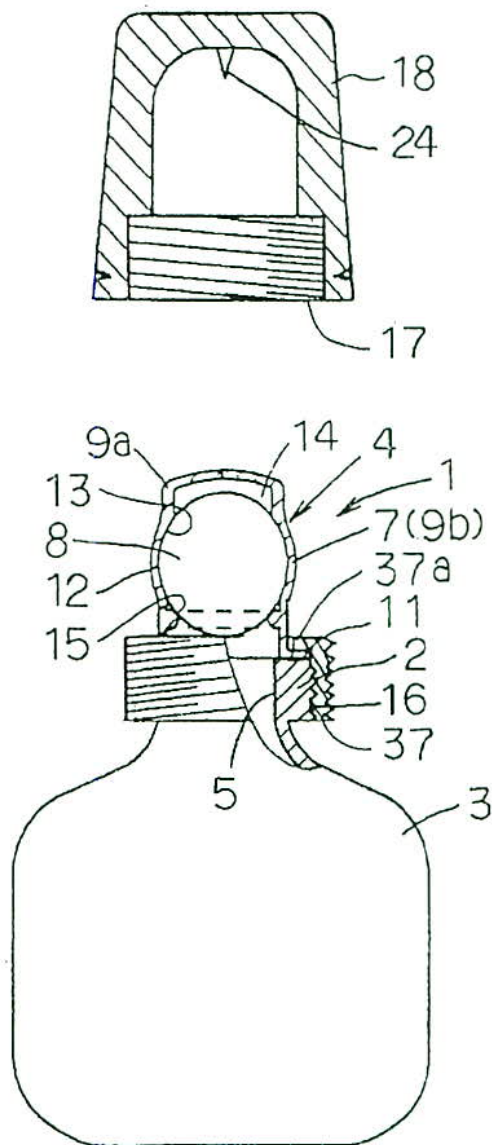


FIG.20

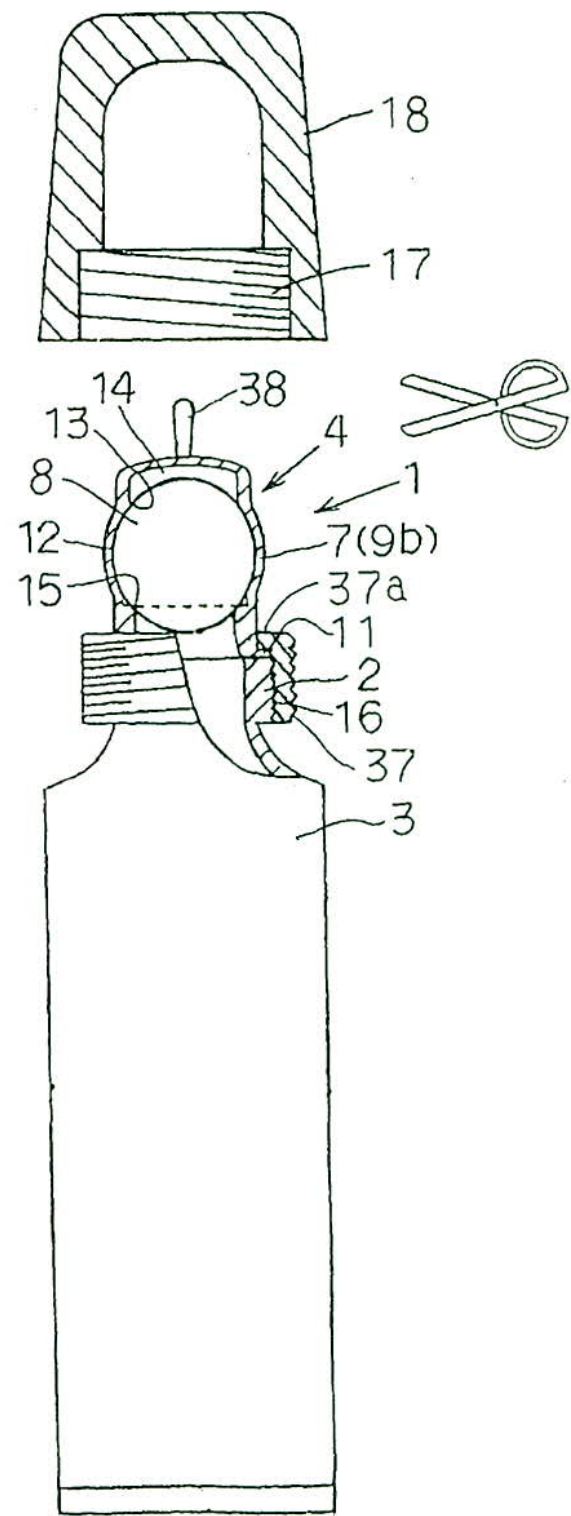


FIG.21

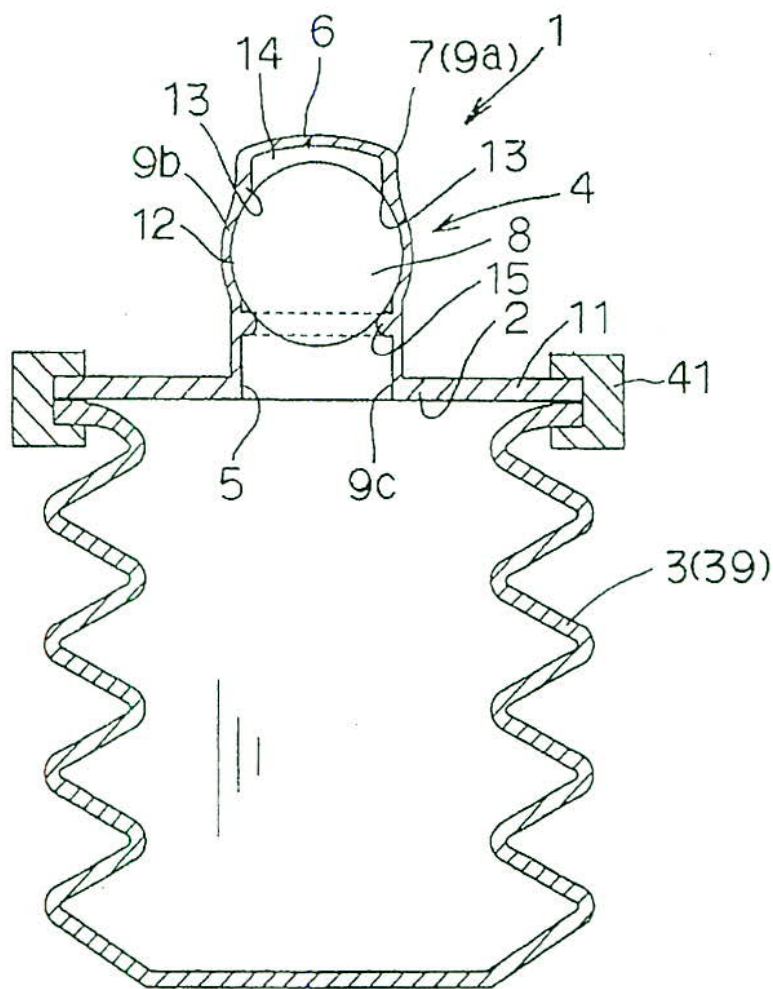


FIG.22

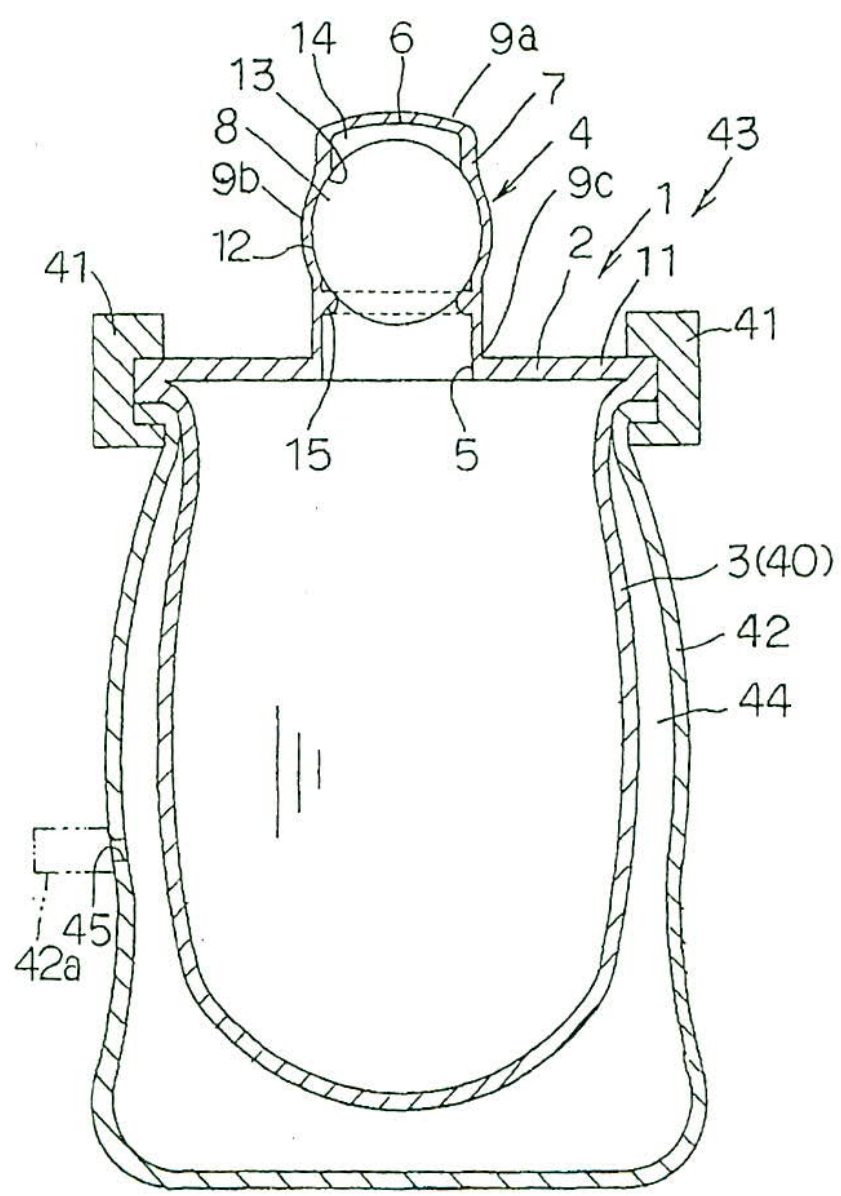


FIG.23

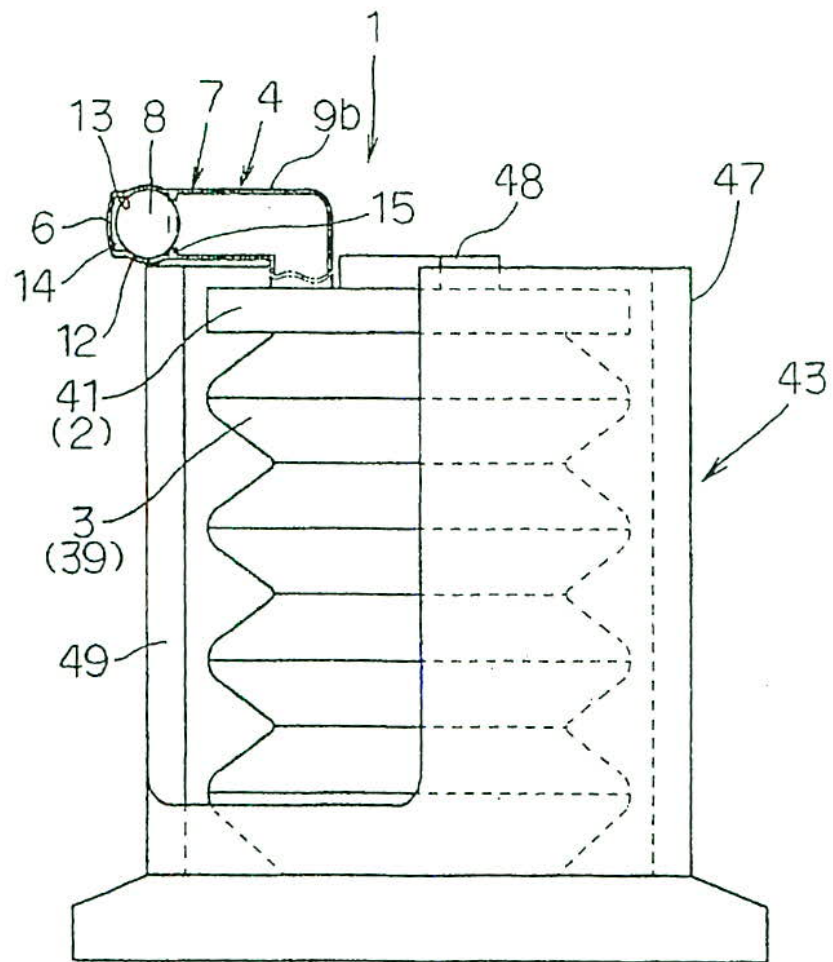


FIG.24

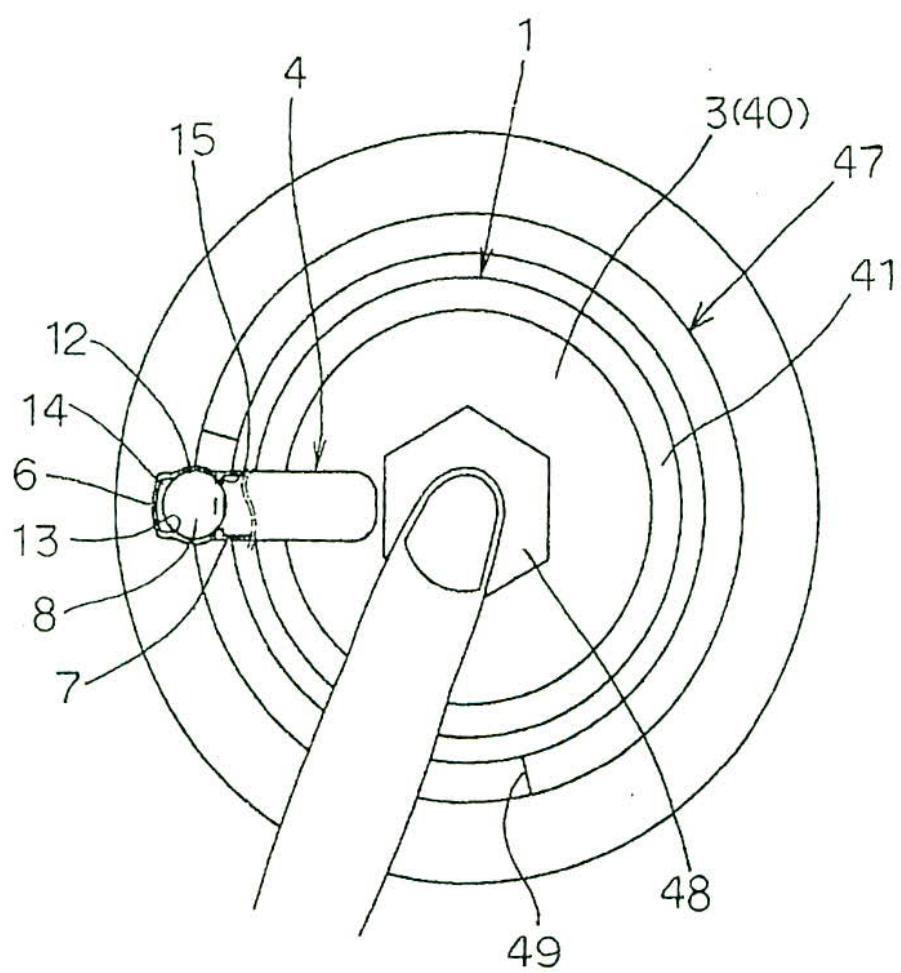


FIG.25

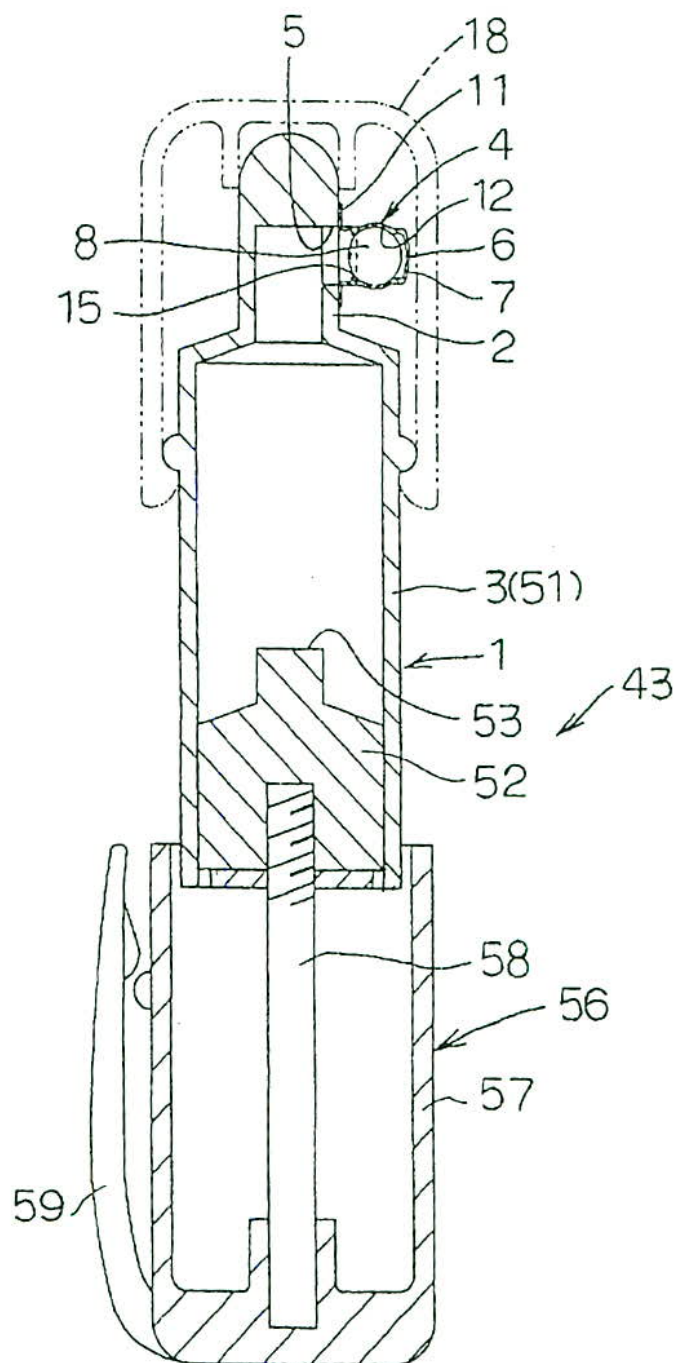


FIG.26

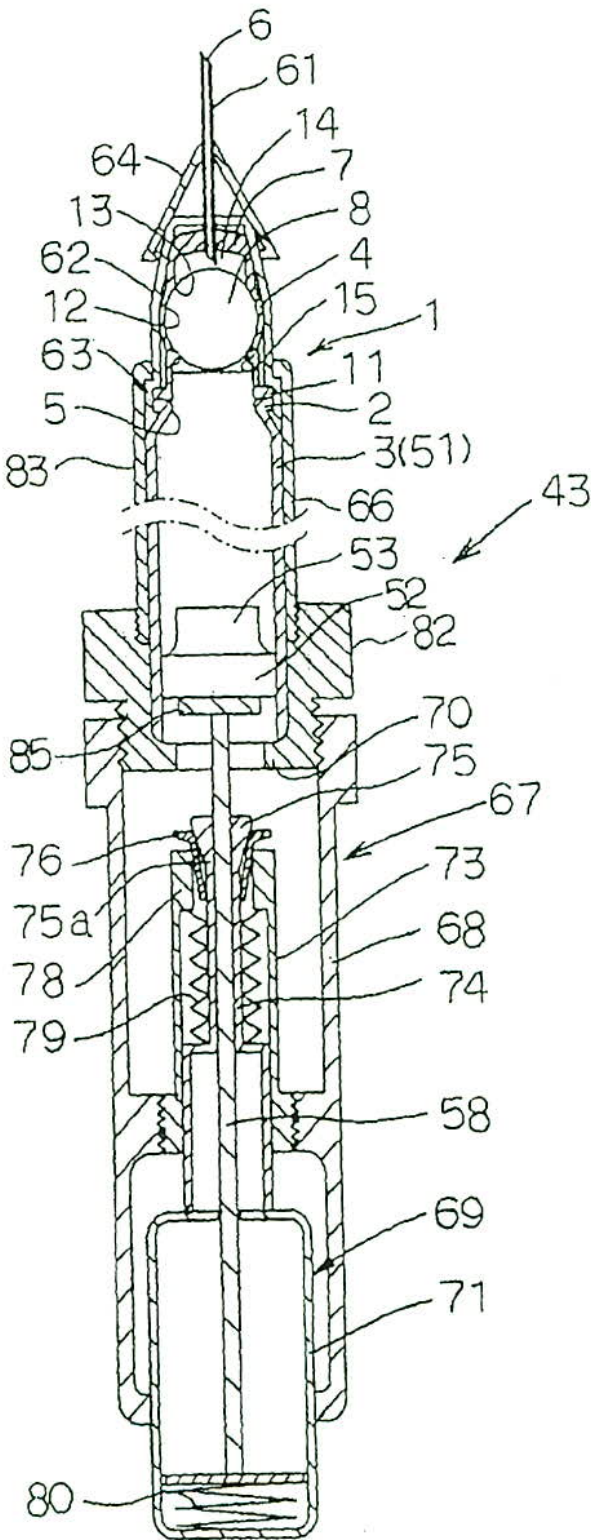


FIG.27

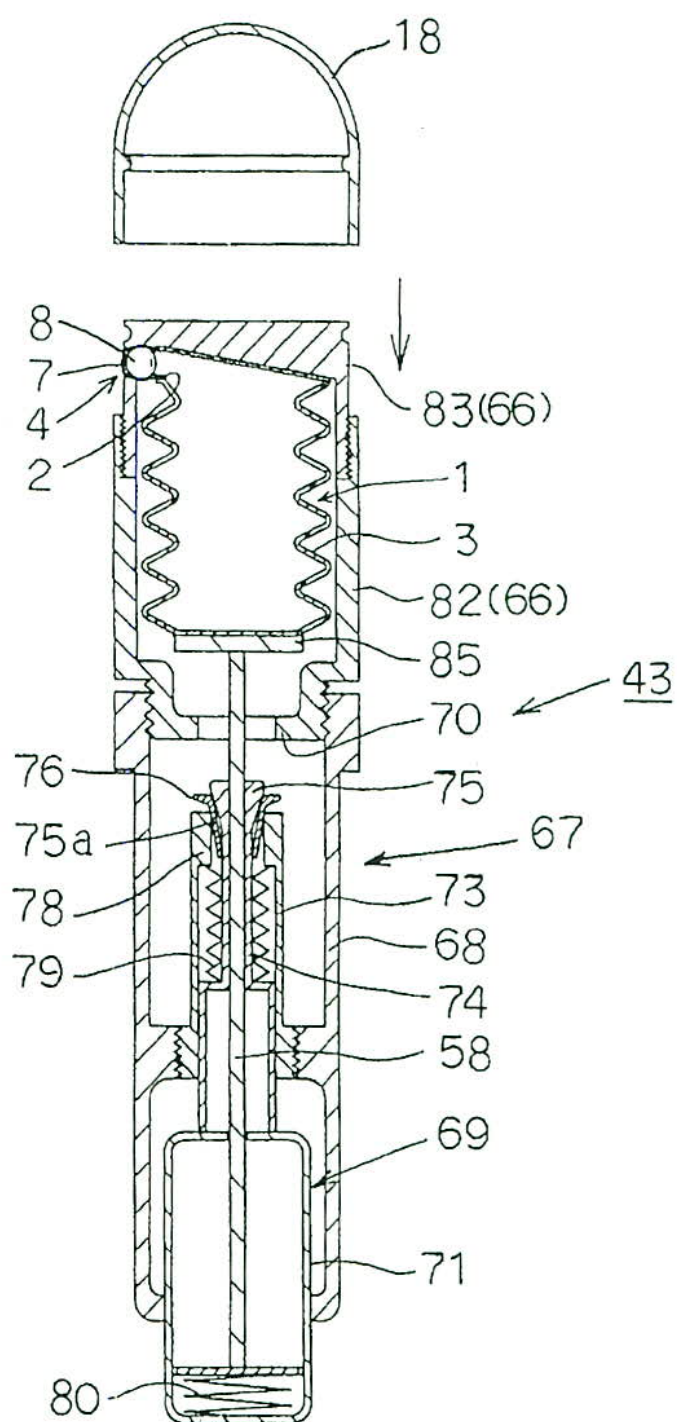


FIG.28

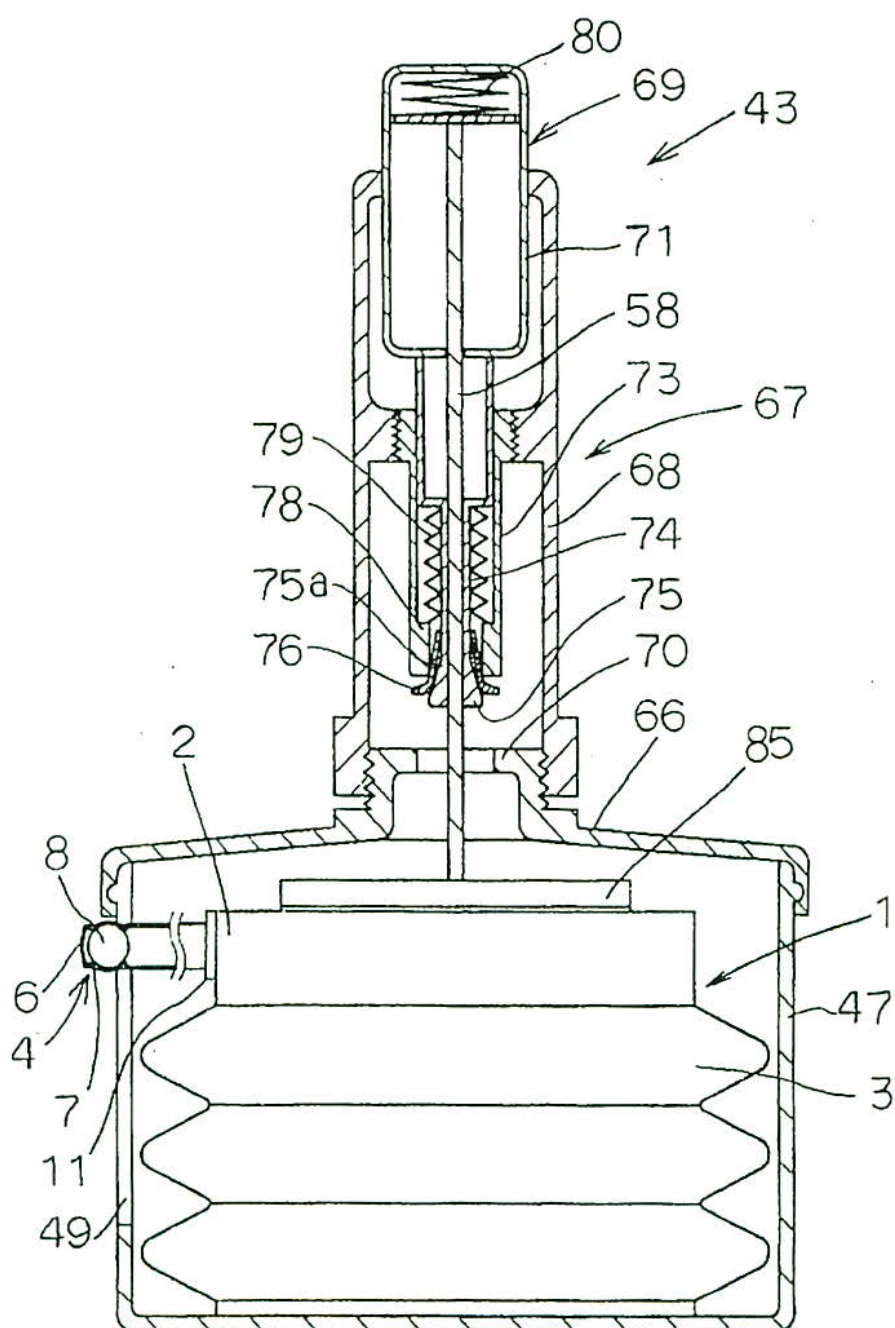
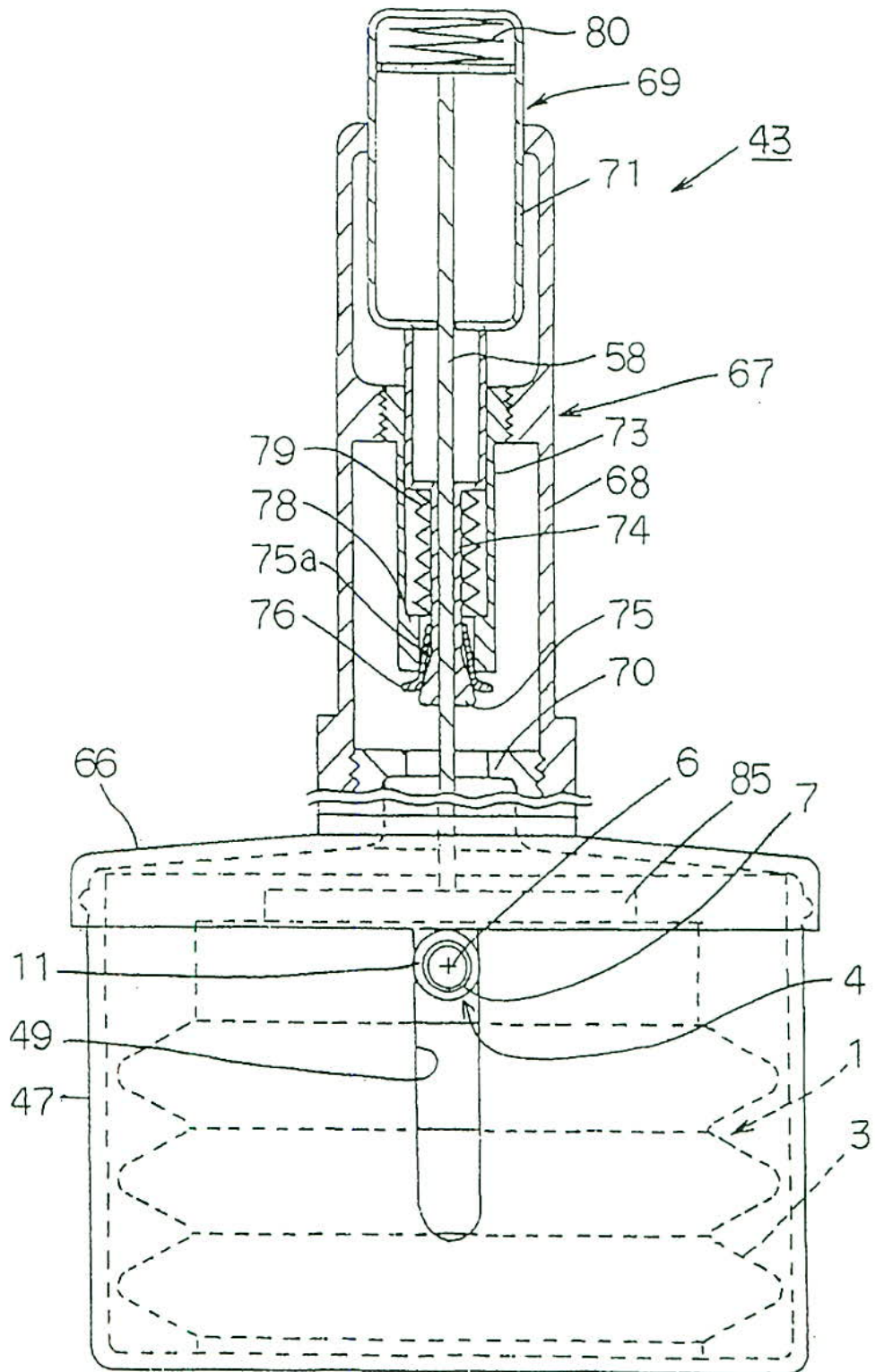


FIG.29



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/10365

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl.⁷ B65D47/20

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl.⁷ B65D47/20Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2003
Kokai Jitsuyo Shinan Koho 1972-2003 Jitsuyo Shinan Toroku Koho 1996-2003

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4846810 A (Reseal International Limited Partnership), 11 July, 1989 (11.07.89), Full text; all drawings & JP 2-298379 A	1-24
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 144277/1972 (Laid-open No. 97245/1974) (Shosuke TAKIHARA), 22 August, 1974 (22.08.74), Full text; all drawings (Family: none)	1-24

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
03 September, 2003 (03.09.03)Date of mailing of the international search report
24 September, 2003 (24.09.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

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Telephone No.

Form PCT/ISA/210 (second sheet) (July 1998)

37

[2] Consommation Consumer and
et Corporations Canada Corporate Affairs Canada

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K1A 0C9

(21) (A1) 2,066,606 ✓
(22) 1991/07/11
(43) 1992/01/17

6,008,6/48

(51) INTL.CL.⁵ B67D-005/58

(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Container for Dispensing Preservative-Free Preparations

(72) Clements, Donald A. - U.S.A. ;
Killinger, Fred M. - U.S.A. ;

(73) Alcon Laboratories, Inc. - U.S.A. ;

(30) (US) 07/522,991 1990/07/16

(57) 24 Claims

Notice: The specification contained herein as filed

Canada

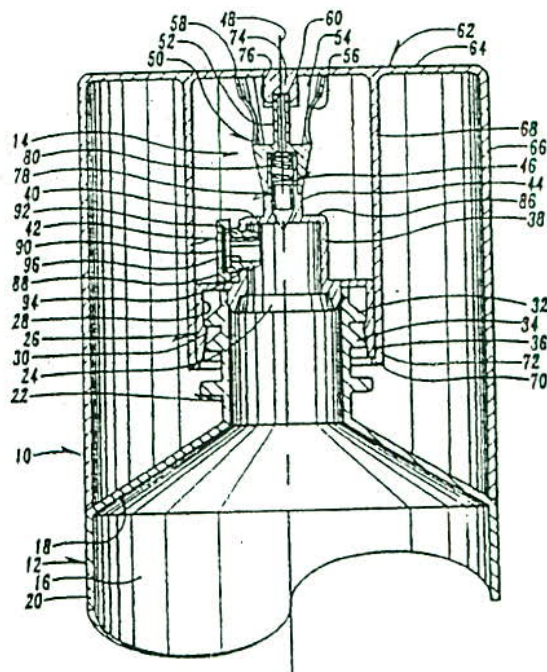
CCA 3254 (10-89) 41

(51) International Patent Classification ⁵ : B67D 5/58	A1	(11) International Publication Number: WO 92/01625 (43) International Publication Date: 6 February 1992 (06.02.92)
(21) International Application Number: PCT/US91/04891 (22) International Filing Date: 11 July 1991 (11.07.91) (30) Priority data: 552,991 16 July 1990 (16.07.90) US (71) Applicant: ALCON LABORATORIES, INC. [US/US]; 6201 South Freeway, P.O. Box 6600, Forth Worth, TX 76115 (US). (72) Inventors: CLEMENTS, Donald, A. ; 5205 Prince Charles Court, Arlington, TX 76017 (US). KILLINGER, Fred, M. ; 2101 Cold Springs Drive, Arlington, TX 76017 (US). (74) Agents: HANSING, Mark, D. et al.; Zarley, McKee, Thomte, Voorhees & Sease, Suite 3200, 801 Grand Ave- nue, Des Moines, Iowa 50309 (US).		(81) Designated States: AT (European patent), AU, BE (Euro- pean patent), CA, CH (European patent), DE (Euro- pean patent), DK (European patent), ES (European pa- tent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (Euro- pean patent), NL (European patent), SE (European pa- tent). Published With international search report.

(54) Title: CONTAINER FOR DISPENSING PRESERVATIVE-FREE PREPARATIONS

(57) Abstract

A multiple use container (10, 150) for dispensing fluids, such as fluids used in eye care, particularly preservative free preparations in variable doses, includes a squeezable container (12, 152) for holding the fluid. A dispenser assembly (14, 166) associated with an exit opening (24, 158) from the container (12, 152) includes a hollow dispensing tip (26, 168) which encloses a fluid valve (46, 178/180). A resilient biasing means (80, 180, 116, 122, 140, 252) holds a piston head (82, 118, 124, 142, 192, 232) in a normally sealed or closed position. A second opening (40, 204/208, 108) in communication with the interior of the bottle (12, 152) is covered by a hydrophobic filter (90, 206/182) having a pore size that prevents microbial contaminants from entering the container (12, 152) but prohibits fluid from leaving the container. The bottle (12, 152) is squeezed to open the valve (44, 178/180) to dispense fluid from the bottle (12, 152). Upon release of that manual pressure, the fluid valve (46, 178/180) closes and air passes through the filter (90, 206/182) to replace the dispensed fluid. The air entering the container (12, 152) is sterilized by the filter (90, 206/182).



CONTAINER FOR DISPENSING PRESERVATIVE-FREE PREPARATIONSBACKGROUND OF THE INVENTIONA. Field of the Invention

The present invention relates to fluid dispensing containers, and in particular, to containers useful for dispensing multiple dosages of fluids where the interior of the container is maintained in a sterile condition even when the fluid is preservative-free.

B. Problems in the Art

A variety of different ways exist to dispense fluids. A simple squeeze-bottle is a convenient and economical fluid dispenser. However, it has disadvantages and even deficiencies in some situations.

For example, if the fluid to be dispensed contains ingredients which must be kept in a sterilized condition, an ordinary squeeze bottle presents the risk of contaminants entering through the outlet opening. Additionally, it presents the risk that air replacing dispensed fluid will contaminate the contents.

One approach to overcoming this problem is to add preservatives to the fluid to attempt to maintain the sterile conditions inside the container. Such things as germicidal agents are used in these preservatives. A disadvantage of this approach is

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that the preservatives can contain substances which can detrimentally effect the use of the fluid. For example, fluids used in eye care and which contain germicidal agents can be irritating and even somewhat toxic to the user's eyes.

Two attempts to provide dispensing systems for fluids without utilizing preservatives are form, fill, and seal packaging, and aerosol containers. While these eliminate use of preservative substances, they also have problems and deficiencies.

The major problem with form, fill, and seal packaging, such as is known in the art, concerns what is called "suck back" with respect to the container. When fluid is being dispensed, pressure is exerted on the exterior of the container. When pressure is released, the negative pressure in the container pulls back whatever fluid is left in the outlet from the container. The risk is that microbial contamination, through airborne particles or direct contact with the fluid, will be pulled back into the container and destroy its sterility.

Aerosol containers are expensive and are difficult to control, especially when small quantities of material need to be dispensed. Additionally, the inherent structure of aerosol containers is prone to leakage of the propellant

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which can affect sterility and operation of the container. This is significant also with respect to limiting the shelf life of the fluid. Also, it is significant with respect to environmental concerns regarding leakage of propellants into the atmosphere.

There are a number of containers for dispensing fluids which are not aerosol containers or form, fill, and seal packaging containers. Examples of some of these containers can be found at:

- U.S. patent no. 1,752,085 (Hinkle);
- U.S. patent no. 2,812,117 (Butkus, et al.);
- U.S. patent no. 3,952,902 (Prouty, et al.);
- U.S. patent no. 4,159,790 (Bailey);
- U.S. patent no. 4,259,954 (Scott);
- U.S. patent no. 4,340,157 (Darner);
- U.S. patent no. 4,533,068 (Meierhoefer).

While some of the above patents disclose fluid dispensing containers which do not have the above mentioned problems, there is still a need in the art for a container to dispense preservative-free fluids controllably, efficiently, and economically, and to store and maintain the fluids in a sterile condition.

Many of the above patents utilize ball valves or some type of a duckbill one-way valve. Some utilize these valves to prevent suck-back or to allow the entry or exit of air from the container. However,

these type of valves are not sufficient to adequately insure maintenance of sterility of the inside and contents of the container, or to acceptably reduce the suck-back problem.

It is therefore a principal object of the present invention to provide a container for dispensing preservative-free preparations which solves or improves over the problems and deficiencies in the art.

A further object of the present invention is to provide a container as above described which maintains the sterility of the fluid within the container, both during storage and dispensing.

Another object of the present invention is to provide a container as above described which does not allow suck-back of fluid into the container after dispensing fluid from the container.

Another object of the present invention is to provide a container as above described which allows multiple dosages of variable quantities of the fluid to be dispensed.

A further object of the present invention is to provide a container as above described which seals the container from leakage and outside contaminants before and after dispensing of fluid.

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A still further object of the present invention is to provide a container as above described which allows sterilized air to replace fluid dispensed from the container.

Another object of the present invention is to provide a container as above described which is easily sterilized before filling with fluid.

Another object of the present invention is to provide a container as above described which is easy to control so that precise amounts of fluid can be dispensed to a targeted area.

Another object of the present invention is to provide a container as above described which is economical, efficient, and durable.

These and other objects, features, and advantages of the present invention will become more apparent with reference to the accompanying specification and claims.

SUMMARY OF THE INVENTION

The present invention consists of a fluid-dispensing container which is especially useful for storing and dispensing preservative-free solutions. The container includes a bottle having a flexible side wall which is squeezable to dispense the fluid in desired quantities. A fluid dispensing member,

usually in the form of a cap means, is mountable to the bottle and has a dispensing tip containing a one-way valve. The valve is biased to a normally closed position. The biasing force is directed against the direction of fluid flow out of the dispensing tip.

The container also includes an air inlet means positioned in communication with the interior of the container. The air inlet means includes a hydrophobic filter of selected pore size to allow air to pass into the bottle, but prevents microbial contaminating particles from passing into the bottle.

Fluid is dispensed by squeezing the bottle to build up sufficient fluid pressure to overcome the biasing force of the one-way valve. The hydrophobic filter does not let fluid out of the bottle while it is being dispensed, even if the fluid comes into contact with the filter. The filter allows sterile air to pass, but disallows contaminants and fluids to pass. This is accomplished by the minute pore size of the filter.

Once the desired amount of fluid is dispensed, squeezing pressure to the bottle is removed which results in a negative pressure in the bottle in the volume left by the dispensed fluid. The filter (if fully or partially not covered with fluid) allows air to pass through into the bottle to replace this area

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of negative pressure. The filter sterilizes the air, however, by removing any contaminants, including microbial contaminants. The pressure inside the bottle is therefore equalized and the bottle is ready for storage or a next dispensed dosage.

The one way valve seals the outlet tip when squeezing pressure is removed from the bottle. It utilizes a movable biased piston head which seats within a valve seat. This combination effectively and reliably seals the fluid outlet and does so without allowing any suck-back of fluid in the tip back into the bottle.

The invention therefore allows a non-complex, economical structure to be utilized to store and dispense fluids. It is particularly useful with regard to fluids which are to be dispensed in different dosages over extended periods of time, and fluids which need to remain sterilized without containing preservatives. The invention eliminates the problems associated with aerosol containers and form, fill, and seal packaging. It also utilizes specific elements to allow dispensing of the fluid in a controlled, comfortable manner while having a reliable sealing valve and a reliable air inlet which maintains sterility of the container.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a first embodiment of the present invention, with an overcap shown in a removed position.

Figure 2 is an enlarged cross-sectional elevational view of the upper portion of the container taken along line 2-2 of Figure 1 with the removable overcap shown in an attached position.

Figure 3 is a still further enlarged cross sectional view of a portion of Figure 2, but in an inverted position with the overcap removed.

Figure 4 is an elevational view of an alternative embodiment for a dispensing cap structure for the invention.

Figure 5 is a top plan view of Figure 4.

Figure 6 is a side cross-sectional elevational view of the dispensing cap structure of Figure 4 with a retaining ring and air filter shown detached therefrom.

Figure 7 is a partial cross-sectional elevational view of an alternative embodiment for a dispensing cap and tip for the invention.

Figure 8 is an enlarged elevational view of an alternative embodiment for a unitary valve piston and biasing means useful with the embodiment of Figure 7.

Figure 9 is a top plan view of Figure 8.

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Figure 10 is an enlarged elevational view of an alternative embodiment for a valve piston useful in the embodiment of Figure 7.

Figure 11 is a top plan view of Figure 10.

Figure 12 is a partial cross-sectional elevational view of a still further embodiment for a dispensing cap and tip for the invention.

Figure 13 is an enlarged elevational view of a valve piston useful in the embodiment of Figure 12.

Figure 14 is a top plan view of Figure 13.

Figure 15 is a perspective view of another embodiment according to the present invention.

Figure 16 is a sectional view taken along line 16-16 of Figure 15.

Figure 17 is an exploded perspective view of the upper portion of the embodiment of Figure 15.

Figure 18 is an isolated sectional view of the portion designated at line 18-18 of Figure 16.

Figure 19 is a top plan view taken along line 19-19 of Figure 17.

Figure 20 is a bottom plan view taken along line 20-20 of Figure 17.

Figure 21 is a partial sectional view, similar to the upper portion of Figure 16, showing the preferred embodiment of the present invention.

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Figure 22 is an isolated perspective view of the valve plunger of Figure 21.

Figure 23 is a bottom plan view of Figure 22.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

With reference to the accompanying drawings, a detailed description of the preferred embodiments of the present invention will now be set forth. This description is intended to aid in an understanding of the invention, but does not limit the invention, which is defined solely by the claims following this description.

Reference numerals are utilized to designate certain parts and features in the drawings. Like reference numerals will be utilized to designate like parts throughout the drawings, unless otherwise indicated.

A first embodiment is depicted with particular reference to the Figures 1-3. A container 10 is shown which includes a bottle 12 and a dispensing member or cap 14. The bottle 12 defines an interior chamber 16 which holds fluid to be dispensed. Bottle 12 includes a bottom wall 17, a top wall 18, and a continuous side wall 20. A tubular neck 22 defines an outlet opening 24 for fluid from chamber 16.

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Cap 14 consists basically of a three-stepped or tiered hollow member 26 which is mountable onto tubular neck 22 of bottle 12. As is shown in Figure 2, the interior vertical surface 28 of member 26 includes a raised edge 30 which cooperates with annular flanges 32 and 34 encircling tubular neck 22 of bottle 12, to allow cap 14 to be snapped onto tubular neck 22.

Member 26 is actually comprised of three sections of decreasing inside diameter. The first section 36 includes raised edge 30 and mounts upon tubular neck 22 of bottle 12. The second section 38 extends from the first section 36, has a smaller-in-cross-section inside diameter, and includes a side wall aperture 40 into which is insertable an air inlet plug 42.

The third section 44, having a still smaller interior cross-sectional diameter, extends from the second section and defines a chamber in which one-way valve 46 can be positioned.

Each of the first, second, and third sections 36, 38 and 44 are centered on a longitudinal axis identified by line 48 in Figures 2 and 3. The third section 44 is topped by a dispensing tip 50 which is secured by adhesive, sonic welding, or other means such as are known in the art. Dispensing tip 50

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includes a fluid outlet channel 52 which communicates with the exterior of the bottle 12 and cap 14.

As can be seen in Figures 1-3, this embodiment includes a guard 54 surrounding fluid outlet channel 52 of dispensing tip 50. Guard 54 is basically an outwardly expanding conical annular member having apertures 56 disposed around its perimeter. The top edge 58 of guard 54 extends farther outwardly along line 48 from cap 14 than the top end 60 of fluid outlet channel 52 of dispensing tip 50. This provides somewhat of a shield deterring contaminants from coming into contact with the fluid outlet channel 52. Additionally, it prevents the top end 60 of fluid outlet channel 52 from easily abutting other objects, which also would present the undesired hazard of picking up contaminants.

Figures 1 and 2 also show an overcap 62 which can be removable mounted onto container 10. Overcap 62 includes a top wall 64 and a circular side wall 66. The interior of overcap 62 includes a circular annular wall 68 having an inwardly extending flange 70 around its end 72. Wall 68 and flange 70 cooperate to allow flange 70 to be snapped over cap 14 (see Figure 2). Additionally, the interior side of top wall 64 of overcap 62 includes a projection 74 having a recess 76 in its center. Projection 74 is

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aligned along longitudinal axis 48 and receives, into a recess 76, top end 60 of dispensing tip 50. This arrangement occurs when overcap 62 is snapped onto container 10. It prohibits any fluid from passing out of dispensing tip 50, or allowing any contaminants into fluid outlet channel 52.

The components of container 10, in this preferred embodiment, are generally made from sterilizable plastic material. Bottle 12 is made of a plastic material so that at least side wall 20 is flexible. Bottle 12 can therefore be squeezed to control dispensing of fluid. Additionally, items such as cap 14 and overcap 62 can be made of a plastic material to allow resilient flexing of their walls to allow the snap-in mounting of these items. The components are easily sterilizable by, for example, steam autoclaving. Such processes as Gamma sterilization are not required, which can produce undesired substances that can cause irritation, if the fluid is used for eye care products, as an example.

One-way valve 46 of the embodiment of Figure 1 is configured as follows. The hollow interior of third section 44 of annular member 26 of cap 14 surrounds a piston 78 and a biasing spring 80. The bottom portion of piston 78 includes a conically

shaped piston head 82 having an angled surface which seats within a beveled valve seat 84 formed in wall 86, which separates the third section 44 from the second section 38 of annular member 26 and cap 14.

As can easily be appreciated, piston head 82 and valve seat 84 are shaped to matingly receive one another. This combination provides a very reliable fluid seal. It also allows very quick and controllable closing of fluid flow because of the shape and relationship of piston head 82 and valve seat 84.

Biasing spring 80, in this embodiment, is simply a metal coil spring. Piston 78 and spring 80 are inserted into the third section 44 of annular member 26 and held there by the securement of dispensing tip 50 to cap 14. Spring 80 is therefore normally in a state of partial compression and abuts against piston 78 to bias it in a normally closed and sealed position such as shown in Figure 2. To dispense fluid, bottle 12 is squeezed (normally in an inverted or partially inverted orientation, such as in Figure 3) to the point where the fluid pressure overcomes the biasing force of spring 80, pushing piston head 82 out of valve seat 84 (see Figure 3) and allowing fluid to flow around piston 78 and out of fluid outlet channel 52. When the biasing force of spring

80 overcomes any fluid pressure upon piston head 82, (generally upon sufficient release pressure to bottle 10) piston head 82 will return into valve seat 84 and immediately and reliably close off the fluid flow. This operation of valve 46 does not result in any suck-back through fluid outlet channel 52, and minimizes any potential contaminants from entering back into bottle 12.

Air inlet plug 42, in the embodiment of Figures 1-3, comprises a generally circular plug head 88 into which can be positioned a filter 90. Plug body 92 includes an annular flange 94 at its outer end which allows the plug 42 to be snapped into aperture 40 in cap 14.

In the embodiment of Figure 1, as well as in all embodiments described herein, filter 90 is a hydrophobic filter, such as is known in the art, which filters out any contaminants, including microbial contaminants. In this embodiment, filter 90 has a pore size of 0.2 microns, on the average, which accomplishes the function of allowing air to pass in either direction, but which is of a sufficient size to prevent contaminants from passing into bottle 12. Filter 90 also does not allow fluid to pass.

Air inlet plug 42 in this embodiment is situated on the side of cap 14 and includes passageway 96

through its length. Passageway 96 therefore provides fluid communication between the interior bottle 12 and the exterior.

In operation, container 10 is utilized to hold a fluid for even extended periods of time until a dosage is needed. In the stored position, overcap 62 is placed over cap 14 to provide further assistance in preventing against leakage or contamination.

When a dosage of fluid is desired, overcap 62 is removed, bottle 12 is generally tipped, or wholly or partially inverted, and bottle 12 is squeezed so that the fluid pressure overcomes the biasing pressure of spring 80. When the desired dosage is expelled from dispensing tip 50, the squeezing pressure is released and spring 80 pushes piston 78 so that piston head 82 seats in valve seat 84, immediately cutting off any access to the interior of bottle 12. The dispensing of fluid creates a sub-atmospheric pressure within bottle 12. Once fluid uncovers filter 90, air from the exterior of bottle 12 would be allowed to enter bottle 12, because of the lower pressure, and replace the dispensed fluid. The filter prevents any contaminants from entering the bottle and therefore preserves sterility of the bottle.

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It can therefore be seen that the above described invention meets at least all of its stated objectives. It will be appreciated, however, that the present invention can take many forms and embodiments. The true essence and spirit of this invention are defined in the appended claims, and it is not intended that the embodiment of the invention presented herein should limit the scope thereof.

For example, Figures 4-6 depict an alternative dispensing cap to that described with respect to Figures 1-3. In the embodiment of Figures 4-6, the second section 98 of cap 100 is configured to be rectangular in shape, rather than circular, as shown in Figures 1-3. The side wall 102 of second section 98 includes a rectangular-in-shape opening 104 which has an outer portion 106 of greater perimeter dimensions than an inner portion 108. Filter material 112 (hydrophobic, as previously described) can be mounted or seated in outer portion 106 to completely cover opening 104 so that any air passing through opening 104 would have to pass through filter material 112. Retaining ring 112 would then be fittable into outer portion 106 of opening 104 in cap 100 to hold filter 112 in place. Retaining ring 110 could be sonically welded into opening 104. This embodiment presents a somewhat larger filter area for

air inlet into the bottle as compared with circular air inlet of Figures 1-3.

Further optional embodiments for components for the embodiment of Figure 1 are shown in Figures 7-14. Instead of utilizing a separate biasing spring 80 and piston 78, such as shown in Figures 2, 3 and 6, the invention could utilize a combined piston head/biasing spring.

Figure 7 is a cross-sectional view of portions of cap 14 and dispensing tip 50 as shown in Figure 2. However, instead of separate biasing spring 80 and valve 78, Figure 8 shows a unitary valve piston 116 which includes conically shaped head 118, which can be positioned in the chamber 114 defined by third section 44 of tip 14. Extending parallelly in a direction opposite the front end of head 118 are a plurality of flexible and resilient legs 120. Valve piston 116 can be made in its entirety of a flexible and resilient material. Legs 120 would function similarly to biasing spring 80 of Figure 2. When sufficient fluid pressure is exerted against head 118, legs 120 would bend and allow fluid to pass through beveled valve seat 84. When the fluid pressure is removed to the extent that it is exceeded by resilient restoring force of legs 120 to get back to their original shape, legs 120 would move head 118 to close off valve seat 84.

Figure 9 shows a top view of valve piston 116 of Figure 8, including the four legs 120 distributed in equal spaced apart positions around valve piston 116.

Figures 10 and 11 show an alternative embodiment of a valve piston 122 which can be utilized in the cap/dispensing tip combination of Figure 7. Valve piston 122 includes a conically shaped head 124 from which extend spiral-shaped, resilient members 126 to a ring 128. This arrangement would again allow functioning of the one-way valve according to the invention.

Finally, Figures 12-14 show a still further alternative embodiment for the one-way valve according to the invention. Figure 12 discloses a dispensing cap 130 having a somewhat differently shaped third section 132. Additionally, the dispensing tip 134 seats partially within third section 132 rather than being mounted on its exterior (see Figure 7 for example). A two-tiered bore 136 of increasing inside diameter exists on top of beveled valve seat 138.

As shown in Figures 13 and 14, a valve piston 140 is shaped to fit within two-tiered bore 136. Valve piston 140 consists of a conically shaped head 142, and a low-profile unitary spring 144 which includes a plurality of arms 146 extending outwardly

at angles to a top ring 148. Figure 14 shows a top view of valve piston 140. The spaces between arms 146 allow fluid to pass when head 142 is moved out of sealing position in seat 138.

Figure 15 is a perspective view of a second embodiment of the invention which will be referred to generally by reference numeral 150. Embodiment 150 operates essentially the same as embodiment 10 of Figure 1 except in the following ways.

As can be seen in Figure 15, bottle 152 has an upper portion which can be enclosed by an overcap 154. The internal structure of overcap 154, and the dispensing portion of embodiment 150 can be more clearly seen in Figure 16.

The top of bottle 152 includes neck 156 and outlet opening 158. The exterior of neck 156 has an annular stop member 160 and two parallel and adjacent annular rings 162 and 164.

A cap member 166 removably attaches to neck 156 over outlet opening 158 of bottle 152. Cap member 166 is comprised of basically five parts. First, cap portion 168 has a cylindrical side wall 170, lower edge 172, and upper covered end 174. Secondly, a member 176, which will be called a spring cup, is attachable to the interior of cap portion 168. Spring cup 176 encloses third and fourth items,

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namely piston 178 and spring 180. The fifth item is the hydrophobic filter 182, which is seated between spring cup 176 and cap portion 168.

Spring cup 176 can be secured to cap portion 168 by sonic welding or other means. Piston 178 and spring 180 are first loaded into bore 184 prior to attachment of spring cup 176 to cap portion 168. Similar to embodiment 10 of Figure 1, the fluid outlet channel from bottle 152 extends through bore 184 to a fluid outlet channel 186 in dispensing tip 188 contained on the upper covered end 174 of cap portion 168. An annular guard 190, like guard 54 of embodiment 10 of Figure 1, can also be included around dispensing tip 188.

Therefore, embodiment 150 also presents a spring biased piston 178 having a conically shaped piston head 192 which can be seated in a mating valve seat 194 in spring cup 176. Operation of this valve is the same as described with respect to embodiment 10 previously.

It is to be understood that cap member 166 is removably securable to neck 156 of bottle 152 by virtue of an interior annular ridge 196 around the interior cylindrical sidewall 170 of cap portion 168, which snaps into place between annular rings 162 and 164 on neck 156 of bottle 152. Annular stop member

160 on neck 156 limits how far down lower edge 172 of cap portion 168 can travel when attaching cap member 166 to bottle 152.

The exterior of cap portion 168 also has an annular ridge which can cooperate with an annular indent 200 in overcap 154 so that overcap 154 can be seated and snapped onto cap member 166. A plug member 202 extending downwardly from the center interior of overcap 154 can also seat into and plug up fluid outlet channel 186 and dispensing tip 180.

The major difference of embodiment 150 from embodiment 10 of Figure 1 is that instead of having the hydrophobic filter placed in a structure extending transversely to the longitudinal axis of the bottle and cap, in embodiment 150 the air inlet passages are parallel to that longitudinal axis. As can be seen in Figure 16, a plurality of apertures 204 exist in spring cup 176 surrounding bore 184 containing pistons 178 and 180. A ring shaped hydrophobic filter 206 is then placed on top of apertures 204 prior to spring cup 176 being attached to cap portion 168. Openings 208 in upper covered end 174 of cap portion 168 therefore allow communication of air from outside embodiment 150 through filter 206 and apertures 204, into the interior of bottle 152.

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Therefore, similarly to embodiment 10 of Figure 1, fluid can be dispensed from bottle 152 only when sufficient pressure is exerted on the side walls of bottle 152 to overcome the biasing force of spring 180, opening valve formed between piston head 192 and valve seat 194. When the pressure is relaxed on the side wall of bottle 152 to the point that the biasing force of spring 180 can re-seat piston head 192, fluid flow through dispensing tip 188 will immediately cease and suck-back will be prevented.

If the plurality of apertures 204 are uncovered from fluid, air will be allowed to pass through openings 208 and filter 206 to equalize pressure within bottle 152 so that it is prepared for the next dispensation of fluid. The filter 206, of course, similarly sterilizes the air coming in.

Figures 17-20 show with more specificity the particular structure of embodiment 150. In Figure 17, the structure of spring cup 176 in comparison to cap portion 168 can be more clearly seen. In particular, the plurality of apertures 204, in conjunction with ring shaped filter 206 in openings 208 can be more clearly seen. The structure reveals a relatively few number of parts can be combined to accomplish the advantages of the present invention. It is also noted that Figure 17 shows drainage

channels 210 on opposite sides of annular guard 190, surrounding dispensing tip 188, to allow any fluid which might accumulate in annular guard 190 to flow off. This further illustrates how the valving action quickly seals off fluid outlet channel 186 to prevent suck-back of fluid into bottle 152. Even though fluid may drain into openings 208 in cap member 166, the properties of filter 182 prevents fluid from entering bottle 152.

Figure 18 shows with enlarged detail, first, a 360° rib 212 (see also Figure 20) which seats within a 360° channel 214 in spring cup 176 (see Figure 17). This combination allows secure adhesion of spring cup 176 to cap portion 168. In this embodiment, it is preferred that these parts be locked together by sonic welding.

Figure 18 also shows in more detail how filter 182 is seated between cap portion 168 and spring cap 176. V-shaped in cross section rings 213 in cap portion 168 are positioned on opposite sides of apertures 204 and openings 208 and serve to clamp filter 206 against surface 215 of spring cup 176. Figure 18 also shows how the upper end of spring 180 abuts a flat surface 216 of cap portion 168.

Figure 19 shows in more detail the openings 208 and drainage channels 210 of cap member 166. In this

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embodiment there are four openings 208 which are curved and disposed radially around dispensing tip 188 and annular guard 190.

Figure 20 shows a bottom view of cap portion 168 of cap member 166, again showing the four openings 208. Five ribs 218 are shown which comprise the flat surfaces 216 which the upper end of spring 180 abuts. These ribs prevent the upper end of piston 178 from sealing off fluid outlet channel 186, as can be better appreciated by also referring to Figure 16.

Figure 21-23 depict a third embodiment 220 according to the present invention. It also functions basically the same in all respects to the previous embodiments 10 and 150 except as further pointed out below. It is to be understood that embodiment 220 is the preferred embodiment of the three disclosed herein. It is essentially equivalent to embodiment 150 in all respects except that it differs as to the structure of spring cup 222 in the following respects.

Piston 224 differs in shape as can be clearly seen in Figures 21-23. Additionally, valve seat 226 differs accordingly.

Piston 224 includes an upper cylindrical portion 228, a larger diameter annular portion 230, and a cross-shaped-in-cross-section piston head 232.

It can also be seen that upper portion 228 has a beveled upper end 234.

As can be appreciated, upper beveled end 234 prevents the upper portion 228 of piston 224 from closing off fluid outlet channel 236 in dispensing tip 238, even if piston 224 is pushed upwardly into abutment with cap portion 240.

Piston 224 operates in the same manner as previously described pistons but utilizes the flat surface 242 of annular portion 230 of piston 224 to seat against a mating flat surface 244 of spring cup 222.

Piston head 232 extends through opening 246 and spring cup 222. It is noticed that a flared portion 248 exists in opening 246, which has a larger diameter than other portions of 246.

The shape of piston head 232 is such that it allows fluid to pass through opening 246 into abutment with the lower surface of annular portion 230 even when the valve is closed. It is to be understood that annular portion 230 is less in diameter than bore 250 in which it moves. Upon even the slightest movement of annular portion 230 of piston 224 out of sealing relationship with surface 244, fluid can then pass through opening 246, and into bore 250 for dispensation out of fluid outlet

channel 236 in dispensing tip 238. However, conversely, when the biasing force of spring 252 overcomes fluid pressure against annular portion 230, annular portion 230 immediately seats and seals down against flat surface 244 stopping fluid flow, and immediately preventing any suck-back into the bottle through opening 246.

As with embodiment 150, the ring shape filter and air openings surrounding dispensing tip facilitate equalization of pressure inside the bottle after some fluid is dispensed.

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What is claimed is:

1.

A multiple dosage container for dispensing fluids comprising:

a bottle having an interior chamber defined by a bottom portion, a top portion, and a flexible side wall portion, and having an opening in the top portion;

fluid dispensing means securable around the opening in the top portion of the bottle including, a hollow dispensing tip, a valve inside the fluid dispensing means, the valve being movable between opened and closed positions, and being resiliently biased by a biasing means to a normally closed position allowing flow through the fluid dispensing means from the bottle upon compressing the side wall portion of the bottle to the point where fluid pressure against the valve overcomes the biasing force of the biasing means;

air inlet means including,

a channel in fluid communication between the interior and exterior of the bottle, a hydrophobic filter positioned in the channel having a pore size that prevents airborne microorganisms from entering the bottle and fluid from leaving the bottle; and

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so that air pressure in the bottle is equalized to the outside of the bottle when the valve is in the closed position, without contamination of the contents of the bottle, suck-back through the fluid dispensing means into the bottle, or loss of fluid from the bottle.

2.

The container of claim 1 wherein the fluids are preservative-free, non-aerosol preparations.

3.

The container of claim 2 wherein the fluids include eye-care fluids.

4.

The container of claim 3 wherein the fluids include preparations for care of contact lenses.

5.

The container of claim 1 wherein the hollow dispensing tip extends generally outwardly along a longitudinal axis of the bottle, having a distal end and a proximal end.

6.

The container of claim 5 wherein the biasing means is contained within the fluid dispensing means.

7.

The container of claim 5 wherein the proximal end of the fluid dispensing means includes a valve seat defining a valve opening.

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8.

The container of claim 1 wherein the valve includes a valve piston having one end comprising a valve head and including an opposite end, the valve head being sealingly seatable within a valve seat defining a valve opening in the fluid dispensing means.

9.

The container of claim 8 wherein the biasing means comprises a spring means abutting the opposite end of the piston.

10.

The container of claim 9 wherein the spring means comprises a resilient coil spring.

11.

The container of claim 8 wherein the valve head includes an annular member configured to sealingly seat against a flat surface surrounding the valve seat opening.

12.

The container of claim 11 further comprising a cross-shaped-in-cross-section portion extending from the annular member through the valve seat opening.

13.

The container of claim 8 wherein the valve head comprises a conically shaped member configured to

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sealingly seat within beveled sidewalls of the valve seat.

14.

The container of claim 1 wherein the valve comprises a valve head integrally formed with the biasing means, the valve being contained within the hollow dispensing tip.

15.

The container of claim 14 wherein the biasing means comprises a resilient material extending from the valve head, the resilient material allowing movement of the valve between opened and closed positions.

16.

The container of claim 1 further comprising a tip guard means mountable over the dispensing tip and including a fluid passageway in fluid communication with the hollow dispensing tip, the tip guard means also including a generally annular sheath surrounding the fluid passageway and extending distally a distance greater than a distal end of the fluid passageway.

17.

The container of claim 15 wherein the tip guard means further comprises fluid flow openings in the sheath surrounding the fluid passageway.

18.

The container of claim 1 further comprising an overcap means movably securable over the fluid dispensing means and including stop means for preventing fluid flow from the fluid dispensing means when the overcap is in position on the container.

19.

The container of claim 18 wherein the overcap means further comprises releasable securement means for securing the overcap to the container.

20.

The container of claim 1 wherein the air inlet means comprises an opening into the container including a seat for the filter.

21.

The container of claim 18 further comprising a holding means to secure the filter means in the seat.

22.

The container of claim 1 wherein the air inlet means is associated with the fluid dispensing means.

23.

The container of claim 1 wherein the air inlet means includes an air inlet path that is generally parallel to the flow through the fluid dispensing means.

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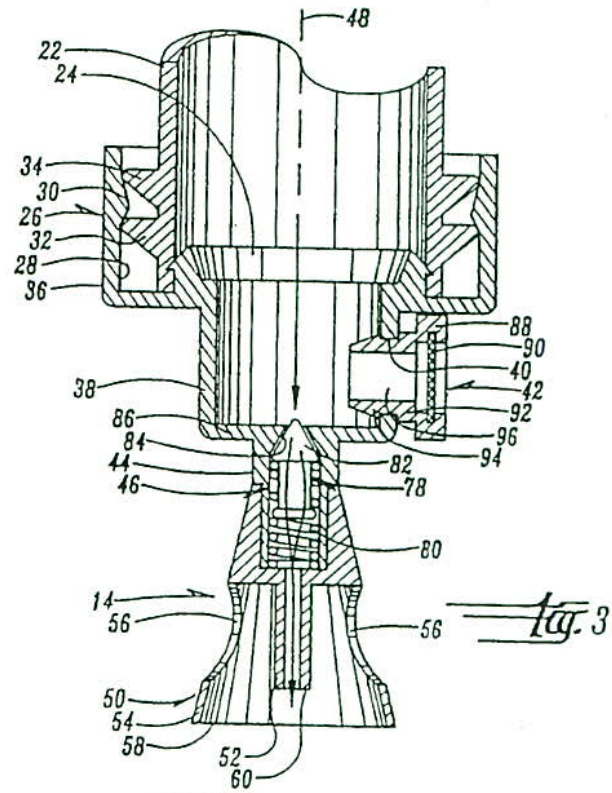
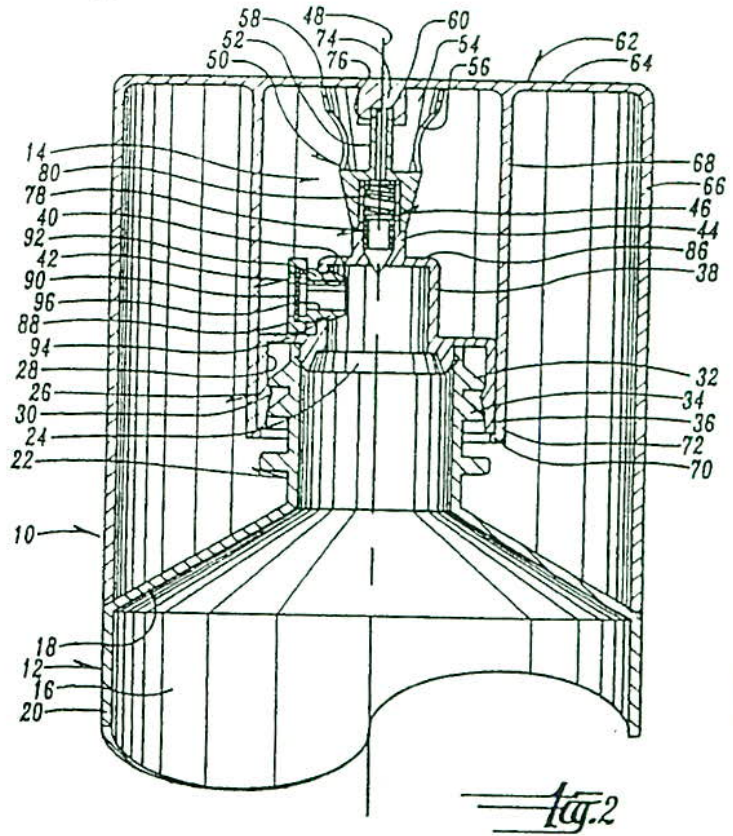
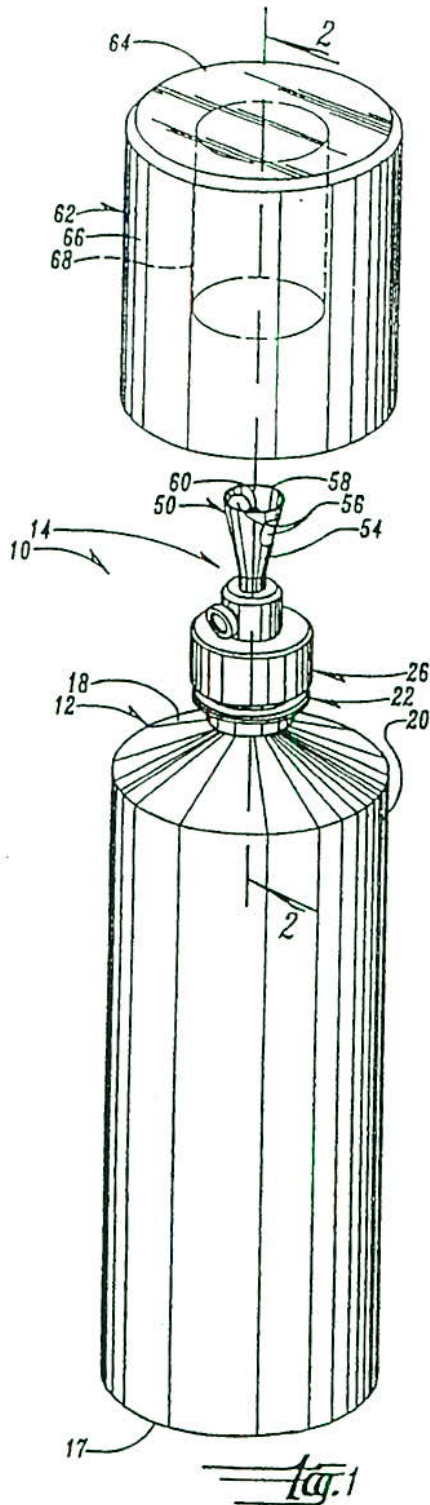
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24.

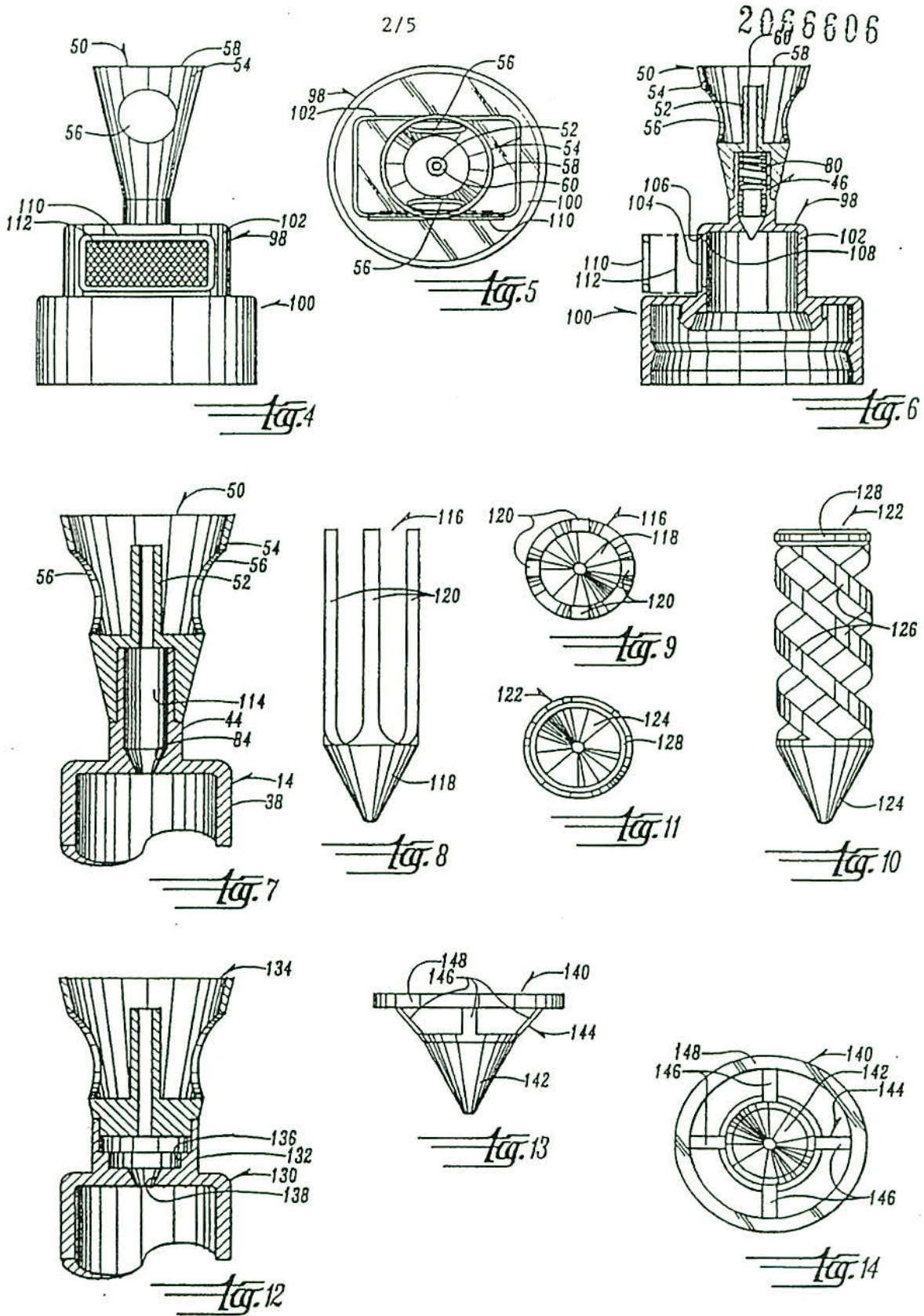
The container of claim 1 wherein the air inlet means is associated with the side of the container at or near the fluid dispensing means.

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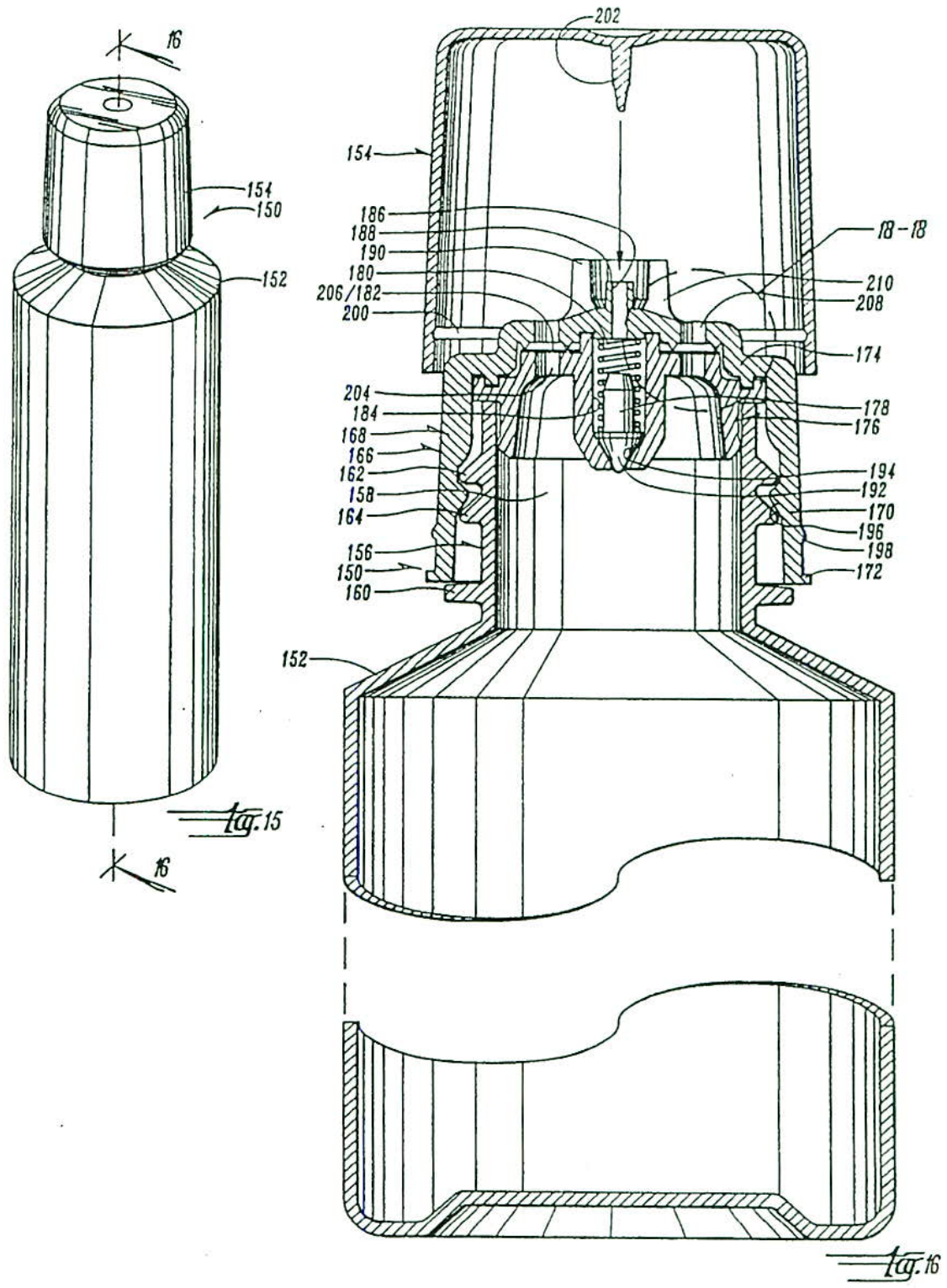


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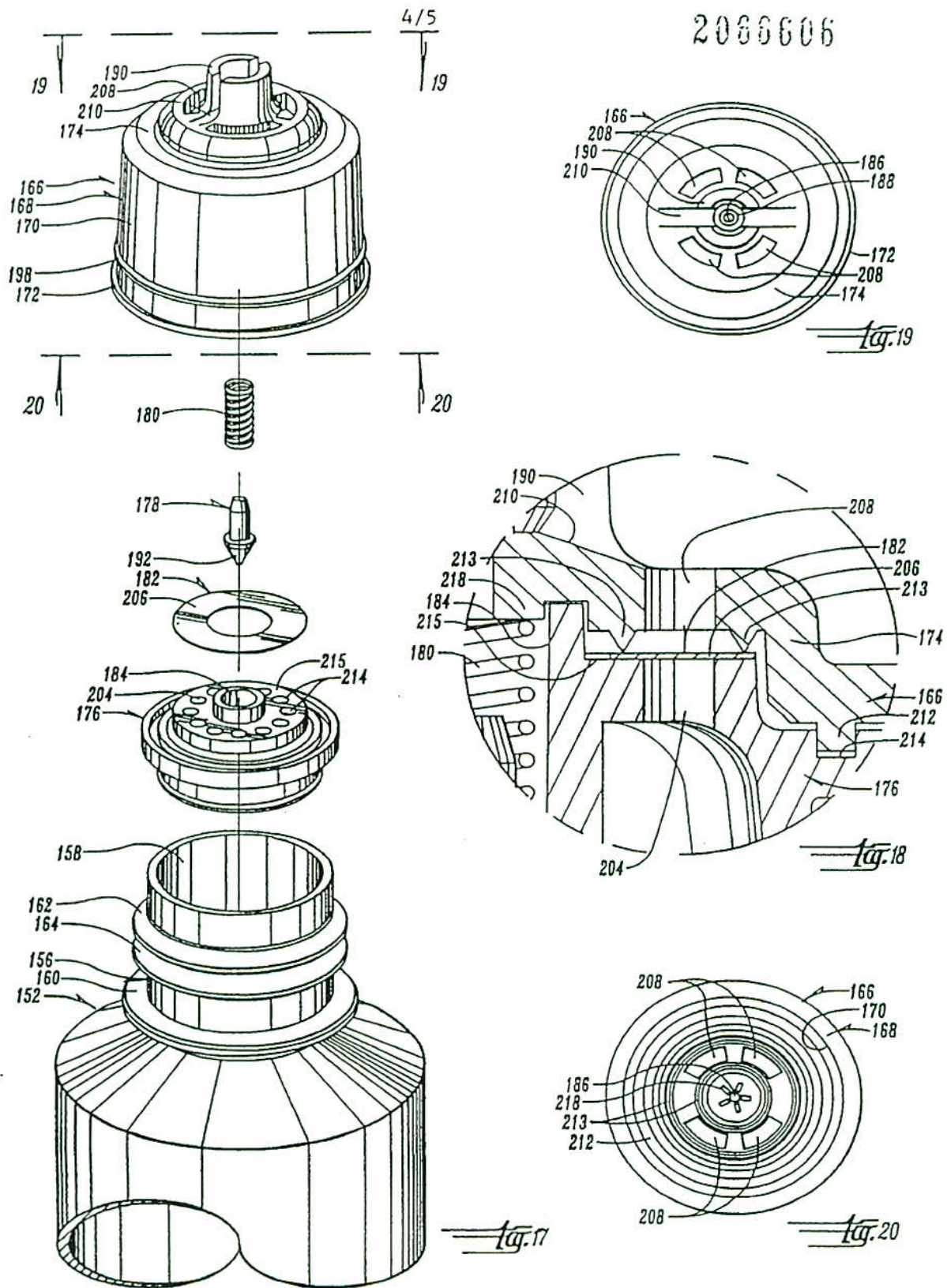


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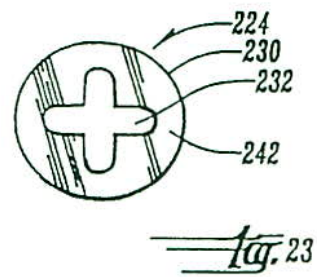
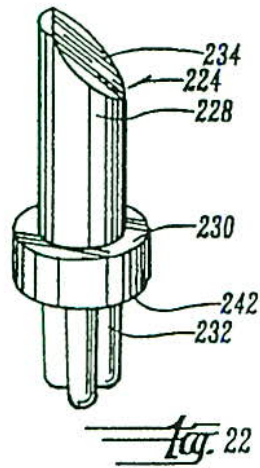
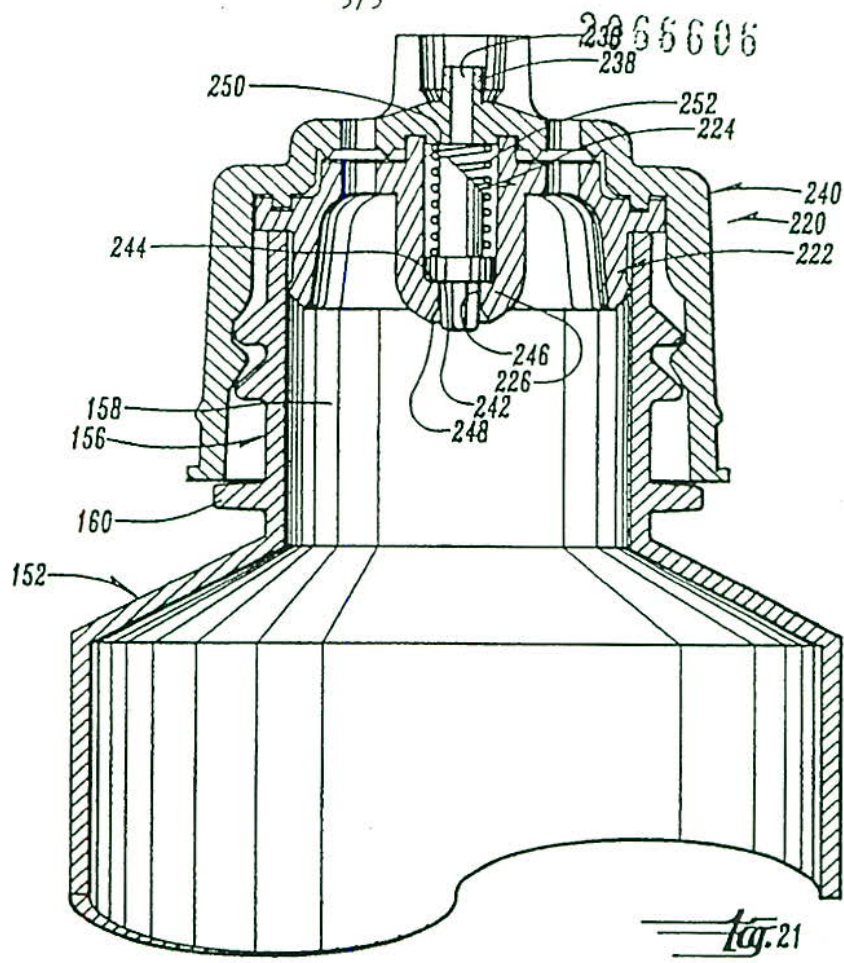
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