

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 13-263279- -00002-0000

Fecha: 2013-12-20 16:27:58 Dep. 2020 DIR.NUEVASCR
Tra. 2 PATENTES Eve: 1 REGDEPOSITO
Act. 444 RESPUESTAREQUE Folios: 82

AS. 126.257

Señor Director

DIRECCIÓN DE NUEVAS CREACIONES

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

E. S. D.

RESPUESTA A OFICIO 21391 DEL 19 DE NOVIEMBRE DE 2013

REF: Expediente No. 13 263.279 - Solicitud de Patente Nacional
a favor de **OTIS PRODUCTS, INC. d/b/a OTIS TECHNOLOGY**
Titulada: PROCESO DE PRODUCCIÓN DE UN TUBO CONDUCTOR ÓPTICO
SECO, UNA UNIDAD ÓPTICA BÁSICA Y UN CABLE ÓPTICO SECO

JUAN PABLO CADENA SARMIENTO, vecino de Bogotá, portador de la tarjeta profesional No. 57492, obrando como apoderado de la sociedad **OTIS PRODUCTS, INC. d/b/a OTIS TECHNOLOGY**, según lo acredita el documento de poder anexo al presente escrito, para dar cumplimiento al requerimiento notificado por fijación en lista el 19 de noviembre de 2013, de acuerdo con los Artículos 38 y 39 de la Decisión 486 de la comisión de la Comunidad Andina me permito allegar:

1. Fotocopia del documento de poder conferido por el solicitante.
2. Documento donde consta la cesión del derecho a la Patente otorgado por los inventores a los solicitantes junto con su correspondiente traducción al español.
3. Copias certificadas por la Oficina de Patentes de Estados Unidos de las primeras solicitudes presentadas para la misma invención de la cuales REIVINDICAMOS PRIORIDAD, junto con su correspondientes traducciones al español.
4. Comprobante de pago No. 13-101405 correspondiente a la tasa por la segunda reivindicación de prioridad.

Del señor Director atentamente,

JUAN PABLO CADENA SARMIENTO
C.C. No. 80.410.337 de Usaquén
Calle 70A No. 4-41

Bogotá, 20 de diciembre de 2013
JPC/jpg
Folios: 82

PODER

Yo (nosotros), OTIS PRODUCTS, INC. d/b/a
OTIS TECHNOLOGY

domiciliado(s) en P.O. Box 582, Lyons Falls, NY 13368,
US.

Nombro(amos) a: **JUAN PABLO CADENA SARMIENTO**
y/o **MARTIN E. TORRES CARDOZO**, de Bogotá, Colombia,
apoderados verdaderos y legales con poder especial, amplio
y suficiente, para recabar de las oficinas y autoridades
colombianas administrativas, judiciales y de policía, en
cualquier instancia o recurso, la obtención de patentes de
invención, registros de marcas, diseños industriales,
modelos de utilidad, depósitos de nombres comerciales y
enseñas, lemas comerciales, nombres comerciales,
registros de derechos de autor y contratos sobre los
mismos, obtención de certificados de obtentor de variedades
vegetales, así como sus prórogas, renovaciones,
anotaciones de traspaso, cambios de nombre y/o domicilio
y/o dirección; elaborar, tramitar y registrar contratos de
licencia y licencias de cualesquiera clases; intervenir como
demandante o como demandado en cualquier instancia y
recurso ante cualquier juez, corporación, funcionario público
o autoridad en acciones judiciales, administrativas y de
policía tales como: oposiciones al registro de marcas;
acciones de caducidad, cancelación y nulidad; acciones
reivindicatorias, acciones derivadas de la obtención o
explotación de licencias; acciones de competencia desleal;
demandas penales; acciones de indemnización de
perjuicios, reclamos y observaciones a solicitudes de
patentes, diseños industriales, modelos de utilidad, en el
ejercicio de medidas cautelares y en otras acciones o
medidas similares.

A este efecto, lo(s) faculto(amos) para elevar solicitudes,
formular descripciones, enmiendas, protestas,
declaraciones, oposiciones, cancelaciones, nulidades,
apelaciones y reclamos; pagar impuestos, cuotas y
gravámenes prescritos por la ley; renunciar o desistir a
derechos concedidos o en curso de concesión; recibir toda
clase de documentos y valores, dando el descargo
respectivo, y, en general, para dar ante dichas autoridades
todos los pasos necesarios al efecto indicado y tomar todas
las medidas que creyeran conducentes al resguardo de mis
(nuestros intereses), con todas las demás facultades legales
necesarias.

Este poder comprende la facultad de ratificar o confirmar en
mi (nuestro) nombre lo actuado así como la facultad de
desistir, transigir, comprometer, y la de sustituirlo en todo o
en parte y revocar sustituciones. Asimismo nombro(amos)
a: **JUAN PABLO CADENA SARMIENTO** y/o **MARTIN E.
TORRES CARDOZO**, domiciliado(s) en la calle 70A No. 4-
41, mis (nuestros) apoderados en Colombia, con facultades
para recibir notificaciones y designar apoderados judiciales o
extrajudiciales.

Otorgado y firmado en

hoy de de 200_

Firma

Nombre
Cargo

POWER OF ATTORNEY

I (We), OTIS PRODUCTS, INC. d/b/a
OTIS TECHNOLOGY

domiciled in P.O. Box 582, Lyons Falls, NY 13368,
US.

Hereby appoints **JUAN PABLO CADENA SARMIENTO**
and/or **MARTIN E. TORRES CARDOZO**, of Bogotá,
Colombia, my (our) true and lawful attorneys with special,
ample and sufficient power to obtain from the Colombian
administrative, judicial and police offices and authorities, in
any instance, privileges of patents of invention, registration
of trademarks, industrial designs and utility models;
registration of commercial names, slogans and emblems,
registration of copyright and contracts related thereto,
certificates of obtainers of vegetables varieties, as well as
extensions, renewals and recordal of assignments and
changes of name, domicile and address related to the
above; to prepare, prosecute and register licenses of any
kind; to act as plaintiff or defendant in any instance or
recourse, and before any judge, corporation, public official
or authority in judicial, administrative and police actions,
such as: oppositions to the registration of trademarks;
caducity, cancellation and nullity actions; claim actions
derived from the obtaining or exploitation of licenses, action
of unfair competition; criminal proceedings, actions for
payment of damages: claims or observations on patent
applications, models, industrial designs and utility models; in
the exercise of preventive measures and in other actions or
similar proceedings.

To that effect they hereby empowered to file applications,
formulate descriptions, amendments, protests, declarations,
oppositions, cancellations, nullities, appeals and claims; to
pay taxes, quotas and assessments prescribed by law,
renounce or waive the rights granted or in the process of
granting; to receive all kinds of documents and valuables,
giving the respective release of receipt, and, in general, to
take before said authorities the necessary steps to such
effect, and any measures that they may deem pertinent to
the safeguard of my (our) interest(s) with all the other
necessary legal powers.

This power includes the faculty to ratify or confirm desist,
settle and compromise on my (our) behalf, and to substitute
this power in whole or in part and to revoke substitutions. At
the same time I (We) hereby appoint **JUAN PABLO
CADENA SARMIENTO** and/or **MARTIN E. TORRES
CARDOZO**, domiciled in calle 70A No. 4-41, my (our)
attorney(s) in fact, with powers to receive notifications and
to designate judicial and extrajudicial attorneys.

Granted and signed in

this 15th day of Nov. 200_13.

Signature

Name
Title

Lyons Falls, NY
Mollie Martin
manager of reg. + legal

A 7448757

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

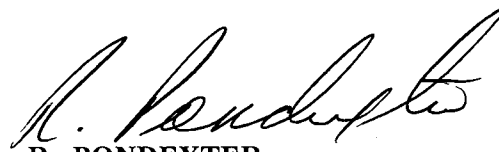
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

November 25, 2013

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE
RECORDS OF THIS OFFICE OF A DOCUMENT RECORDED ON
OCTOBER 31, 2013.

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office




R. PONDEXTER
Certifying Officer

502552561 10/31/2013

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT2598156

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
NICHOLAS WILLIAMS	10/30/2013
JAMES R. BROOKER	10/31/2013
RECEIVING PARTY DATA	
Name:	OTIS PRODUCTS, INC. D/B/A OTIS TECHNOLOGY
Street Address:	P.O. BOX 582
City:	LYONS FALLS
State/Country:	NEW YORK
Postal Code:	13368
PROPERTY NUMBERS Total: 2	
Property Type	Number
Application Number:	61724012
Application Number:	13785966
CORRESPONDENCE DATA	
Fax Number:	(315)422-9331
Phone:	315-423-7100
Email:	mparr@harrisbeach.com
<i>Correspondence will be sent via US Mail when the email attempt is unsuccessful.</i>	
Correspondent Name:	HARRIS BEACH PLLC
Address Line 1:	333 W. WASHINGTON STREET
Address Line 2:	SUITE 200
Address Line 4:	SYRACUSE, NEW YORK 13202
ATTORNEY DOCKET NUMBER:	1252_117NP/265622
NAME OF SUBMITTER:	JAMES R. MULDOON
Signature:	/James R. Muldoon/

502552561

PATENT
REEL: 031518 FRAME: 0041

CH \$80.00 61724012

Date:

10/31/2013

Total Attachments: 5

source=1252_117NP_ASSIGNMENT#page1.tif

source=1252_117NP_ASSIGNMENT#page2.tif

source=1252_117NP_ASSIGNMENT#page3.tif

source=1252_117NP_ASSIGNMENT#page4.tif

source=1252_117NP_ASSIGNMENT#page5.tif

PATENT
REEL: 031518 FRAME: 0042

8
6

ASSIGNMENT BY INVENTORS

THIS ASSIGNMENT, made by Nicholas Williams and James R. Brooker (hereinafter referred to as Assignors), residing at 152 Flamingo Avenue, Naples, Florida 34108; and 197 County Route 23A, Constantia, New York 13044, respectively;

WHEREAS, Assignors have invented certain new and useful improvements in APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM, set forth in a provisional patent application, already filed on November 8, 2012 as U.S. Provisional Application No. 61/724,012; and

WHEREAS, Assignors have invented certain new and useful improvements in APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM, set forth in a Patent application for Letters Patent of the United States, already filed on March 5, 2013 as U.S. Application No. 13/785,966; and

WHEREAS, Otis Products, Inc. d/b/a Otis Technology, a Corporation organized under and pursuant to the laws of New York having its principal place of business at P.O. Box 582, Lyons Falls, New York 13368 (hereinafter referred to as Assignee), is desirous of acquiring the entire right, title and interest in and to said inventions and said Application for Letters Patent of the United States, and in and to any Letters Patent of the United States to be obtained therefore and thereon.

NOW, THEREFORE, in consideration of One Dollar (\$1.00) and other good and sufficient consideration, the receipt of which is hereby acknowledged, Assignors have sold, assigned, transferred and set over, and by these presents do sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to the above-mentioned inventions and application for Letters Patent, and in and to any and all direct and indirect divisions, continuations and continuations-in-part of said application, and any and all Letters Patent in the United States and all foreign countries which may be granted therefore and thereon, and reissues, reexaminations and extensions of said Letters Patent, and all rights under the International Convention for the Protection of Industrial

1252_117PRO & 1252_117NP

6
7

Property, the same to be held and enjoyed by Assignee, for its own use and benefit and the use and benefit of its successors, legal representatives and assigns, to the full end of the term or terms for which Letters Patent may be granted and/or extended, as fully and entirely as the same would have been held and enjoyed by Assignors, had this sale and assignment not been made.

AND for the same consideration, Assignors hereby represent and warrant to Assignee, its successors, legal representatives and assigns, that, at the time of execution and delivery of these presents, except for any rights, titles and/or interests that have arisen to Assignee under law or that have already been transferred to Assignee, Assignors are the sole and lawful owners of the entire right, title and interest in and to the said inventions and application for Letters Patent above-mentioned, and that the same are unencumbered and that Assignors have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

AND for the same consideration, Assignors hereby covenant and agree to and with Assignee, its successors, legal representatives and assigns, that Assignors will sign all papers and documents, take all lawful oaths and do all acts necessary or required to be done for the procurement, maintenance, enforcement and defense of any Letters Patent and applications for Letters Patent for said inventions, without charge to Assignee, its successors, legal representatives and assigns, whenever counsel of Assignee, or counsel of its successors, legal representatives and assigns, shall advise: that any proceeding in connection with said inventions, or said Patent application for Letters Patent, or any proceeding in connection with any Letters Patent or applications for Letters Patent for said inventions in any country, including but not limited to interference proceedings, is lawful and desirable; or, that any division, continuation or continuation-in-part of any application for Letters Patent, or any reissue, reexamination or extension of any Letters Patent, to be obtained thereon, is lawful and desirable.

AND Assignors hereby request the Commissioner for Patents and Trademarks to issue said Letters Patent of the United States to Assignee, as Assignee of said inventions and the Letters Patent to be issued thereon, for the sole use and benefit of Assignee, its successors, legal representatives and assigns.

A
8

AND Assignors hereby grant the following individuals the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document:

HARRIS BEACH PLLC

All practitioners at Customer Number 15204

AND Assignors acknowledge an obligation of assignment of this invention to Assignee at the time the invention was made.

8
9

10/30/13

Date

Nicholas Williams

Nicholas Williams

Witness:

10/30/13

Date

Milton Martin

10/31/13
Date


James R. Brooker

Witness:

10/31/13
Date


William Martin

RECORDED: 10/31/2013

PATENT
REEL: 031518 FRAME: 0047

10
11

TRADUCCIÓN OFICIAL No. 13/234 de un documento escrito en inglés, el cual para su identificación se sella con el sello del traductor al tiempo con la presente. Esta traducción ha sido preparada por Juan Pablo Piedrahita Aguilera, Traductor e Intérprete Oficial debidamente reconocido de conformidad con el Certificado de Idoneidad Profesional No. 0045 expedido por la Universidad Nacional de Colombia, por el Ministerio de Relaciones Exteriores y autorizado por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003

(Se traduce un documento de cesión de patente con su respectivo certificado de la Oficina de Marcas y Patentes de los Estados Unidos, Solicitud de Patente No. 13/785,966, escrito en inglés.)

AS 126.257

A 7448757

ESTADOS UNIDOS DE AMÉRICA

A TODOS A QUIENES ESTOS PRESENTES LLEGAREN:

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS

OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

Noviembre 25 de 2013

POR EL PRESENTE CERTIFICO QUE ADJUNTA SE ENCUENTRA UNA COPIA FIEL DE LOS ARCHIVOS DE ESTA OFICINA DE UN DOCUMENTO REGISTRADO EL 31 DE OCTUBRE, 2013.

Por autoridad de

Bajo la Secretaría de Comercio para Propiedad intelectual

y del Director de la Oficina de Patentes y Marcas de los Estados Unidos

(Firmado.) R. PONDEXTER

Funcionario que Certifica

(SELLO DE OBLEA DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AMÉRICA)

TRADUCCION OFICIAL No. 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

12

502552561 10/31/2013

CARÁTULA DE CESIÓN PATENTE

Versión Electrónica v1.1

Versión en Hoja Impresa v1.2

EPAS ID: PAT2598156

TIPO PRESENTACIÓN: NUEVA CESIÓN

TIPO DE TRASPASO: CESIÓN

DATOS DE LA PARTE QUE TRASPASA:

NOMBRE	Fecha de Suscripción
--------	----------------------

NICHOLAS WILLIAMS	10/30/2013
-------------------	------------

JAMES R. BROOKER	10/31/2013
------------------	------------

DATOS DE LA PARTE QUE RECIBE:

Nombre : OTIS PRODUCTS, INC. D/B/A OTIS TECHNOLOGY

Dirección : P.O. BOX 582

Ciudad : LYONS FALLS

Estado : NUEVA YORK

Código Postal : 13368

NÚMERO DE PROPIEDADES: Total 2

Tipo	Número
Solicitud Número	61724012
Solicitud Número	13785966

DATOS PARA CORRESPONDENCIA

Número de fax: (315) 422-9331

Teléfono: 315-423-7100

La correspondencia será enviada por medio del correo de EE.UU., cuando no

TRADUCCION OFICIAL No. 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

13

sea posible enviarla vía correo electrónico	
Nombre del Corresponsal:	HARRIS BEACH PLC
Línea de dirección 1:	333 W. WASHINGTON STREET
Línea de dirección 2:	SUITE 200
Línea de dirección 4:	SYRACUSE, NUEVA YORK

EXPEDIENTE NÚMERO	1252_117NP/265622
NOMBRE DEL REMITENTE	JAMES R. MULDOON
Firma	/James R. Muldoon/

502552561 PATENTE
RIEL 031518 MARCO 0041

Fecha:	10/31/2013
Total Anexos: 5 fuente=1252_117NP_CESION#pagina1.tif fuente=1252_117NP_CESION#pagina2.tif fuente=1252_117NP_CESION#pagina3.tif fuente=1252_117NP_CESION#pagina4.tif fuente=1252_117NP_CESION#pagina5.tif	

PATENTE
RIEL 031518 MARCO 0042

TRADUCCION OFICIAL No. 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

CESIÓN DE LOS INVENTORES

ESTA CESIÓN, llevada a cabo por Nicholas Williams y James R. Brooker (en adelante a los cuales se hace referencia como los Cedentes), residentes en 152 Flamingo Avenue, Naples, Florida 34108; y 197 County Route 23ª, Constantia, Nueva York, 13044, respectivamente.

POR CUANTO, los Cedentes han inventado ciertas mejoras novedosas y útiles para APARATO Y MÉTODO PARA LIMPIAR EL CAÑÓN DE UN ARMA DE FUEGO, expresados en una solicitud provisional de patente, presentada el 8 de noviembre, 2012 como Solicitud Provisional de Patente de EE.UU. No. 61/724,012; y

POR CUANTO, los Cedentes han inventado ciertas mejoras novedosas y útiles para APARATO Y MÉTODO PARA LIMPIAR EL CAÑÓN DE UN ARMA DE FUEGO, expresados en una solicitud de patente, presentada el 5 de marzo, 2013 como Solicitud de Patente de EE.UU. No. 13/785,966; y

POR CUANTO, Otis Products, Inc. d/b/a Otis Technology, sociedad constituida bajo y de conformidad con las leyes de Nueva York. Con domicilio comercial principal en P.O. Box 582, Lyons Falls, Nueva York 13368 (en adelante a la cual se hace referencia como el Cesionario), desea adquirir la totalidad de los derechos, propiedad y participación en y sobre dichas invenciones y dicha Solicitud de Patente de los Estados Unidos y en y sobre cualquier Título de patente de los Estados Unidos que se otorgue sobre dichas Solicitud y Título.

AHORA EN CONSECUENCIA, por la contraprestación de Un Dólar (US\$1.00) y otra buena y valiosa contraprestación, recibo de la cual se reconoce en la presente, los Cedentes han vendido, cedido, traspasado y entregado, y por estos presentes venden, ceden, traspasan y entregan, a favor del Cesionario, sus sucesores, representantes legales y causahabientes, la

TRADUCCIÓN OFICIAL No. 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

A
15

totalidad de los derechos, propiedad y participación en y sobre las invenciones antes mencionadas y en y sobre las solicitudes de Título de Patente, en y sobre cualesquiera y todas las divisiones directas e indirectas, continuaciones y continuaciones parciales de dicha solicitud, y en y sobre cualesquiera y todos los Títulos de Patente en los Estados Unidos y en todos los países extranjeros en donde se otorguen sobre dichas Solicitudes y Títulos, al igual que las reexpediciones, reexaminaciones y extensiones de dichos Títulos de patente, y sobre la totalidad de los derechos bajo la Convención Internacional para la Protección de la Propiedad Industrial

1252_117PRO & 1252_117NP

PATENTE

RIEL 031518 MARCO 0043

las mismas para ser tenidas y gozadas por el Cesionario, para su propio uso y beneficio y para uso y beneficio de sus sucesores, representantes legales y causahabientes, hasta la totalidad de la vigencia o vigencias para las cuales se otorguen y/o extiendan los Títulos de Patente, tan plena y completamente como si los mismos hubieren sido tenidos y gozados por los Cedentes, si esta venta y cesión no se hubiere realizado.

Y por la misma contraprestación, los Cedentes por la presente declaran y le garantizan al Cesionario, a sus sucesores, representantes legales y causahabientes, que en el momento de la firma y entrega de estos presentes, excepto por cualesquiera derechos, propiedad y participación que hayan surgido bajo la ley o que ya hayan sido traspasados al Cesionario, los Cedentes son los únicos propietarios legítimos de la totalidad de los derechos, propiedad y participación en y sobre dichas invenciones y solicitud de Título de Patente antedicha, y que los mismos están libres de gravámenes, y que los Cedentes tienen el pleno derecho y autoridad legal para vender y traspasar los mismos en

TRADUCCION OFICIAL N° 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

16

la forma en que aquí se lleva a cabo.

Y por la misma contraprestación, los Cedentes por la presente convienen y acuerdan para con el Cesionario, sus sucesores, representantes legales y causahabientes, que los Cedentes firmarán todos los papeles y documentos, tomarán juramentos legales y harán todos los actos necesarios o que se requieran para proporcionar, mantener, hacer cumplir y defender cualesquiera Títulos de Patente y solicitudes de Títulos de Patente para dichas invenciones, sin costo para el Cesionario, sus sucesores, representantes legales y causahabientes, siempre que el asesor legal del Cesionario, o asesor legal de sus sucesores, representantes legales y causahabientes lo recomiende; que cualquier proceso relacionado con dichas invenciones, o con dichas solicitudes de Títulos de Patentes para dichas invenciones en cualquier país, incluyendo pero sin limitarse a procesos de interferencia, es legal y deseable; o que cualquier división, continuación o continuación parcial de cualquier solicitud de Título de Patente, o cualquier reexpedición, reexaminación o extensión de cualesquiera Títulos de Patente a ser otorgados sobre las mismas, es legal y deseable.

Y los Cedentes por la presente le solicitan al Comisario de Patentes y Marcas expedir dichos Títulos de Patente de los Estados Unidos a favor del Cesionario, en calidad de Cesionario de dichas invenciones y de los Títulos de Patente que sobre ellas se otorguen, para el único uso y beneficio del Cesionario, sus sucesores, representantes legales y causahabientes.

1252_117PRO & 1252_117NP

PATENTE

RIEL 031518 MARCO 0044

Y los Cedentes por la presente les otorgan a las siguientes personas el poder de insertar en esta Cesión cualquier identificación adicional que pueda

TRADUCCION OFICIAL N^o. 13/234
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

ser necesaria o deseable con el fin de cumplir con las reglas de la Oficina de Patentes y Marcas de los Estados Unidos para el registro de este documento.

HARRIS BEACH PLLC

Todos los practicantes con referencia al Número de Cliente 15204.

Y los Cedentes reconocen la obligación de cesión de esta invención a favor del Cesionario en el momento en que se llevó a cabo la invención.

1252_117PRO & 1252_117NP
PATENTE
RIEL 031518 MARCO 0045

Fecha 10/30/13 (Firmado) Nicholas Williams

Testigo:

Fecha 10/30/13 (Firmado) (Ilegible)

1252_117PRO & 1252_117NP
PATENTE
RIEL 031518 MARCO 0046

Fecha 10/30/13 (Firmado) James R. Brooker

Testigo:

Fecha 10/30/13 (Firmado) (Ilegible)

1252_117PRO & 1252_117NP
PATENTE
RIEL 031518 MARCO 0047

REGISTRADO: 10/31/2013

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para su confrontación y a la cual me remito.

Bogotá, Diciembre 11, 2013

1383 Palabras


TRADUCCIÓN OFICIAL No. 13/234
JUAN PABLO PIEDRAHÍTA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA
Correo electrónico: juan.pablo.piedrahita@gmail.com

PA 7448753

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

November 20, 2013

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 61/724,012

FILING DATE: November 08, 2012

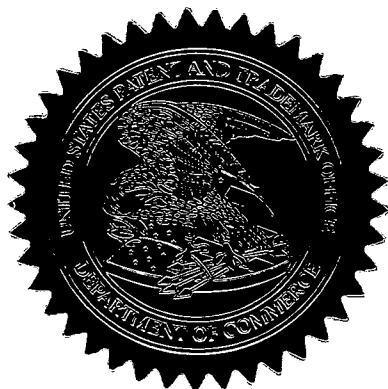
THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY
APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS
CONVENTION, IS US61/724,012

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office



T. LAWRENCE

Certifying Officer



18

19

Electronic Acknowledgement Receipt

EFS ID:	14183046
Application Number:	61724012
International Application Number:	
Confirmation Number:	9786
Title of Invention:	APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM
First Named Inventor/Applicant Name:	Nicholas Williams
Customer Number:	15204
Filer:	James R. Muldoon/Marie Parr
Filer Authorized By:	James R. Muldoon
Attorney Docket Number:	1252_117PRO
Receipt Date:	08-NOV-2012
Filing Date:	
Time Stamp:	15:40:46
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$125
RAM confirmation Number	2465
Deposit Account	080865
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
-----------------	----------------------	-----------	-------------------------------------	---------------------	---------------------

1	Application Data Sheet	1252_117PRO_- _Application_Data_Sheet_ADS _-PTO_AIA-14_- _11_8_2012_1.pdf	21452 ad6abcaf3ef7c66a00bc12359f69f82e8422c7a7	no	5
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
2	Specification	1252_117_Provisional_Patent_ Application_-_11_08_2012_2. pdf	45322 7dc2256d7e1a7bbb9ae2b03c271447b81e3d288c	no	11
Warnings:					
Information:					
3	Drawings-only black and white line drawings	1252_117PRO_Drawings_- _11_08_2012_3.pdf	263820 4a4e08a94f36052d1e9b73f6e7e594d7e64935c	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	1252_117PRO_- _Fee_Transmittal_PTO_SB-17_- _11_8_2012_4.pdf	29244 3b2d8dca27138e8d7e73b88bc0228dacdf0306f1	no	1
Warnings:					
Information:					
5	Provisional Cover Sheet (SB16)	1252_117PRO_-_Transmittal_-_Provisional_Application_PTO_SB-16_-_11_8_2012_5.pdf	41635 ac18417d1b49904ee47383e317abbd60dc4e6f24	no	2
Warnings:					
This is not a USPTO supplied Provisional Cover Sheet SB16 form.					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	29598 ce2173c026a2f77858df6958f55281e938503b19	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			431071		

21 20

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

21
22

PTO/SB/16 (09-11)

Approved for use through 01/31/2014. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. _____

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Nicholas	Williams	Naples, Florida
James R.	Brooker	Constantia, New York
Additional inventors are being named on the _____ separately numbered sheets attached hereto.		
TITLE OF THE INVENTION (500 characters max):		
APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM		
Direct all correspondence to: CORRESPONDENCE ADDRESS		
☒ The address corresponding to Customer Number: 15204		
OR		
☐ Firm or Individual Name		
Address		
City	State	Zip
Country	Telephone	Email
ENCLOSED APPLICATION PARTS (check all that apply)		
☒ Application Data Sheet. See 37 CFR 1.76		
☐ CD(s), Number of CDs _____		
☒ Drawing(s) Number of Sheets <u>2</u>		
☐ Other (specify) <u>Fee Transmittal (1 pg)</u>		
☒ Specification (e.g. description of the invention) Number of Pages <u>11</u>		
Fees Due: Filing Fee of \$250 (\$125 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).		
METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT		
☒ Applicant claims small entity status. See 37 CFR 1.27.		
☐ A check or money order made payable to the <i>Director of the United States Patent and Trademark Office</i> is enclosed to cover the filing fee and application size fee (if applicable).		
☐ Payment by credit card. Form PTO-2038 is attached.		
☒ The Director is hereby authorized to charge the filing fee and application size fee (if applicable) or credit any overpayment to Deposit		
Account Number: <u>08-0865</u>		
TOTAL FEE AMOUNT (\$) 125.00		

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

Provisional Patent Application Transmittal	
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).	
Dated: November 8, 2012	Electronic Signature for Marie J. Parr: /Marie J. Parr/

2
23

PROVISIONAL APPLICATION COVER SHEET
Page 2 of 2

PTO/SB/16 (09-11)

Approved for use through 01/31/2014. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.



No.



Yes, the name of the U.S. Government agency and the Government contract number are:

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

SIGNATURE /James R. Muldoon 38249/

Date November 8, 2012

TYPED or PRINTED NAME James R. Muldoon

REGISTRATION NO. 38,249
(if appropriate)

TELEPHONE (315) 423-2021

Docket Number: 1252_117PRO

23
24

APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM

[0001] This is a provisional U.S. Patent application filed under 37 C.F.R. §1.53(c).

Field of the Invention

[0002] The present disclosure relates generally to a system and tools for cleaning the barrels of firearms such as an M4, an M16, and other rifles and carbines, for example; more particularly to a tool comprising a tubular woven sheath having a central core supporting a region of overmolded elastomer within the sheath. The central core includes a fitting at one end and preferably at both ends for attachment to any of various auxiliary tools such as swabs, brushes, scrapers, handles and the like.

Background of the Invention

[0003] Carbon and other residue from gunpowder and from firearm discharge reactions accumulate in firearm barrels, with deleterious effects on cleanliness, performance, and longevity of the firearm. Such residues require partial disassembly of a weapon to access and clean the barrel and associated firing chamber. A number of specialized swabbing tools have been introduced to clean firearm components, but have had substantial shortcomings.

[0004] U.S. Patent No. 4,716,673 discloses a gun barrel cleaner comprising an elongated flexible shaft having a universal coupling secured to each opposite end and several different cleaning tips selectively threadably and detachably engageable with either universal coupling. One cleaning tip, a gun barrel bore obstruction remover, comprises a cylindrical body portion having a concave face at one end and securing means at the other end for attaching the tip to the shaft. A compact cylindrical container for storing and conveniently transporting the gun barrel cleaner is provided. In addition, an improved method of attaching a cleaning patch to a gun barrel cleaning tip having a patch receiving slot is provided.

[0005] A disadvantage of this invention is that the cleaning patch is not integral with a brush or a scrubbing element of the tool. Therefore, cleaning operations will generally require more than a successive passes of the gun barrel cleaner through the barrel. For example, a first pass of the tool may include a slotted tip with a swab wetted with an appropriate solvent; a second pass may include a pulling an appropriately sized bore brush; a

24
25

third pass may include a clean swab pulled through the barrel to absorb the dislodged residue; and a fourth pass may include pulling another swab wetted with a preserving lubricant

[0006] U.S. Patent Nos. 5,871,589 and 5,972,125 disclose a cleaning tool for cleaning the inside of gun barrels. The device consists of a metal brush which is enclosed within a tubular sheath of material, typically a woven fabric. The bristles of the brush extend through the wall of the woven sheath of fabric. The tubular sheath is pulled through a gun barrel and the bristles of the brush clean the inside of the gun barrel. Also enclosed within the tubular sheath are one or more foam inserts, or one or more cleaning regions formed by folding the cord within itself, either of which creates a bulge in the tubular sheath and cleans debris from the gun barrel, spreads gun cleaning solvent in the gun barrel, absorbs solvent and combustion and bullet residues, and spreads a layer of gun oil in the gun barrel.

[0007] A shortcoming of the device disclosed in both patents is that an attached flexible cord for pulling the sheath through the barrel does not extend throughout the length of the sheath. Because the sheath is longitudinally stretchable, the device can jam in a firearm barrel and become difficult to remove. Further, the preferred material of the sheath is a synthetic polymer that is not as absorbent as a natural fiber such as cotton, resulting in less effective presentation of cleaning solvent and/or lubricant against the surface of the barrel, which effect is compounded by a reduction in effective diameter of the sheath under tension. Once jammed, excessive tensile force on the flexible lead cord may result in a failure of the cord, the synthetic sheath or the sewn connection therebetween. A further disadvantage is that the flexible shaft does not comprise an integral gun barrel obstruction remover. Further, no fitting is provided at the trailing end of the sheath for attachment of auxiliary cleaning tools as may be desirable.

Summary of the Invention

[0008] Briefly described, an apparatus for cleaning the barrel of a weapon comprises a tubular woven sheath having a lead end and a trailing end as defined by passage through a gun barrel. A central core which is substantially unyielding in the axial direction for gun barrel cleaning is disposed within the woven sheath. In one aspect of the invention, the central core comprises a cable of twisted strands of metal or non-metallic material. Alternatively, the

central core may comprise a single filament, wire, or a woven or extruded cord of metal or non-metallic material. The sheath extends over a substantial part of the central core and, preferably, extends beyond one or both ends of the sheath. A region of the central core beneath the sheath is overmolded with a thermoplastic elastomer that radially distends the sheath to approximately the diameter of a specific caliber gun barrel to be cleaned. The thermoplastic elastomer is slightly compressible to reduce the risk of any jamming of the gun barrel cleaner within the barrel. The central core includes a fitting at one end and preferably at both ends for attachment to any of various auxiliary tools such as swabs, brushes, scrapers, a T-handle, and the like, as well as an extender. The fittings may be crimped, bonded or cold welded to the central core ends and may include male or female threads or quick release mechanism complementary to the fittings of the auxiliary tools. Preferably, the outer surface of the elastomer region is provided with patterned protrusions that urge the sheath into the rifling in the barrel bore. Preferably, the protrusions are formed to urge the sheath and central core to twist along the lands of the rifling. In one embodiment, the protrusions are discontinuous ridges that follow a helical line that is complementary to the helical rifling on the interior of the gun barrel.

[0009] Preferably, the sheath is woven of primarily a natural fiber such as cotton. Additional special-purpose threads, such as fiber-optic or phosphorescent threads, heat resistant materials and/or staple set formed textured threads, may also be woven into the sheath. In another aspect of the invention, an additional absorbent material, such as a thin cylindrical sponge, may also be disposed within the sheath, preferably at the lead end thereof, ahead of the overmolded thermoplastic region for the application of cleaning solvent.

Brief Description of the Drawings

[0010] The features described herein can be better understood with reference to the drawings described below. The drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention. In the drawings, like numerals are used to indicate like parts throughout the various views:

[0011] FIG. 1 is a longitudinal cross-sectional view of a gun barrel cleaning apparatus in accordance with the present invention;

[0012] FIG. 2 is an elevational view of a portion of a tubular woven sheath in accordance with the present invention;

[0013] FIG. 3 is an elevational view of a foldable T-handle, also referred to interchangeably herein as a “pull-through handle tool”, formed for passage in folded configuration through the barrel of a weapon;

[0014] FIG. 4 is an elevational view of a portion of the apparatus shown in FIG. 1 showing a central core having a feature comprising a plurality of protruding sub-features; and

[0015] FIG. 5 is a photographic depiction of the central core and feature shown in FIG. 4.

Detailed Description of the Invention

[0016] Referring to FIGS. 1 and 2, an apparatus 10 (also referred to herein as a “tool” or “gun barrel cleaner”) for cleaning the barrel of a weapon comprises a tubular woven sheath 12 having a lead end 14 and a trailing end 16 as defined by passage through the barrel. Tool 10 may be passed through a barrel in either direction although more commonly from the firing chamber through the barrel to the muzzle end. An elongate central member 18 defines a core disposed within tubular woven sheath 12 and generally extending the length of sheath 12 and, in one embodiment, some length 20a, 20b beyond one or both ends of sheath 12.

[0017] A region 22 of central member 18 is provided with one or more attached feature 24 (or plurality of features 24) formed of a polymer. Feature 24 is preferably formed of a thermosetting rubber polymer by injection overmolding onto central member 18. A wide variety of thermoplastic elastomers may be used. In one preferred embodiment the thermoplastic elastomer has a Shore A durometer hardness of approximately 60. Each feature 24 extends at least partially around central member 18 and radially distends the overlying region of sheath 12 to approximately the diameter of any specific caliber gun barrel, or range of gun barrel calibers, that tool 10 is intended to clean. Successive features 24 are disposed in progressive angular rotation about central member 18. Each feature 24 is provided with at least one, and preferably two, radial protrusions 26. Preferably, feature 24 is provided as a plurality of substantially similar sub-features 24 helically oriented around central member 18 such that successive protrusions 26 urge the overlying fibers of sheath 12

28

to engage and follow the rifling lands in the barrel inner surface. The resulting twisting action imparted to sheath 12 provides superior cleaning of both the leading and trailing sides of each rifling land. The region of the central member provided with protrusions may be adjacent the leading edge, the trailing edge or the middle portion of the tool. In another aspect of the invention, the tool may include more than a single portion provided with protrusions.

[0018] Central member 18 may comprise any material or elongate form, e.g., fiber rope or cord, rod, wire, or twisted or braided cable and may be rigid, semi-rigid or semi-flexible. The rigid or semi-rigid structure of tool 10 makes it an excellent gun barrel obstruction remover. A currently preferred material and form are a cable formed of a metal such as galvanized steel, preferably formed to have a natural curl for ease of laterally coiling in storage and preferably having a protective plastic coating. The protective plastic coating reduces the risk of scratching gun components and the potential for fraying of the cable.

[0019] Central member 18 preferably includes a fitting 28 at one end, and preferably at both ends, for attachment to any of various auxiliary tools such as swabs, brushes, scrapers, a T-handle, and the like, as well as a cable extender and/or additional tools 10. The fittings may be crimped, bonded or cold welded to the end of the central member. The fittings may have internal or external threads or other quick connect mechanisms to couple with the fittings of the auxiliary tools.

[0020] In one aspect of the invention, the fittings may also be sized and configured to attach one or both of the leading or trailing end of the sheath to the central member. Alternatively, a separate crimping ring or other suitable connector may be utilized over the sheath and the central member or the fitting to retain the edge of the sheath in place over the central core, overmolded protrusions and absorbent material.

[0021] In another aspect of the invention, the sheath is not connected to the fittings or central member, but held in place by the tight fit of the woven sheath over the protrusions. In another aspect, the sheath may be removable from the tool for cleaning to remove build-up of removed residue. The sheath may include elasticized threads to assist in the removal, cleaning and/or replacement of the sheath. Alternatively, cleaning may be accomplished by soaking the coiled tool in a suitable detergent solution and rinsed to remove the accumulated build-up.

[0022] Preferably, sheath 12 is woven of primarily a natural fiber such as cotton, although synthetic fiber may be included; and 100% synthetic fiber is fully comprehended by the

20
29

invention. Additional special-purpose threads, such as fiber-optic 12a or phosphorescent (luminescent) threads 12b, may also be woven into the sheath to provide, for example, auxiliary lighting for visual inspection of a gun barrel for cleanliness as tool 10 is withdrawn. In another aspect of the invention, the woven sheath may comprise fibers of heat resistant materials, such as meta-aramids, NOMEX, para-aramids, KEVLAR, fiberglass, K-fiber, or the like. In another aspect of the invention, synthetic fibers, such as nylon, polystyrene, acetals, acrylics or the like, or metallic thread, such as brass or the like, may be incorporated into the sheath to increase the abrasive characteristic of the sheath to assist in removal stubborn residue from the barrel. Sheath 12 may be woven, for example, on a tubular commercially available braiding machine

[0023] In another aspect of the invention, where the sheath is comprised of heat resistant fibers or materials, cleaning of the sheath could be performed by the application of sufficient heat to burn off the accumulated residue. For example, the tool or the sheath could be placed in an oven at a temperature below the melting or deformation temperature of the fibers such that any dirt or carbon residue detaches from the fibers of the sheath.

[0024] Preferably, additional absorbent material, such as a thin cylindrical sponge 30 may be disposed within the sheath, preferably at the lead end thereof, ahead of overmolded thermoplastic region 22 to assist in the application of cleaning solvent to the residue within a gun barrel. In another aspect of the invention, a second area of sponge material is disposed within the sheath adjacent to trailing end thereof to apply an even coating of lubricant or other corrosion resistant fluid. The absorbent material may hold additional solvent or lubricant that is applied as the gun barrel cleaner is pulled through the barrel. In another aspect of the invention, the natural fibers of the sheath or woven sheath are sufficiently absorbent to apply sufficient amounts of solvents and/or lubricants during the passing of the cleaner through the gun barrel.

[0025] In another aspect of the invention, the gun barrel cleaner may include successive or alternating areas of overmolded protrusions and/or absorbent materials to perform multiple cleaning operations in a single pass of the cleaner. For example, a first area of absorbent material is disposed closer to the leading end of the cleaner to apply a cleaning solvent. A second area of absorbent material is disposed adjacent to the trailing end of the gun barrel cleaner to apply a layer of protective lubricant. In between the areas of absorbent

material, an area of overmolded protrusions is disposed to clean or abrasively scrub the interior of the gun barrel.

[0026] In another aspect of the invention, two sections of the gun barrel cleaner may be connected through a complementary fitting to clean longer gun barrels. In another aspect of the invention, two sections may be connected to complementary fittings at each end of an appropriately sized bore brush where additional abrasive force may need to be supplied.

[0027] In another aspect of the invention, the gun cleaning tool may be used to preserve the gun during storage. Preferably, when used for such purposes, the tool will include at least two areas of either overmolded thermoplastic elastomer or absorbent materials at intervals that approximate the overall length of the gun barrel. At least a portion of the sheath between two areas is treated with a vapor corrosion inhibitor. Alternatively, the vapor corrosion inhibitor could be molded or extruded within the plastic protective coating of the central member. When the tool is stored within the barrel for extended periods of time, the vapor corrosion inhibitor will off-gas to line the interior of the gun barrel with a protective coating to resist corrosion. The two overmolded or absorbent areas will fit relatively tightly within the barrel to retain the off-gassed corrosion inhibitor within the barrel to protect the barrel from corrosion.

[0028] Referring now to FIG. 3, an exemplary foldable T-handle 40, comprising a threaded shaft 42 having a longitudinal well 44 and a pivotable handle 46 attached to shaft 42 by pin 48 formed for passage in folded configuration through the bore of a weapon, is attachable to either of fittings 28, either before or after passage through a gun barrel of a leading end of apparatus 10, to assist a user in pulling apparatus 10 through a gun barrel.

[0029] The respective thicknesses of the central core, protective layer, overmolded protrusions, absorbent materials and the woven sheath may be varied to change the radial width of the tool to fit the gun barrels of differing calibers. Alternatively, the compressibility of the overmolded protrusions, absorbent material and/or the woven sheath may also be increased so that a single tool may appropriately clean a range of calibers of gun barrels.

[0030] While the present invention has been described with reference to a number of specific aspects or embodiments, it will be understood that the true spirit and scope of the invention should be determined only with respect to claims that can be supported by the present specification. Further, while in numerous cases herein wherein systems and

31

apparatuses and methods are described as having a certain number of elements it will be understood that such systems, apparatuses and methods can be practiced with fewer than the mentioned certain number of elements. Also, while a number of particular embodiments have been described, it will be understood that features and aspects that have been described with reference to each particular embodiment can be used with each remaining particularly described embodiment.

✓ 31
32

What Is Claimed Is:

1. An apparatus for cleaning the barrel of a weapon comprising:
 - a) a central member defining a core;
 - b) a tubular woven sheath surrounding said central member and having a lead end and a trailing end and extending at least the length of said woven sheath;
 - c) a feature formed of a polymer disposed on said central member between said central member and said tubular woven sheath in a region near said lead end and being provided with at least one radial protrusion.
2. An apparatus in accordance with Claim 1 wherein said central member is selected from the group consisting of rope, cord, rod, wire, twisted cable, and braided cable.
3. An apparatus in accordance with Claim 1 comprising a plurality of said feature.
4. An apparatus in accordance with Claim 3 wherein said features formed of a thermosetting rubber polymer.
5. An apparatus in accordance with Claim 3 wherein said features are formed by injection overmolding onto said central member.
6. An apparatus in accordance with Claim 3 wherein at least one of said plurality of features further comprises a radial protrusion.
7. An apparatus in accordance with Claim 3 wherein successive of said plurality of features are disposed in progressive angular rotation about said central member.
8. An apparatus in accordance with Claim 1 wherein said tubular woven sheath includes a fiber selected from the group consisting of fiber-optic and phosphorescent.

32
33

9. An apparatus in accordance with Claim 1 wherein said tubular woven sheath comprises a natural fiber.

10. An apparatus in accordance with Claim 1 further comprising a sponge disposed between said central member and said tubular woven sheath.

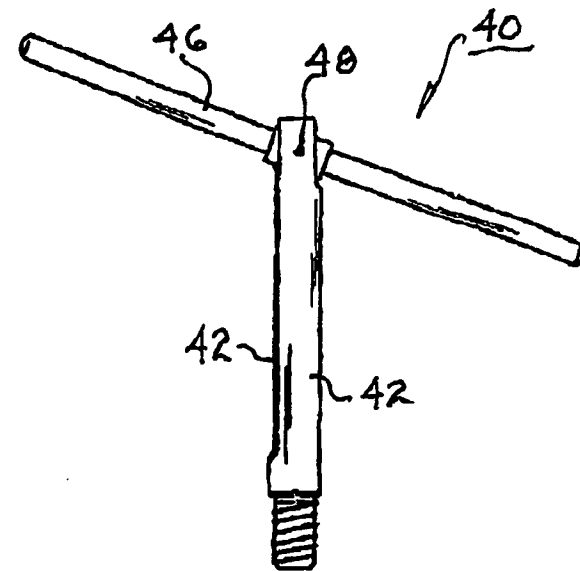
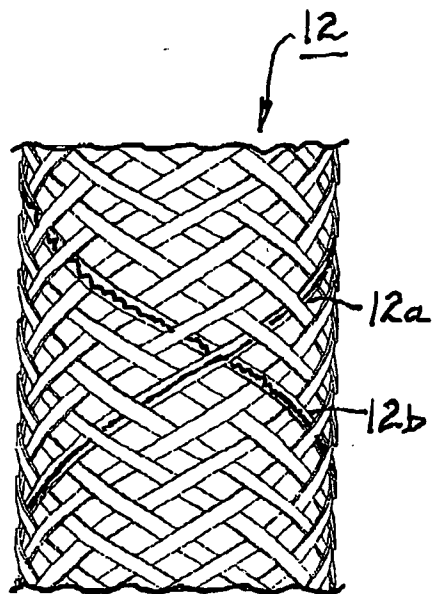
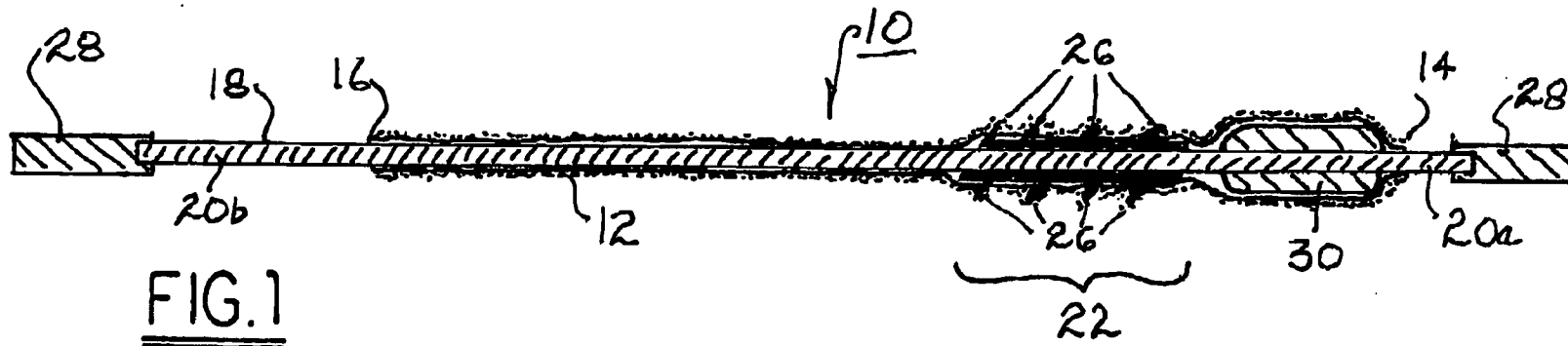
11. An apparatus in accordance with Claim 10 wherein said sponge is disposed between said region and said lead end.

12. An apparatus in accordance with Claim 1 wherein the diameter of said apparatus in said region is approximately the diameter of said weapon barrel.

13. An apparatus in accordance with Claim 1 wherein said central member is formed to have a natural curl.

Abstract:

An apparatus for cleaning the barrel of a weapon comprising a tubular woven sheath having a lead end and a trailing end. A central core within the sheath extends the length of the sheath and preferably some length beyond both ends. A region of the central core near the lead end of the sheath is overmolded with a thermoplastic elastomer that distends the sheath. The central core includes a fitting at one end for attachment to any of various auxiliary tools such as swabs, brushes, scrapers, a T-handle. Preferably, the surface of the elastomer is provided with patterned protrusions formed to urge the tool to twist along the lands of barrel rifling. Preferably, the sheath is woven of primarily a natural fiber such as cotton. Fiber-optic or phosphorescent threads may also be woven into the sheath. Preferably, a sponge material is disposed within the sheath ahead of the overmolded thermoplastic region.



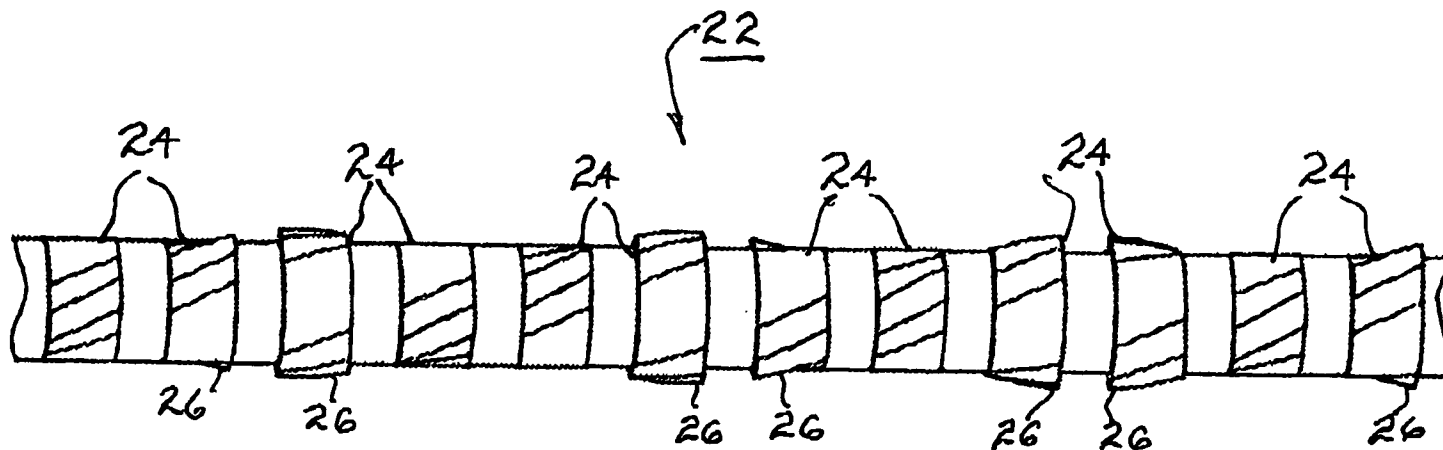


FIG. 4

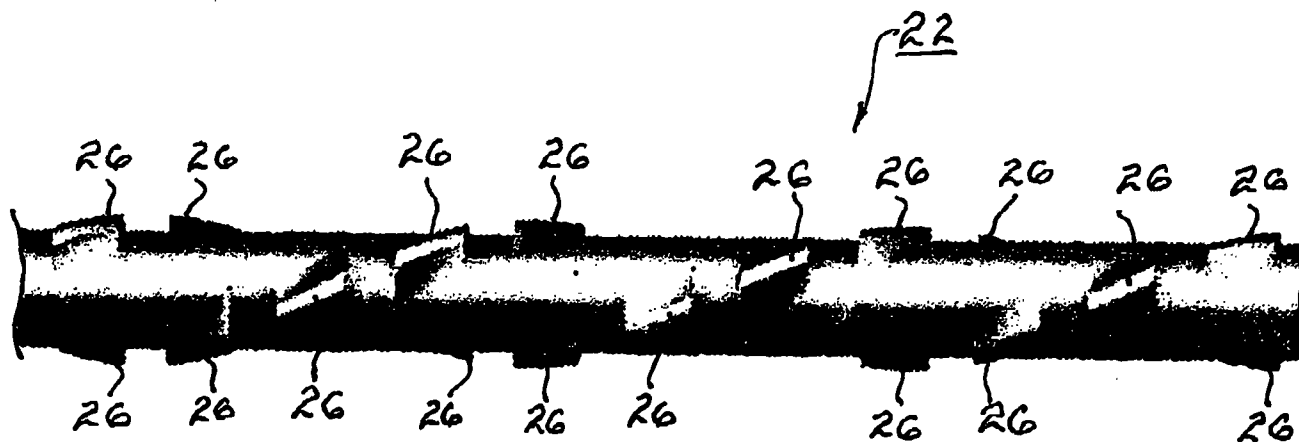


FIG. 5

36

36
37

Application Data Sheet

Inventor Information

Inventor Number:: 1
Name Prefix:: Mr.
Given Name:: Nicholas
Family Name:: Williams
City of Residence:: Naples
State or Province of Residence:: FL
Country of Residence:: US
Street of mailing address:: 152 Flamingo Avenue
City of mailing address:: Naples
State or Province of mailing address:: FL
Postal or Zip Code of mailing address:: 34108

Inventor Number:: 2
Name Prefix:: Mr.
Given Name:: James
Middle Name:: R.
Family Name:: Brooker
City of Residence:: Constantia
State or Province of Residence:: NY
Country of Residence:: US
Street of mailing address:: 197 County Route 23A
City of mailing address:: Constantia
State or Province of mailing address:: NY

37
38

Postal or Zip Code of mailing address:: 13044

Correspondence Information

Correspondence Customer Number:: 15204

Application Information

Application Type:: Provisional

Subject Matter:: Utility

CD-ROM or CD-R?:: None

Sequence submission?:: None

Computer Readable Form (CRF)?:: No

Title:: APPARATUS AND METHOD FOR
CLEANING THE BARREL OF A FIREARM

Attorney Docket Number:: 1252_117PRO

Request for Early Publication?:: No

Request for Non-Publication?:: No

Total Drawing Sheets:: 2

Small Entity?:: Yes

Petition included?:: No

Secrecy Order in Parent Appl.?:: No

Authorization to Permit Access:: No

Representative Information

Representative Customer Number:: 15204

~~38~~
39

Domestic Priority Information

Foreign Priority Information

Applicant Information

Applicant Number::	1
Applicant Type::	Assignee
Organization Name::	The Otis Patent Trust
Street of mailing address::	P.O. Box 582
City of mailing address::	Lyons Falls
State or Province of mailing address::	NY
Postal or Zip Code of mailing address::	13368

39
40

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18.
Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/James R. Muldoon 38249/	Date	November 8, 2012
Name (Print/Type)	James R. Muldoon	Registration No. (Attorney/Agent)	38,249

40
41

TRADUCCIÓN OFICIAL No. 13/236 de un documento escrito en inglés, el cual para su identificación se sella con el sello del traductor al tiempo con la presente. Esta traducción ha sido preparada por Juan Pablo Piedrahita Aguilera, Traductor e Intérprete Oficial debidamente reconocido de conformidad con el Certificado de Idoneidad Profesional No. 0045 expedido por la Universidad Nacional de Colombia, por el Ministerio de Relaciones Exteriores y autorizado por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003

(Se traducen las reivindicaciones de la Solicitud de Patente No. 61/724,012, con su respectivo certificado de la Oficina de Marcas y Patentes de los Estados Unidos, escritos en inglés.)

AS 126.257

A 7448753

ESTADOS UNIDOS DE AMÉRICA

A TODOS A QUIENES ESTOS PRESENTES LLEGAREN:

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS

OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

Noviembre 20 de 2013

POR EL PRESENTE CERTIFICO QUE ADJUNTA SE ENCUENTRA UNA COPIA FIEL DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AQUELLOS DOCUMENTOS DE LA SOLICITUD DE PATENTE IDENTIFICADA A CONTINUACIÓN QUE CUMPLIERON CON LOS REQUISITOS PARA QUE SE LE OTORGARA UNA FECHA DE PRESENTACIÓN BAJO EL CÓDIGO DE LOS ESTADOS UNIDOS 35 USC 111.

NÚMERO DE SOLICITUD: *61/724,012*

FECHA DE PRESENTACIÓN: *Noviembre 8, 2012*

EL CÓDIGO DEL PAÍS Y EL NÚMERO DE SOLICITUD DE PRIORIDAD A SER USADOS EN EL EXTRANJERO BAJO LA CONVENCION DE PARÍS ES ***US61/724,012***

Por autoridad de

Bajo la Secretaría de Comercio para Propiedad intelectual

y del Director de la Oficina de Patentes y Marcas de los Estados Unidos

(Firmado.) T. LAWRENCE

Funcionario que Certifica

(SELLO DE OBLEA DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AMÉRICA)

TRADUCCION OFICIAL No. 13/236
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

41
42

Expediente No. 1252_117PRO

Lo que se reivindica es:

1. Un aparato para limpiar el cañón de un arma que comprende:
 - a) un elemento central que define un núcleo;
 - b) una funda tubular tejida alrededor de dicho elemento central y que tiene un extremo que va adelante y un extremo que va detrás y que se extiende por lo menos la longitud de dicha funda tejida;
 - c) una característica formada por un polímero dispuesto sobre dicho elemento central entre dicho elemento central y dicha funda tubular tejida en una región cerca de dicho extremo que va adelante y con por lo menos una protuberancia radial.
2. Un aparato de acuerdo con la reivindicación 1 donde dicho elemento central se selecciona del grupo consistente de lazo, cuerda, varilla, alambre, cable entorchado, y cable trenzado.
3. Un aparato de acuerdo con la reivindicación 1 que comprende una pluralidad de dicha característica.
4. Un aparato de acuerdo con la reivindicación 3 donde dichas características se forman a partir de un polímero de caucho termoendurecible.
5. Un aparato de acuerdo con la reivindicación 3 donde dichas características se forman mediante inyección se sobre-moldeo sobre dicho elemento central.
6. Un aparato de acuerdo con la reivindicación 3 donde por lo menos una de dicha pluralidad de características además comprende una protuberancia radial
7. Un aparato de acuerdo con la reivindicación 3 donde una sucesión de dicha pluralidad de características está dispuesta en una rotación angular progresiva alrededor de dicho elemento central.

TRADUCCION OFICIAL No. 13/236
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

- 8. Un aparato de acuerdo con la reivindicación 1 donde dicha funda tubular tejida incluye una fibra seleccionada del grupo consistente en fibra óptica y fosforescente.

Copia suministrada por la Oficina de Patentes y marcas de los Estados Unidos de la Base de Datos de Imágenes IFW el 11/14/2013

Expediente No. 1252_117PRO

- 9. Un aparato de acuerdo con la reivindicación 1 donde dicha funda tubular tejida comprende una fibra natural.
- 10. Un aparato de acuerdo con la reivindicación 1 que además comprende una esponja dispuesta entre dicho elemento central y dicha funda tubular tejida.
- 11. Un aparato de acuerdo con la reivindicación 10 donde dicha esponja está dispuesta entre dicha región y dicho extremo que va adelante.
- 12. Un aparato de acuerdo con la reivindicación 1 donde el diámetro de dicho aparato en dicha región es aproximadamente el diámetro del cañón de dicha arma.
- 13. Un aparato de acuerdo con la reivindicación 1 donde dicho elemento central se forma con un rizo natural.

Copia suministrada por la Oficina de Patentes y marcas de los Estados Unidos de la Base de Datos de Imágenes IFW el 11/14/2013

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para su confrontación y a la cual me remito.

Bogotá, Diciembre 11, 2013

748 Palabras


 TRADUCCION OFICIAL No. 13/236
 JUAN PABLO PIEDRAHITA AGUILERA
 TRADUCTOR E INTERPRETE OFICIAL
 RES. 718 DE MAYO 2003
 DEL MIN. INTERIOR Y DE JUSTICIA
 Correo electrónico: juan.pablo.piedrahita@gmail.com

PA 7448754

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

November 20, 2013

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM
THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK
OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT
APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A
FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 13/785,966

FILING DATE: March 05, 2013

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY
APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS
CONVENTION, IS US13/785,966

By Authority of the
Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office



T. Lawrence

T. LAWRENCE
Certifying Officer

44
45

Electronic Acknowledgement Receipt	
EFS ID:	15125220
Application Number:	13785966
International Application Number:	
Confirmation Number:	8171
Title of Invention:	APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM
First Named Inventor/Applicant Name:	Nicholas Williams
Customer Number:	15204
Filer:	James R. Muldoon/Marie Parr
Filer Authorized By:	James R. Muldoon
Attorney Docket Number:	1252_117NP
Receipt Date:	05-MAR-2013
Filing Date:	
Time Stamp:	17:29:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$688
RAM confirmation Number	5567
Deposit Account	080865
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
-----------------	----------------------	-----------	----------------------------------	------------------	------------------

1	Transmittal of New Application	1252_117NP_Utility_Patent_Application_Transmittal_-_03_05_2013_1.pdf	34245 72ab70c6bfb9a08c0aa6bc4cb582bb8d2c54440e	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	1252_117NP_Fee_Transmittal_-_03_05_2013_2.pdf	29543 3183f1d169ec6b69c35663f1a5d060ac4c09beaa	no	1
Warnings:					
Information:					
3		1252_117NP_PATENT_APPLICATION_-_03_05_2013_3.pdf	60374 4f6b543c79b578db9cda8d5e91d5a012c5dac62	yes	16
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	12	
	Claims		13	15	
	Abstract		16	16	
Warnings:					
Information:					
4	Application Data Sheet	1252_117NP_ADS_-_03_05_2013_4.pdf	22404 4cc0ba18810d798f5282c8d2d4c16f7fe94b76e	no	5
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
5	Drawings-only black and white line drawings	1252_117NP_Drawings_-_03_05_2013_5.pdf	1845643 443b9dddf89e75bafab5a7b6d884ac94b4152a77	no	8
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	36756 ad983c272be8e703b786f00af2f2e2de3abdebbe	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			2028965		

46
47

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

47
48

PTO/SB/17 (10-12)

Approved for use through 01/31/2014. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person are required to respond to a collection of information unless it displays a valid OMB control number

FEE TRANSMITTAL

Complete if Known

Application Number	Not Yet Assigned
Filing Date	Concurrently Herewith
First Named Inventor	Nicholas Williams
Examiner Name	Not Yet Assigned
Art Unit	N/A
Practitioner Docket No.	1252_117NP

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$)
688.00

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____
☒ Deposit Account Deposit Account Number: 08-0865 Deposit Account Name: Harris Beach PLLC

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayment of fee(s)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	390	195	620	310	250	125	533.00
Design	250	125	120	60	160	80	
Plant	250	125	380	190	200	100	
Reissue	390	195	620	310	760	380	
Provisional	250	125	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	62	31
Each independent claim over 3 (including Reissues)	250	125
Multiple dependent claims	460	230

Total Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)** **Multiple Dependent Claims**
25 - 20 or HP = 5 x = 155.00 **Fee (\$)** **Fee Paid (\$)**
HP = highest number of total claims paid for, if greater than 20.
Indep. Claims **Extra Claims** **Fee (\$)** **Fee Paid (\$)**
1 - 3 or HP = x =
HP = highest number of independent claims paid for, if greater than 3.

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$320 (\$160 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets **Extra Sheets** **Number of each additional 50 or fraction thereof** **Fee (\$)** **Fee Paid (\$)**
24 - 100 = /50 = (round up to a whole number) x =

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, \$400 fee (\$200 small entity)

Other (e.g., late filing surcharge):

SUBMITTED BY

Signature	/James R. Muldoon 38249/	Registration No. (Attorney/Agent)	38,249	Telephone	(315) 423-2021
Name (Print/Type)	James R. Muldoon	Date	March 5, 2013		

Fee Transmittal

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: March 5, 2013

Electronic Signature for Marie J. Parr: /Marie J. Parr/

48
49

PTO/AIA/15 (07-12)

Approved for use through 01/31/2014. OMB 0651-0032

U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY PATENT APPLICATION TRANSMITTAL (ONLY FOR NEW NONPROVISIONAL APPLICATIONS UNDER 37 CFR 1.53(B))	Attorney Docket No. 1252_117NP	
	First Inventor Nicholas Williams	
	Title	APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM
	Express Mail Label No.	

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	Commissioner for Patents ADDRESS TO: P.O. Box 1450 Alexandria, VA 22313-1450
--	--

1. ☒ Fee Transmittal Form. (PTO/SB/17 or equivalent) 2. ☒ Applicant claims small entity status. See 37 CFR 1.27. 3. ☒ Specification. [Total Pages <u>16</u>] Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP § 608.01(a)) 4. ☒ Drawing(s). (35 U.S.C. 113) [Total Sheets <u>8</u>] 5. Inventor's Oath or Declaration. [Total Sheets <u> </u>] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☐ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 6. ☒ Application Data Sheet. *See Note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 7. ☐ CD-ROM or CD-R. In duplicate, large table or Computer Program (Appendix) ☐ Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission. (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 9. ☐ Assignment Papers. (cover sheet & document(s)) Name of Assignee 10. ☐ 37 CFR 3.73(c) Statement. ☐ Power of Attorney. (when there is an assignee) 11. ☐ English Translation Document. (if applicable) 12. ☐ Information Disclosure Statement. (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 13. ☐ Preliminary Amendment. 14. ☐ Return Receipt Postcard. (MPEP § 503) (Should be specifically itemized) 15. ☐ Certified Copy of Priority Document(s). (if foreign priority is claimed) 16. ☐ Nonpublication Request. Under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. ☐ Other:
---	--

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
 (2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

18. CORRESPONDENCE ADDRESS					
☒ The address associated with Customer Number:		15204		OR ☐ Correspondence address below	
Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	
Signature	/James R. Muldoon 38249/			Date	March 5, 2013
Name (Print/Type)	James R. Muldoon			Registration No. (Attorney/Agent)	38,249

Utility Patent Application Transmittal	
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).	
Dated: March 5, 2013	Electronic Signature for Marie J. Parr: /Marie J. Parr/

49
50

APPARATUS AND METHOD FOR CLEANING THE BARREL OF A FIREARM

[0001] The present application draws priority from a pending provisional U.S. Provisional patent application, serial number 61/724,012, filed November 8, 2012.

Field of the Invention

[0002] The present disclosure relates generally to a system and tools for cleaning the interior of tubular members. More particularly, the disclosure relates to a tool comprising a central core supporting a region of overmolded elastomer around the cable core. The system may also include a tubular woven sheath surrounding at least a portion of the overmolded elastomer. The central core may include a fitting at one end and preferably at both ends for attachment to any of various auxiliary tools such as swabs, brushes, scrapers, handles, adapters and the like. The present disclosure also relates to a system and tools for the cleaning of the barrels of firearms such rifles, carbines, pistols.

Background of the Invention

[0003] Relatively narrow tubular members are inherently difficult to clean. Process fluids may contain impurities that are be deposited on the interior surface of a tubular member. Smaller diameter piping, drains, conduit and tubing may also have turns around which rigid rods and brushes may not be able to reach to scrub loose accumulated deposits. Heat, humidity and pressure may affect the rate and thickness of accumulated deposits.

[0004] The barrels of firearms are one form of tubular members that are difficult to clean. Carbon and other residue from gunpowder and from firearm discharge reactions accumulate in firearm barrels, with deleterious effects on cleanliness, performance, and longevity of the firearm. Such residues require partial disassembly of a weapon to access and clean the barrel and associated firing chamber. A number of specialized swabbing, brushing and scraping tools have been introduced to clean firearm components, but have had substantial shortcomings.

[0005] U.S. Patent No. 4,716,673 discloses a gun barrel cleaner comprising an elongated flexible shaft having a universal coupling secured to each opposite end and several different cleaning tips selectively threadably and detachably engageable with either universal

coupling. One cleaning tip, a gun barrel bore obstruction remover, comprises a cylindrical body portion having a concave face at one end and securing means at the other end for attaching the tip to the shaft. A compact cylindrical container for storing and conveniently transporting the gun barrel cleaner is provided. In addition, an improved method of attaching a cleaning patch to a gun barrel cleaning tip having a patch receiving slot is provided.

[0006] A disadvantage of this invention is that the cleaning patch is not integral with a brush or a scrubbing element of the tool. Therefore, cleaning operations will generally require more than a successive passes of the gun barrel cleaner through the barrel. For example, a first pass of the tool may include a slotted tip with a swab wetted with an appropriate solvent; a second pass may include pulling an appropriately sized bore brush; a third pass may include a clean swab pulled through the barrel to absorb the dislodged residue; and a fourth pass may include pulling another swab wetted with a preserving lubricant.

[0007] U.S. Patent Nos. 5,871,589 and 5,972,125 disclose a cleaning tool for cleaning the inside of gun barrels. The device consists of a metal brush which is enclosed within a tubular sheath of material, typically a woven fabric. The bristles of the brush extend through the wall of the woven sheath of fabric. The tubular sheath is pulled through a gun barrel and the bristles of the brush clean the inside of the gun barrel. Also enclosed within the tubular sheath are one or more foam inserts, or one or more cleaning regions formed by folding the cord within itself, either of which creates a bulge in the tubular sheath and cleans debris from the gun barrel, spreads gun cleaning solvent in the gun barrel, absorbs solvent and combustion and bullet residues, and spreads a layer of gun oil in the gun barrel.

[0008] A shortcoming of the device disclosed in both patents is that an attached flexible cord for pulling the sheath through the barrel does not extend throughout the length of the sheath. Because the sheath is longitudinally stretchable, the device can jam in a firearm barrel and become difficult to remove. Further, the preferred material of the sheath is a synthetic polymer that is not as absorbent as a natural fiber such as cotton, resulting in less effective presentation of cleaning solvent and/or lubricant against the surface of the barrel, which effect is compounded by a reduction in effective diameter of the sheath under tension. Once jammed, excessive tensile force on the flexible lead cord may result in a failure of the cord, the synthetic sheath or the sewn connection therebetween. As the flexible cord lacks a semi-rigid core, it is frequently difficult to feed or thread the flexible cord through the tubular

31
52

member, particularly when the bore of the tube or gun barrel is partially obstructed by mud, debris, an excessive accumulation of carbon residue, or a combination thereof.

Consequently, a further disadvantage is that the flexible shaft does not comprise an integral gun barrel obstruction remover. Further, no fitting is provided at the leading or trailing end of the sheath for attachment of auxiliary cleaning tools as may be desirable.

Summary of the Invention

[0009] Briefly described, an apparatus for cleaning the barrel of a firearm or other tubular member comprises a tubular woven sheath having a lead end and a trailing end as defined by passage of the apparatus through a gun barrel. A central core which is substantially unyielding in the axial direction for gun barrel cleaning is disposed within the woven sheath. In one aspect of the invention, the central core comprises a cable of twisted strands of metal or non-metallic material. Alternatively, the central core may comprise a single filament, wire, or a woven or extruded cord of metal or non-metallic material. The sheath extends over a substantial part of the central core and, preferably, extends beyond one or both ends of the sheath. A region of the central core beneath the sheath is overmolded with a thermoplastic elastomer that radially distends the sheath to approximately the diameter of a specific caliber gun barrel to be cleaned. The thermoplastic elastomer is slightly compressible to reduce the risk of any jamming of the gun barrel cleaner within the barrel. The central core includes a fitting at one end and preferably at both ends for attachment to any of various auxiliary tools such as swabs, brushes, tips, scrapers, a T-handle, and the like, as well as an extender. The fittings may be crimped, bonded or cold welded to the central core ends and may include male or female threads or quick release mechanism complementary to the fittings of the auxiliary tools. Preferably, the outer surface of the elastomer region is provided with patterned protrusions that urge the sheath into the rifling in the barrel bore. Preferably, the protrusions are formed to urge the sheath and central core to twist along the lands of the rifling. In one embodiment, the protrusions are discontinuous ridges that follow a helical line that is complementary to the helical rifling on the interior of the gun barrel.

[0010] Preferably, the sheath is woven of primarily a natural fiber such as cotton. Additional special-purpose threads, such as fiber-optic, luminescent or phosphorescent

threads, heat resistant materials and/or staple set formed textured threads, may also be woven into the sheath. In another aspect of the invention, one or more sections of additional absorbent material, such as a thin cylindrical sponge, may also be disposed within the sheath, preferably at the lead end thereof, ahead of the overmolded thermoplastic region for the application of cleaning solvent.

[0011] According to one aspect, the invention features a device for cleaning the barrel of a firearm comprising a central member defining a core and having a longitudinal length, a leading end and a trailing end; a tubular woven sheath surrounding said central member and having a lead end and a trailing end; and a radial protrusion formed of a polymer disposed about said central member between said central member and said tubular woven sheath.

[0012] In one embodiment of the gun barrel cleaning device, the central member is selected from the group consisting of rope, cord, rod, wire, twisted cable, and braided cable.

[0013] In yet another embodiment, the central member further comprises is a metal cable.

[0014] In yet another embodiment, the central member further comprises a protective coating

[0015] In yet another embodiment, the central member has a fitting at one end adapted to attach an auxiliary tool selected from the group consisting of brushes, scrapers, tips, swabs, handles, adapters and extender cables.

[0016] In yet another embodiment, the tubular woven sheath comprises a natural fiber.

[0017] In yet another embodiment, the tubular woven sheath further a fiber of abrasive materials selected from the group consisting of nylon, polystyrene, acetals, acrylics, and brass.

[0018] In yet another embodiment, the tubular woven sheath comprises heat resistant materials selected from the group consisting of meta-aramids, NOMEX, para-aramids, KEVLAR, fiberglass, and K-fiber.

[0019] In yet another embodiment, the tubular woven sheath includes a fiber selected from the group consisting of fiber-optic, luminescent and phosphorescent to provide for auxiliary lighting for visual inspection of said gun barrel.

[0020] In yet another embodiment, the sheath further comprises staple set formed textured threads.

53
54

- [0021] In yet another embodiment, the sheath is retained over the apparatus by the tight fit of the tubular woven sheath over the radial protrusions.
- [0022] In yet another embodiment, the woven tubular woven sheath further comprises elasticized threads to assist in the removal and replacement of the tubular woven sheath over the device.
- [0023] In yet another embodiment, the outer diameter of said radial protrusion is approximately equal to a diameter of the bore of said gun barrel.
- [0024] In yet another embodiment, the radial protrusion is formed of a thermosetting rubber polymer.
- [0025] In yet another embodiment, the radial protrusions are formed by overmolding onto said central member.
- [0026] In another embodiment of the gun barrel cleaning device, there are a plurality of radial protrusions molded over the central member.
- [0027] In yet another embodiment, the radial protrusions form discontinuous ridges
- [0028] In yet another embodiment, adjacent radial protrusion are disposed in progressive angular rotation about said central member.
- [0029] In yet another embodiment, the radial protrusion is helically oriented along the longitudinal length of said central member.
- [0030] In yet another embodiment, the helical orientation of said radial protrusion in the same direction as a rifling within said gun barrel.
- [0031] In yet another embodiment, the plurality radial protrusions urge the sheath to engage rifling lands within in the gun barrel.
- [0032] In yet another embodiment, the central member is formed with a natural curl to promote laterally coiling in storage.
- [0033] In another embodiment, the gun barrel cleaning device further comprises absorbent material disposed between said central member and said tubular woven sheath.
- [0034] In yet another embodiment, the gun barrel cleaning device further comprises a crimping ring to attach the sheath to the central member.
- [0035] In yet another embodiment, the crimping ring retains a leading edge of the sheath in place over the central member.

SA
SS

[0036] In yet another embodiment of the invention, a device for cleaning tubular member comprises a central member defining a core having a leading end and a trailing end and an overmolded polymer profile comprising a plurality of radial protrusions. The radial protrusions are preferably helically displaced about the polymer profile to wipe fluids and semi-solids from the interior of the tubular member. The helical radial protrusions may be discontinuous to prevent over-accumulation of dislodged residue that might otherwise jam the cleaning tool within the tubular member.

Brief Description of the Drawings

[0037] The features described herein can be better understood with reference to the drawings described below. The drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention. While the particular embodiments are described in relation to cleaning the interior of a gun barrel, individuals skilled in the art will recognize and understand that the disclosure and embodiments herein are equally applicable to cleaning pipes, conduits and tubing that is both straight and curved. In the drawings, like numerals are used to indicate like parts throughout the various views:

[0038] FIG. 1 is a longitudinal cross-sectional view of a gun barrel cleaning apparatus in accordance with the present invention;

[0039] FIG. 2 is an elevational view of a portion of a tubular woven sheath in accordance with the present invention;

[0040] FIG. 3 is an elevational view of a foldable T-handle, also referred to interchangeably herein as a “pull-through handle tool”, formed for passage in folded configuration through the barrel of a weapon;

[0041] FIG. 4A is an elevational view of a portion of the apparatus shown in FIG. 1 showing a central core having a feature comprising a plurality of radial protrusions;

[0042] FIG. 4B is an elevational view of another embodiment of the portion of the apparatus shown in FIG. 4A comprising a central core having an overmolded plurality of helical radial protrusions;

[0043] FIG. 5 is a photographic depiction of the central core and feature shown in FIG. 4;

[0044] FIG. 6 depicts an embodiment of a central member having fittings on the leading and trailing ends thereof in a coiled position;

[0045] FIG. 7 depicts an assortment of typical auxiliary tools adapted to attach to the fittings at the end of the central member;

[0046] FIG. 8 depicts a cylindrical section of sponge or other absorbent material;

[0047] FIG. 9a depicts a crimping ring retaining the tubular woven sheath on the central member; and

[0048] FIG. 9b depicts another embodiment wherein the crimping ring retains the sheath against a fitting at the end of the central member.

Detailed Description of the Invention

[0049] Referring to FIGS. 1 and 2, an apparatus 10 (also referred to herein as a “tool” or “gun barrel cleaner”) for cleaning the barrel of a weapon or other tubular member comprises a tubular woven sheath 12 having a lead end 14 and a trailing end 16 as defined by passage of the apparatus through the barrel. Tool 10 may be passed through a barrel in either direction although it is preferable to pass the tool from the firing chamber toward the muzzle of the barrel to reduce the accumulation of dislodged residue in the firing and loading mechanisms within the chamber and receiver of the firearm and reduce the incidence of failure of such mechanisms. An elongate central member 18 defines a core disposed within tubular woven sheath 12 and generally extending the length of sheath 12 and, in one embodiment, some length 20a, 20b beyond one or both ends of sheath 12.

[0050] With reference to FIGS. 4A and 4B, a region 22 of central member 18 is provided with one or more attached feature 24 (or plurality of features 24) formed of a polymer. The leading end of the region 23 of the overmolded material may have a tapered form to reduce the likelihood of the leading end catching on debris, accumulated deposits, rifling within a barrel or a joint between adjoining sections of pipe or other tubular members, and the tool 10 is threaded or pulled through the tubular member in the direction of the arrow in FIG 4B. Feature 24 is preferably formed of a thermosetting rubber polymer by injection overmolding onto the central member 18. A wide variety of thermoplastic elastomers may be used. In one preferred embodiment the thermoplastic elastomer has a Shore A durometer

hardness of approximately 60. Each feature 24 extends at least partially, and preferably fully, around central member 18 and radially distends the overlying region of sheath 12 to approximately the diameter of any specific caliber gun barrel, or range of gun barrel calibers, that tool 10 is intended to clean. Depending on the presence and/or thickness of the sheath and the elasticity of the polymer, the outer diameter of the protrusions may be slightly less than or slightly greater than the diameter of the barrel or other tubular member intended to be cleaned by the tool. Successive features 24 are preferably disposed in progressive angular rotation about central member 18. Each feature 24 is provided with at least one, and preferably two, radial protrusions 26. Preferably, feature 24 is provided as a plurality of substantially similar sub-features 24 helically oriented around central member 18 such that successive protrusions 26 urge the overlying fibers of sheath 12 to engage and follow the rifling lands in the barrel inner surface. The resulting twisting action imparted to sheath 12 provides superior cleaning of both the leading and trailing sides of each rifling land. The orientation of helical protrusions may be in either the same direction as or counter to the rifling of the gun barrel. The preferred helical orientation of the protrusions reduces the incidence of excess accumulations of dislodged residue forming along an annular protrusion that might otherwise result in jamming of the tool within a barrel or other tubular member. The region of the central member provided with protrusions may be adjacent the leading edge, the trailing edge or the middle portion of the tool. In another aspect of the invention, the tool may include more than a single portion provided with protrusions.

[0051] Central member 18 may comprise any material or elongate form, e.g., fiber rope or cord, rod, wire, or twisted or braided cable and may be rigid, semi-rigid or semi-flexible. The rigid or semi-rigid structure of tool 10 makes it an excellent gun barrel obstruction remover. It is preferable for the central member to have sufficient rigidity to be easily threaded or passed through the tubular member. A currently preferred material and form are a cable formed of a metal such as galvanized steel, preferably formed to have a natural curl for ease of laterally coiling in storage and preferably having a protective plastic coating. The protective plastic coating reduces the risk of scratching gun components and the potential for fraying of the cable. With respect to the cleaning of tubular members other than gun barrels, a semi-rigid structure of the core may accommodate some slight or eventual curves in the interior of a pipe, conduit or tube. However, a semi-flexible core member is

preferable for cleaning sections of pipe, conduit or tubes having substantially curved shapes and turns between straight segments of tubular members.

[0052] With reference to FIGS. 7, 9a and 9b, central member 18 preferably includes a fitting 28 at one end, and preferably at both ends, for attachment to any of various auxiliary tools such as swabs 41, brushes 43, scrapers 45, tips 47, a T-handle 51, and the like, as well as a cable extender and/or serially connection additional gun barrel cleaning tools 10. The fittings may be crimped, bonded or cold welded to the end of the central member. The fittings 28 may have internal or external threads 29 or other quick connect mechanisms to couple with the fittings of the auxiliary tools as depicted in FIG. 7.

[0053] In one aspect of the invention, the fittings 28 may also be sized and configured to attach one or both of the leading or trailing end of the sheath to the central member. Alternatively, as depicted in FIGS. 9a and 9b, a separate crimping ring 55 or other suitable connector may be utilized over the sheath 12 and the central member 18 or the fitting 28 to retain the edge of the sheath in place over the central core 18, overmolded protrusions 26 and absorbent material 53.

[0054] In another aspect of the invention, the sheath 12 is not connected to the fittings or central member 18, but held in place by the tight fit of the woven sheath 12 over the protrusions 26. In another aspect, the sheath may be removable from the tool for cleaning to remove build-up of removed residue. The sheath 12 may include elasticized threads to assist in the removal, cleaning and/or replacement of the sheath. Alternatively, cleaning may be accomplished by soaking the coiled tool in a suitable detergent solution and rinsed to remove the accumulated build-up of dislodged residue.

[0055] Preferably, sheath 12 is woven of primarily a natural fiber such as cotton, although synthetic fiber may be included; and 100% synthetic fiber is fully comprehended by the invention. Many natural fibers are sufficiently absorbent to retain adequate amounts of cleaning solvent without the need for sections of additional absorbent sponges between the sheath and the core. Additional special-purpose threads, such as fiber-optic 12a, phosphorescent or luminescent threads 12b, may also be woven into the sheath to provide, for example, auxiliary lighting for visual inspection of a gun barrel for cleanliness as tool 10 is withdrawn. In another aspect of the invention, the woven sheath may comprise fibers of heat resistant materials, such as meta-aramids, NOMEX, para-aramids, KEVLAR, fiberglass, K-

58
59

fiber, or the like. In another aspect of the invention, synthetic fibers, such as nylon, polystyrene, acetals, acrylics or the like, or metallic thread, such as brass or the like, may be incorporated into the sheath to increase the abrasive characteristic of the sheath to assist in removal stubborn residue from the barrel. Sheath 12 may be woven, for example, on a tubular commercially available braiding machine

[0056] In another aspect of the invention, where the sheath is comprised of heat resistant fibers or materials, cleaning of the sheath could be performed by the application of sufficient heat to burn off the accumulated residue. For example, the tool 10 or the sheath 12 could be placed in an oven at a temperature below the melting or deformation temperature of the fibers such that any dirt or carbon residue detaches from the fibers of the sheath.

[0057] Preferably, additional absorbent material, such as a thin cylindrical sponge 53 may be disposed about the central member and may be placed between the central member and the sheath. In one embodiment, at least one section of absorbent material is disposed about the central member at the lead end thereof, ahead of overmolded thermoplastic region 22 to assist in the application of cleaning solvent to the accumulated deposits or residue within a gun barrel. In another aspect of the invention, a second area of sponge material is disposed within the sheath adjacent to trailing end thereof to apply an even coating of lubricant or other corrosion resistant fluid. The absorbent material may hold additional solvent or lubricant that is applied as the gun barrel cleaner is pulled through the barrel. In another aspect of the invention, the natural fibers of the sheath or woven sheath are sufficiently absorbent to apply sufficient amounts of solvents and/or lubricants during the passing of the cleaner through the gun barrel in a single pass or multiple passes.

[0058] In another aspect of the invention, the gun barrel cleaner 10 may include successive or alternating areas of overmolded protrusions 26 and/or absorbent materials 53 to perform multiple cleaning operations in a single pass of the cleaner. For example, a first area of absorbent material is disposed closer to the leading end of the cleaner to apply a cleaning solvent. A second area of absorbent material is disposed adjacent to the trailing end of the gun barrel cleaner to apply a layer of protective lubricant. In between the areas of absorbent material, at least one area of overmolded protrusions is disposed to clean or abrasively scrub the interior of the gun barrel.

[0059] In another aspect of the invention, two sections of the gun barrel cleaner may be connected through a complementary fitting and/or adapter to clean longer gun barrels. In another aspect of the invention, two sections may be connected to complementary fittings at each end of an appropriately sized bore brush where additional abrasive force may need to be supplied.

[0060] In another aspect of the invention, the gun cleaning tool may be used to preserve the gun during storage. Preferably, when used for such purposes, the tool will include at least two areas of either overmolded thermoplastic elastomer or absorbent materials at intervals that approximate the overall length of the gun barrel. At least a portion of the sheath between two areas is treated with a vapor corrosion inhibitor. Alternatively, the vapor corrosion inhibitor could be molded or extruded within the plastic protective coating of the central member or the fibers of the sheath. When the tool is stored within the barrel for extended periods of time, the vapor corrosion inhibitor will off-gas to line the interior of the gun barrel with a protective coating to resist corrosion. The two overmolded or absorbent areas will fit relatively tightly within the barrel to retain the off-gassed corrosion inhibitor within the barrel to protect the barrel from corrosion.

[0061] Referring now to FIG. 3, an exemplary foldable T-handle 40, comprising a threaded shaft 42 having a longitudinal well 44 and a pivotable handle 46 attached to shaft 42 by pin 48 formed for passage in folded configuration through the bore of a weapon, is attachable to either of fittings 28, either before or after passage through a gun barrel of a leading end of apparatus 10, to assist a user in pulling apparatus 10 through a gun barrel. Where embodiments of the invention are used to clean the interior of tubular members having curved shapes, the T-handle is preferably attached to the fitting at the leading end of the central member after it is threaded through the tubular member. Where the interior of the tubular member is straight, a slim profile T-handle may be attached to the fitting at the leading end of the central member, or may be integrated with the fitting at the leading end of the central member. An exemplary slim profile T-handle is disclosed in U.S. Patent Application Ser. No. 13/448,973 entitled "Firearm Pull-Through Cleaning Tool with Integrated Foldable Handle," filed on April 17, 2012 assigned to the common assignee of this application, which is hereby incorporated by reference in its entirety.

60
61

[0062] The respective thicknesses of the central core, protective layer, overmolded protrusions, absorbent materials and the woven sheath may be varied to change the radial width of the tool to fit the gun barrels of differing calibers. Alternatively, the compressibility of the overmolded protrusions, absorbent material and/or the woven sheath may also be increased so that a single tool may appropriately clean a range of calibers of gun barrels.

[0063] In another aspect of the invention, the natural fibers of the sheath and any absorbent material disposed beneath the sheath or at the trailing end of the central member may be used to absorb and remove spent cleaning fluids containing dislodged residue. However, the overmolded thermoplastic region has been successfully deployed to clean a variety of relatively narrow tubular members without a sheath. The plurality of protrusions, including particularly, a pair of the helical protrusions, formed around the overmolded thermoplastic region is effective at removing liquids and semi-solids such as grease and congealed oils, from narrow drains. The plurality of protrusions wipe excess accumulations of liquids and semi-solids in the manner of a squeegee from the interior of a pipe or drain. Even where a pipe or drain includes a catch or other curved portion, embodiments of the invention utilizing a semi-flexible central member were threaded through the drain and pulled through the tubular member. This embodiment removed excess accumulations of grease and spent oils in a small fraction of the time of other common methods.

[0064] While the present invention has been described with reference to a number of specific aspects or embodiments, it will be understood that the true spirit and scope of the invention should be determined only with respect to claims that can be supported by the present specification. While the particular embodiments may have been described in relation to cleaning the interior of a gun barrel, individuals skilled in the art will recognize and understand that the disclosure and embodiments herein are equally applicable to cleaning pipes, drains, conduits and tubing that is both straight and curved. Further, while in numerous cases herein wherein systems and apparatuses and methods are described as having a certain number of elements it will be understood that such systems, apparatuses and methods can be practiced with fewer than the mentioned certain number of elements. Also, while a number of particular embodiments have been described, it will be understood that features and aspects that have been described with reference to each particular embodiment can be used with each remaining particularly described embodiment.

81
62

What Is Claimed Is:

1. A device for cleaning the barrel of a firearm comprising:
 - a) a central member defining a core and having a longitudinal length, a leading end and a trailing end;
 - b) a tubular woven sheath surrounding said central member and having a lead end and a trailing end; and
 - c) a radial protrusion formed of a polymer disposed about said central member between said central member and said tubular woven sheath.
2. The gun barrel cleaning device of claim 1 wherein said central member is selected from the group consisting of rope, cord, rod, wire, twisted cable, and braided cable.
3. The gun barrel cleaning device of claim 2 wherein said central member further comprises is a metal cable.
4. The gun barrel cleaning device of claim 2 wherein said central member further comprises a protective coating
5. The gun barrel cleaning device of claim 3 wherein said central member has a fitting at one end adapted to attach an auxiliary tool selected from the group consisting of brushes, scrapers, tips, swabs, handles, adapters and extender cables.
6. The gun barrel cleaning device of claim 1 wherein said tubular woven sheath comprises a natural fiber.
7. The gun barrel cleaning device of claim 6 wherein said tubular woven sheath further a fiber of abrasive materials selected from the group consisting of nylon, polystyrene, acetals, acrylics, and brass.

67
63

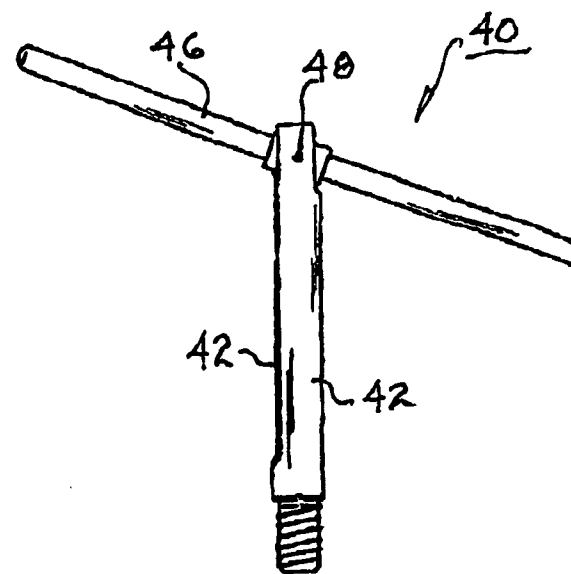
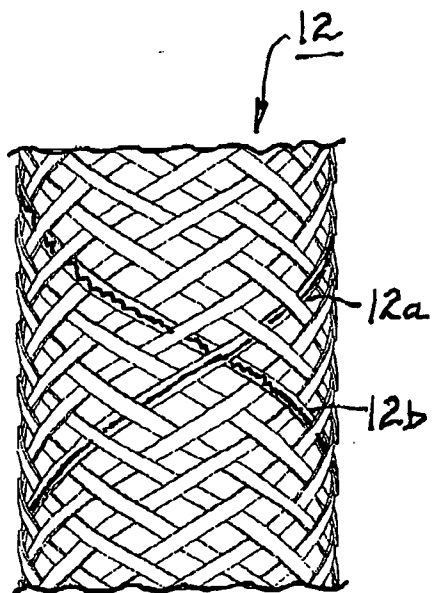
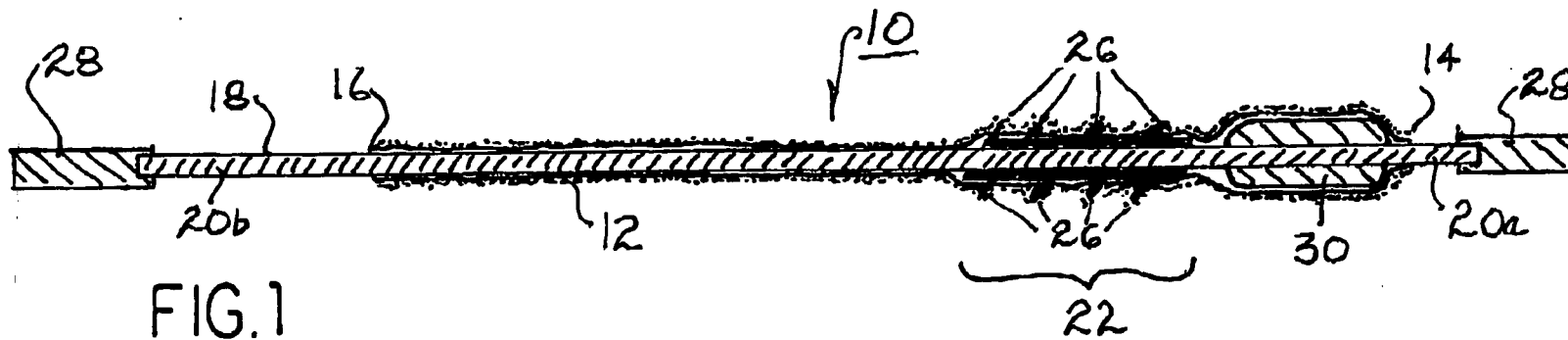
8. The gun barrel cleaning device of claim 1 wherein said tubular woven sheath comprises heat resistant materials selected from the group consisting of meta-aramids, NOMEX, para-aramids, KEVLAR, fiberglass, and K-fiber.
9. The gun barrel cleaning device of claim 1 wherein said tubular woven sheath includes a fiber selected from the group consisting of fiber-optic, luminescent and phosphorescent to provide for auxiliary lighting for visual inspection of said gun barrel
10. The gun barrel cleaning device of claim 1 wherein said sheath further comprises staple set formed textured threads.
11. The gun barrel cleaning device of claim 1 wherein the sheath is retained over the apparatus by the tight fit of the tubular woven sheath over the radial protrusions.
12. The gun barrel cleaning device of claim 1 wherein the woven tubular woven sheath further comprises elasticized threads to assist in the removal and replacement of the tubular woven sheath over the device.
13. The gun barrel cleaning device of claim 1 wherein an outer diameter of said radial protrusion is approximately equal to a diameter of the bore of said gun barrel.
14. The gun barrel cleaning device of claim 13 wherein said radial protrusion is formed of a thermosetting rubber polymer.
15. The gun barrel cleaning device of claim 14 wherein said radial protrusions are formed by overmolding onto said central member.
16. The gun barrel cleaning device of claim 1 comprising a plurality of radial protrusions.
17. The gun barrel cleaning device of claim 16 wherein the radial protrusions form discontinuous ridges

63
64

18. The gun barrel cleaning device of claim 16 wherein adjacent radial protrusion are disposed in progressive angular rotation about said central member.
19. The gun barrel cleaning device of claim 1 wherein the radial protrusion is helically oriented along the longitudinal length of said central member.
20. The gun barrel cleaning device of claim 19 wherein the helical orientation of said radial protrusion in the same direction as a rifling within said gun barrel.
21. The gun barrel cleaning device of claim 18 wherein the plurality radial protrusions urge the sheath to engage rifling lands within in the gun barrel.
22. The gun barrel cleaning device of claim 1 wherein said central member is formed with a natural curl to promote laterally coiling in storage.
23. The gun barrel cleaning device of claim 1 further comprises absorbent material disposed between said central member and said tubular woven sheath.
24. The gun barrel cleaning device of claim 1 further comprising a crimping ring to attach the sheath to the central member.
25. The gun barrel cleaning device of claim 1 wherein the crimping ring retains a leading edge of the sheath in place over the central member.

94
65**Abstract:**

A device for cleaning the barrel of a firearm comprising a longitudinal central member having a leading end and a trailing end; a tubular woven sheath surrounding said central member; and a radial protrusion formed of a polymer disposed about said central member and under the tubular woven sheath. The radial protrusions are overmolded thermoplastic that distends the sheath radially to the internal diameter of gun barrel. The central member may include a fitting for attachment to various auxiliary tools or a T-handle. The surface of the polymer is provided with helical pattern of protrusions formed to urge the sheath against the lands of barrel rifling. The sheath is woven of primarily a natural fiber such as cotton. Luminescent, abrasive or heat resistant threads may also be woven into the sheath. A sponge material may be disposed between the sheath and the central member.



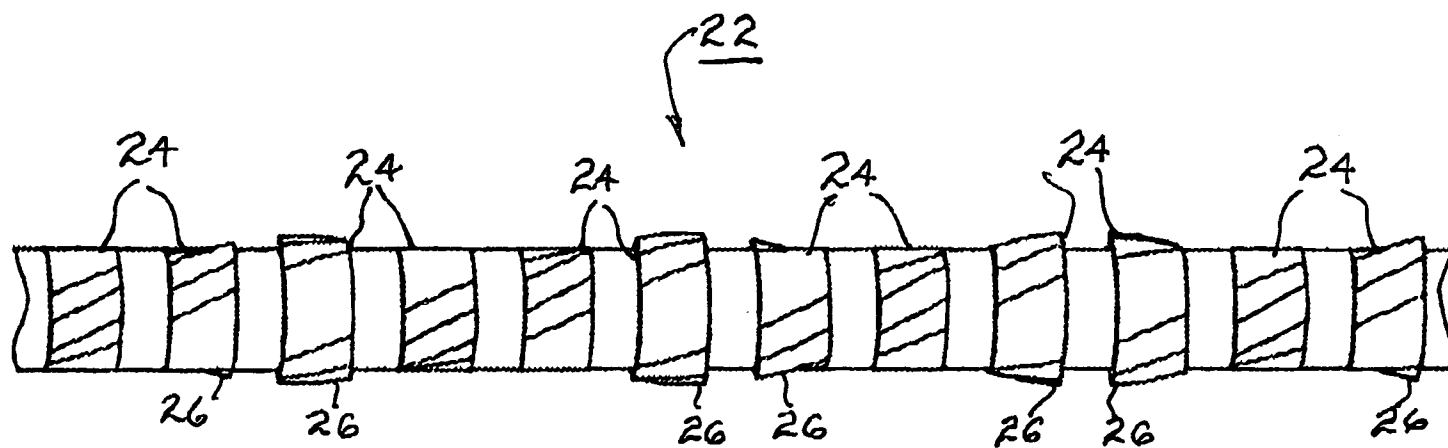


FIG. 4A

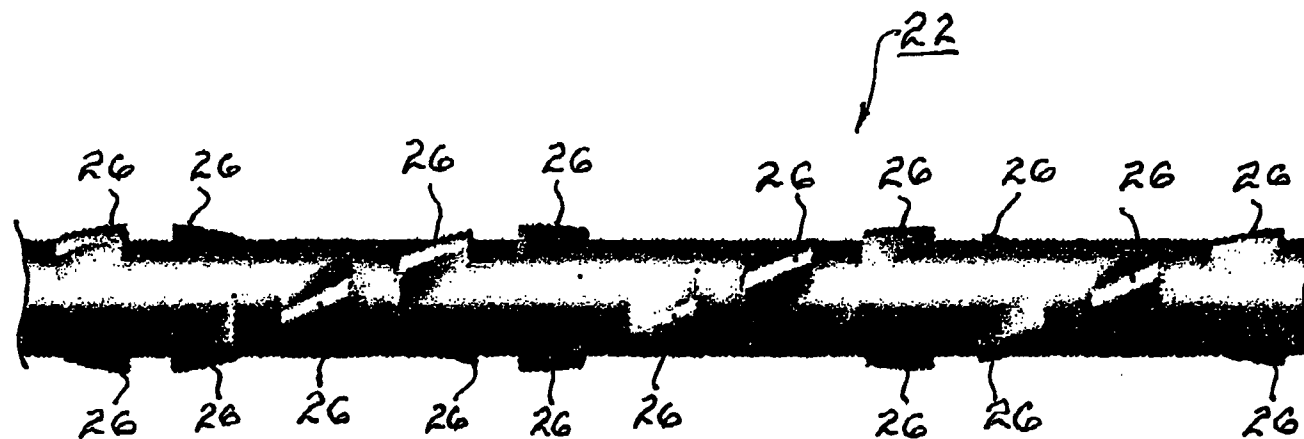


FIG. 5

67

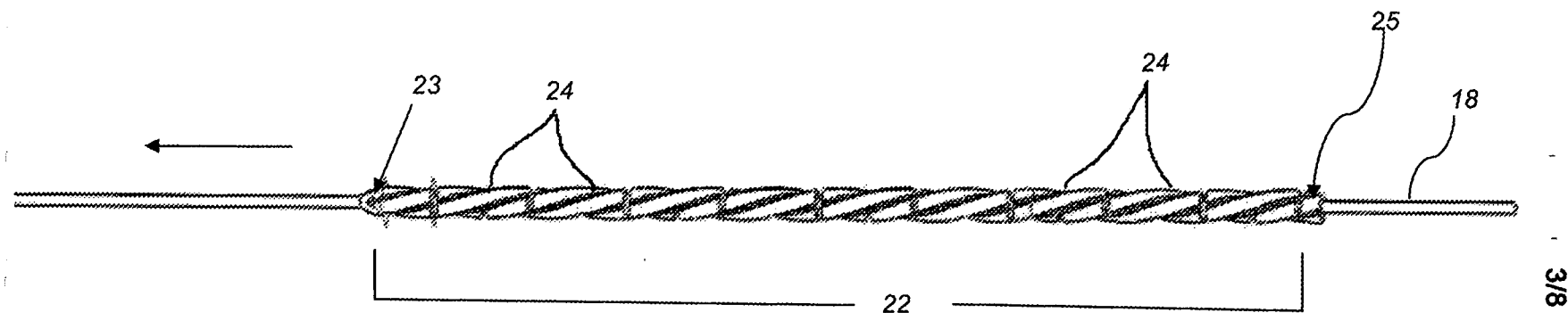


FIG 4B

68
69

4/8

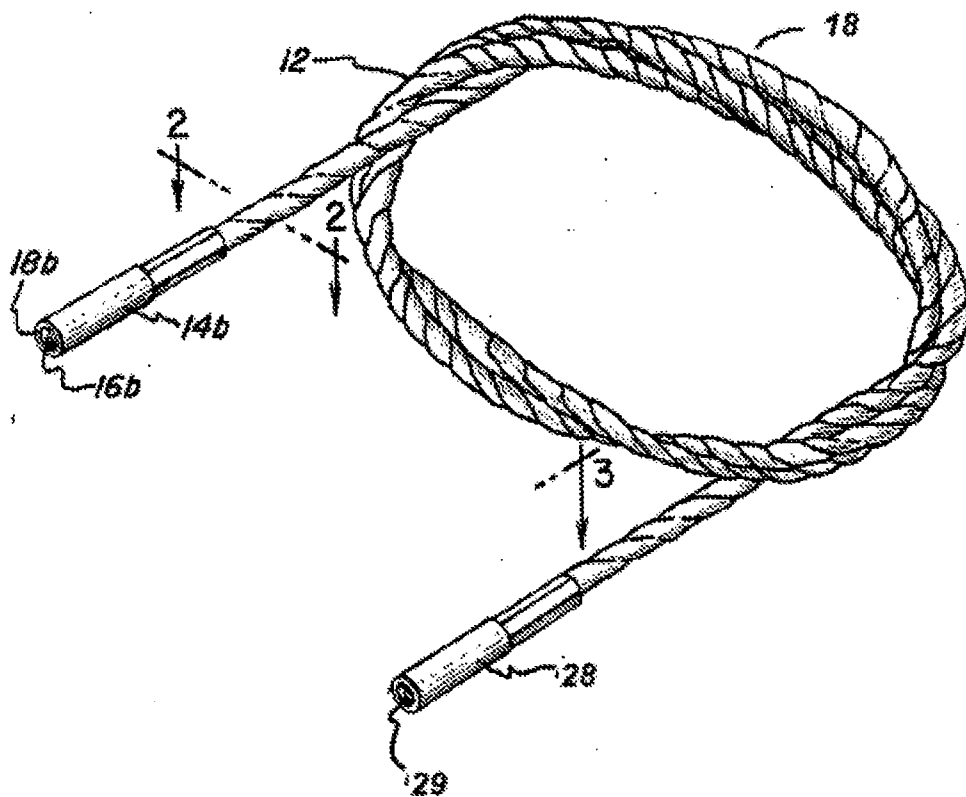


FIG. 6

89
70

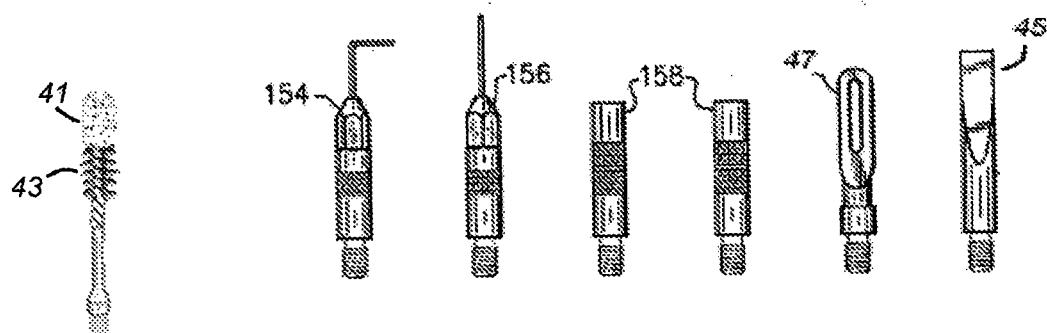


FIG. 7

70
71

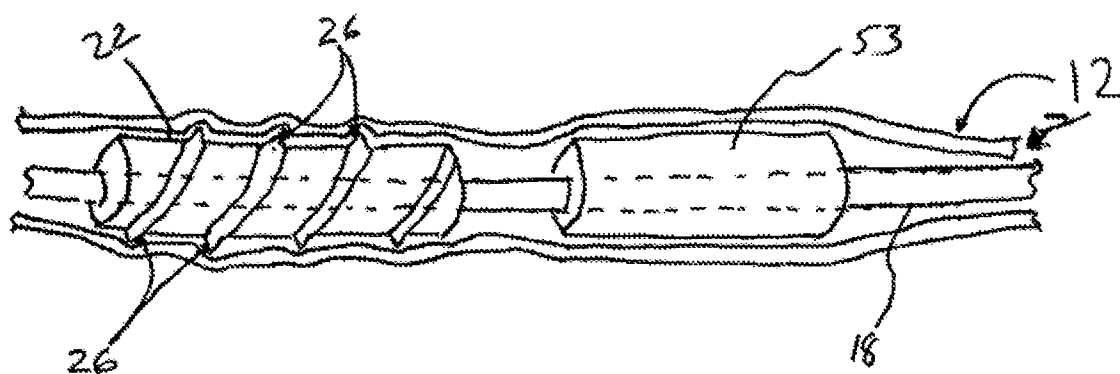


FIG. 8

71
72

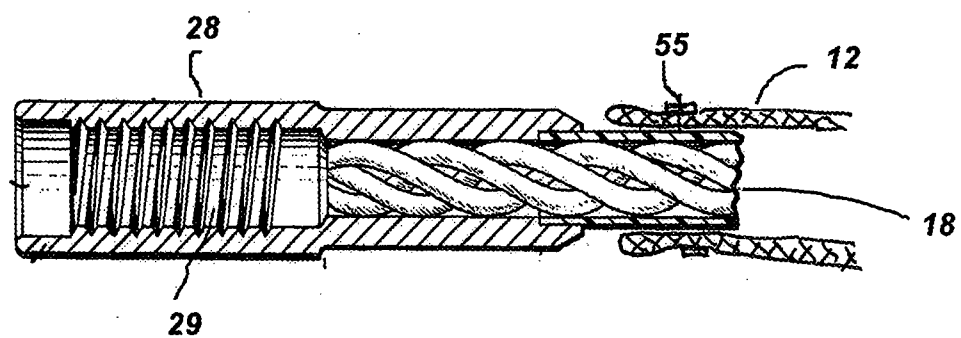


FIG. 9a

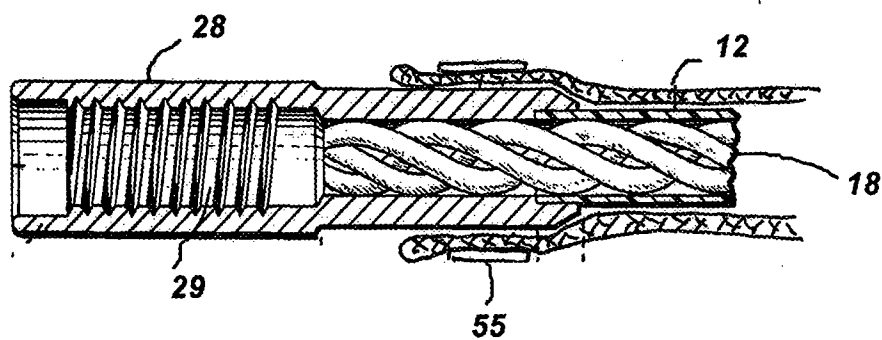


FIG. 9b

73
74

Application Data Sheet

Inventor Information

Inventor Number:: 1
Name Prefix:: Mr.
Given Name:: Nicholas
Family Name:: Williams
City of Residence:: Naples
State or Province of Residence:: FL
Country of Residence:: US
Street of mailing address:: 152 Flamingo Avenue
City of mailing address:: Naples
State or Province of mailing address:: FL
Postal or Zip Code of mailing address:: 34108

Inventor Number:: 2
Name Prefix:: Mr.
Given Name:: James
Middle Name:: R.
Family Name:: Brooker
City of Residence:: Constantia
State or Province of Residence:: NY
Country of Residence:: US
Street of mailing address:: 197 County Route 23A
City of mailing address:: Constantia
State or Province of mailing address:: NY

74
75

Postal or Zip Code of mailing address:: 13044

Correspondence Information

Correspondence Customer Number:: 15204

Application Information

Application Type:: Regular

Subject Matter:: Utility

CD-ROM or CD-R?:: None

Sequence submission?:: None

Computer Readable Form (CRF)?:: No

Title:: APPARATUS AND METHOD FOR
CLEANING THE BARREL OF A FIREARM

Attorney Docket Number:: 1252_117NP

Request for Early Publication?:: No

Request for Non-Publication?:: No

Suggested Drawing Figure:: 1

Total Drawing Sheets:: 8

Small Entity?:: Yes

Petition included?:: No

Secrecy Order in Parent Appl.?:: No

Authorization to Permit Access:: No

Representative Information

Representative Customer Number:: 15204

75
76

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	An application claiming the benefit under 35 USC 119(e)	61/724,012	11/08/12

Foreign Priority Information

Applicant Information

Applicant Number:: 1

Applicant Type:: Assignee

Organization Name:: The Otis Patent Trust

Street of mailing address:: P.O. Box 582

City of mailing address:: Lyons Falls

State or Province of mailing address:: NY

Postal or Zip Code of mailing address:: 13368

Non-Applicant Assignee Information

76
77

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.			
Signature	/James R. Muldoon 38249/	Date	March 5, 2013
Name (Print/Type)	James R. Muldoon	Registration No. (Attorney/Agent)	38,249

TRADUCCIÓN OFICIAL No. 13/235 de un documento escrito en inglés, el cual para su identificación se sella con el sello del traductor al tiempo con la presente. Esta traducción ha sido preparada por Juan Pablo Piedrahita Aguilera, Traductor e Intérprete Oficial debidamente reconocido de conformidad con el Certificado de Idoneidad Profesional No. 0045 expedido por la Universidad Nacional de Colombia, por el Ministerio de Relaciones Exteriores y autorizado por el Ministerio del Interior y de Justicia, por resolución número 718 de 2003

(Se traducen las reivindicaciones de la Solicitud de Patente No. 13/785,966 con su respectivo certificado de la Oficina de Marcas y Patentes de los Estados Unidos, escritos en inglés.)

AS 126.257

A 7448757

ESTADOS UNIDOS DE AMÉRICA

A TODOS A QUIENES ESTOS PRESENTES LLEGAREN:

DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS

OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS

Noviembre 20 de 2013

POR EL PRESENTE CERTIFICO QUE ADJUNTA SE ENCUENTRA UNA COPIA FIEL DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AQUELLOS DOCUMENTOS DE LA SOLICITUD DE PATENTE IDENTIFICADA A CONTINUACIÓN QUE CUMPLIERON CON LOS REQUISITOS PARA QUE SE LE OTORGARA UNA FECHA DE PRESENTACIÓN BAJO EL CÓDIGO DE LOS ESTADOS UNIDOS 35 USC 111.

NÚMERO DE SOLICITUD: 13/785,966

FECHA DE PRESENTACIÓN: *Marzo 5, 2013*

EL CÓDIGO DEL PAÍS Y EL NÚMERO DE SOLICITUD DE PRIORIDAD A SER USADOS EN EL EXTRANJERO BAJO LA CONVENCION DE PARÍS ES **US13/785,966**

Por autoridad de

Bajo la Secretaría de Comercio para Propiedad intelectual

y del Director de la Oficina de Patentes y Marcas de los Estados Unidos

(Firmado.) T. LAWRENCE

Funcionario que Certifica

(SELLO DE OBLEA DE LA OFICINA DE PATENTES Y MARCAS DE LOS ESTADOS UNIDOS DE AMÉRICA)

TRADUCCION OFICIAL No. 13/235
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

78
74

Expediente No. 1252_117NP

Lo que se reivindica es:

1. Un dispositivo para limpiar el cañón de un arma de fuego que comprende:
 - a) un elemento central que define un núcleo y que tiene una longitud longitudinal, un extremo que va adelante y un extremo que va detrás;
 - b) una funda tubular tejida alrededor de dicho elemento central y que tiene un extremo que va adelante y un extremo que va detrás;
 - c) una protuberancia radial formada por un polímero dispuesto alrededor de dicho elemento central entre dicho elemento central y dicha funda tubular tejida.
2. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicho elemento central se selecciona del grupo consistente de lazo, cuerda, varilla, alambre, cable entorchado, y cable trenzado.
3. El dispositivo para limpiar el cañón del arma de la reivindicación 2 donde dicho elemento central además comprende un cable de metal.
4. El dispositivo para limpiar el cañón del arma de la reivindicación 2 donde dicho elemento central además comprende un recubrimiento protector.
5. El dispositivo para limpiar el cañón del arma de la reivindicación 3 donde dicho elemento central tiene un acople en un extremo adaptado para fijar una herramienta auxiliar seleccionada del grupo consistente en cepillos, raspadores, puntas, paños, manijas, adaptadores y cables de extensión.
6. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicha funda tubular tejida comprende una fibra natural.
7. El dispositivo para limpiar el cañón del arma de la reivindicación 6 donde dicha funda tubular tejida además comprende una fibra de materiales abrasivos seleccionada del grupo consistente en nylon, poliestireno,

TRADUCCION OFICIAL No. 13/235
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

79
80

acetales, acrílicos y latón.

Copia suministrada por la Oficina de Patentes y marcas de los Estados Unidos de la Base de Datos de Imágenes IFW el 11/14/2013

Expediente No. 1252_117NP

8. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicha funda tubular tejida comprende materiales resistentes al calor seleccionados del grupo consistente en meta-aramidas, NOMEX, para-aramidas, KEVLAR, fibra de vidrio y fibra-K.
9. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicha funda tubular tejida incluye una fibra seleccionada del grupo consistente en fibra óptica, luminiscente y fosforescente para suministrar iluminación auxiliar para la inspección visual de dicho cañón.
10. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicha funda además comprende un conjunto de grapas formando hilos texturizados.
11. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde la funda es retenida sobre el aparato por el ajuste firme de la funda tubular tejida sobre las protuberancias radiales.
12. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde la funda tubular tejida además comprende hilos elásticos para ayudar a remover y reemplazar la funda tubular tejida sobre el dispositivo.
13. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde un diámetro exterior de dicha protuberancia radial es aproximadamente igual al diámetro del calibre de dicho cañón.
14. El dispositivo para limpiar el cañón del arma de la reivindicación 13 donde dicha protuberancia radial se forma a partir de un polímero de caucho termoendurecible.

TRADUCCION OFICIAL No. 13/235
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

80
81

15. El dispositivo para limpiar el cañón del arma de la reivindicación 14 donde dichas protuberancias radiales se forman por sobre-moldeado sobre dicho elemento central.
16. El dispositivo para limpiar el cañón del arma de la reivindicación 1 que comprende una pluralidad de protuberancias radiales.
17. El dispositivo para limpiar el cañón del arma de la reivindicación 16 donde las protuberancias radiales forman rugosidades discontinuas.

Copia suministrada por la Oficina de Patentes y marcas de los Estados Unidos de la Base de Datos de Imágenes IFW el 11/14/2013

Expediente No. 1252_117NP

18. El dispositivo para limpiar el cañón del arma de la reivindicación 16 donde las protuberancias radiales adyacentes están dispuestas en una rotación angular progresiva alrededor de dicho elemento central.
19. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde la protuberancia radial esta orientada helicoidalmente a lo largo de la longitud longitudinal de dicho elemento central.
20. El dispositivo para limpiar el cañón del arma de la reivindicación 19 donde la orientación helicoides de dicha protuberancia radial está en la misma dirección que las estrías dentro de dicho cañón.
21. El dispositivo para limpiar el cañón del arma de la reivindicación 18 donde la pluralidad de las protuberancias hacen que la funda se encaje con las estrías dentro del cañón.
22. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde dicho elemento central se forma en un rizo natural para promover bucle lateral durante almacenamiento.
23. El dispositivo para limpiar el cañón del arma de la reivindicación 1 además comprende un material absorbente dispuesto entre dicho

TRADUCCION OFICIAL No. 13/235
JUAN PABLO PIEDRAHITA AGÜILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA

81
82

elemento central y dicha funda tubular tejida.

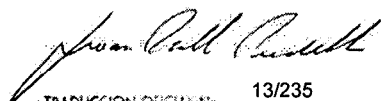
24. El dispositivo para limpiar el cañón del arma de la reivindicación 1 que además comprende un anillo de enganche para fijar la funda al elemento central.
25. El dispositivo para limpiar el cañón del arma de la reivindicación 1 donde el anillo de enganche retiene el extremo que va adelante de la funda en su lugar sobre el elemento central.

Copia suministrada por la Oficina de Patentes y marcas de los Estados Unidos de la Base de Datos de Imágenes IFW el 11/14/2013

ES TRADUCCIÓN FIEL Y COMPLETA de la cual se deja copia en los archivos de esta oficina para su confrontación y a la cual me remito.

Bogotá, Diciembre 11, 2013

1206 Palabras


TRADUCCION OFICIAL No. 13/235
JUAN PABLO PIEDRAHITA AGUILERA
TRADUCTOR E INTERPRETE OFICIAL
RES. 718 DE MAYO 2003
DEL MIN. INTERIOR Y DE JUSTICIA
Correo electrónico: juan.pablo.piedrahita@gmail.com

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800.176.089-2

- / -

126257 82
83



RECIBO DE CAJA

No. 13 - 101405

Bogotá D.C., Octubre 08 de 2013 - 15:47:12

RECIBIDO DE : BRIGARD & CASTRO S.A.

NI 860.047.372

*** Soporte del Pago ***

TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	VR. PAGO
CONSIGNACION	BANCO DE BOGOTA	062754387	594596446	08/10/2013	12.800.000.00

*** Conceptos Pagados ***

CANT.	RENTISTICO	CONCEPTO	Vr. UNDITARIO	Vr. CONCEPTO
1	50005-01-01 SOLICITUDES	82 INVOCACION DE UNA PRIORIDAD EN NUEVAS CREACIONES	175.000.00	175.000.00
				\$175.000.00

SON: **CIENTO SETENTA Y CINCO MIL PESOS MONEDA CORRIENTE***

Responsable: _____

Recibo de Caja Aplicado al Expediente No. _____

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 13-263279- -00002-0000

Fecha: 2013-12-20 16:27:58 Dep. 2020 DIR.NUEVASCR
Tra. 2 PATENTES Eve: 1 REGDEPOSITO
Act. 444 RESPUESTAREQUE Folios: 82 83

Sede Centro: Carrera 13 No. 27 - 00 Pisos 3,4,5 y 10 Bogotá, D.C.- Colombia

Web: www.sic.gov.co e-mail: info@sic.gov.co Conmutador: (571) 5870000 Fax: (571) 5870284 Línea: 018000-910165 Call Center: (571) 6513240

Octubre 8 de 2013 - 15:47:17